1-16-1981

The Diffusion of a Controversial Innovation in the Alsea, Oregon Area

Steven K. Worden
Portland State University

Follow this and additional works at: https://pdxscholar.library.pdx.edu/open_access_etds

Part of the [Place and Environment Commons](#), and the [Regional Sociology Commons](#)

Let us know how access to this document benefits you.

Recommended Citation

Worden, Steven K., "The Diffusion of a Controversial Innovation in the Alsea, Oregon Area" (1981).
Dissertations and Theses. Paper 3159.
<https://doi.org/10.15760/etd.3143>

This Thesis is brought to you for free and open access. It has been accepted for inclusion in Dissertations and Theses by an authorized administrator of PDXScholar. Please contact us if we can make this document more accessible: pdxscholar@pdx.edu.

AN ABSTRACT OF THE THESIS OF Steven K. Worden for the Master of Arts in Sociology presented February 16, 1981.

Title: The Diffusion of a Controversial Innovation in the Alsea, Oregon Area.

APPROVED BY MEMBERS OF THE THESIS COMMITTEE:

Kelly Hancock, Chairman

Lee Haggerty

Joseph F. Jones

This thesis is a report of an empirical investigation into the twin processes of adoption and rejection as they operate in the diffusion of a specific controversial technological innovation. The innovation, the aerial application of phenoxy herbicides, and its pattern of diffusion throughout the Alsea, Oregon area are examined. The processes involved are analyzed utilizing as a theoretical framework the Classical Diffusion of Innovation Model. This model is discussed in detail with particular attention being called to the social, economic, and political factors that contributed to its development and popularity. This specific model was utilized in this study for two purposes: (1) to systematically guide the attempt to understand and interpret important aspects of the

controversy in the Alsea area, and (2) to ascertain the utility and flexibility of this perspective through hypothesis testing.

The fieldwork part of the study consisted of two distinct phases (1) the gathering of background information pertaining to the rejection of the innovation, and (2) the telephone interviewing of a sample of 68 residents drawn randomly and systematically from the telephone listing of the Alsea area. In the gathering of the background information, two symposia were observed, five symposia participants were interviewed, as were seven representatives from different pro- and anti- herbicide organizations. Another twelve persons in the Lobster Valley/Alsea area were interviewed face-to-face. A total of 92 persons were interviewed either face-to-face, or via telephone with the random sample of 68 being analyzed for hypothesis testing utilizing statistical data analysis techniques.

In order to place the herbicide controversy in a larger context, population processes observed to be occurring in rural communities across the United States were examined to determine how similar population shifts might be affecting the Alsea area. The telephone interview data indicated that a "turnover" does seem to have occurred with out-migrants being replaced by newcomers who are younger, from larger cities, more mobile, slightly better educated, and are more likely to have young children living in their households. At the same time, however, many retirees have moved into the area. It was also discovered that newcomers participated very little in the social networks and community organizations of the town.

With this backdrop in mind, attention was then turned to the testing of twelve selected hypothesis derived from the Classical Diffusion

of Innovation Model. Again, only the 68 subjects chosen randomly and systematically were used. Out of the twelve hypothesis tested, two, "Lifestyle" and "Type of Industry," were found to be statistically significantly associated with the adoption of the innovation. Two other hypothesis, "Organizational Membership" and "Size of Farm," were found to be associated with adoption at a level of significance of at least 0.07. "Age," "Education," "Length of Residence," and "Family Composition" were found to have a statistically significant association with adoption, but in the opposite direction predicted by the model. It must be noted that if an "anti-herbicide" attitude were defined as the innovation of interest, four variables predicted by the model would have a significant association with innovativeness. It was therefore concluded that given the increasing diversity and heterogeneity of rural areas, and the blurring of the rural/urban distinction, the Classical Diffusion of Innovation Model has limited usefulness in locales such as the Alsea area.

THE DIFFUSION OF A CONTROVERSIAL INNOVATION
IN THE ALSEA, OREGON AREA

by
STEVEN K. WORDEN

A thesis submitted in partial fulfillment of the
requirements for the degree of

MASTER OF ARTS
in
SOCIOLOGY

Portland State University

1981

TO THE OFFICE OF GRADUATE STUDIES AND RESEARCH:

The members of the Committee approve the thesis of
Steven K. Worden presented January 16, 1981.

[REDACTED]

Kelly Hancock, Chairman

[REDACTED]

Lee Haggerty

[REDACTED]

Joseph F. Jones

APPROVED:

[REDACTED]

Charles Bolton, Chairman, Department of Sociology

[REDACTED]

Stanley E. Rauch, Dean of Graduate Studies and Research

ACKNOWLEDGMENTS

I wish to gratefully thank Linda Northrup, Mike Sheets, Bobbi Ensecki, and Lucile Worden for their support and understanding during the time that I worked on this project. I would also like to thank Professors Haggerty, Jones, and Cain for their able assistance and advice. I would particularly like to thank Professor R.K. Hancock for his remarkably persistent and patient encouragement and support.

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGMENTS	iii
LIST OF TABLES	vi
LIST OF FIGURES	ix
CHAPTER	
I INTRODUCTION	1
II THEORETICAL FRAMEWORK	3
The Evolution of the Diffusion of Innovation Model	4
On Models	9
III POPULATION PROCESSES IN RURAL AREAS	16
IV THE PROBLEM	21
The Parameters	21
The Innovation	25
Diffusion to the Alsea Area	27
V THE DESIGN AND EXECUTION OF THE STUDY	30
Background Research	31
The Sample Survey	32
The Survey Instrument	33
VI POPULATION PROCESSES IN THE ALSEA BASIN	35
VII SOCIAL SYSTEM VARIABLES AND COMMUNICATION PROCESSES	54
Social System Norms	54

CHAPTER

VII	Tolerance of Deviancy	57
	Integration of Communication and Communication Channels	61
VIII	HYPOTHESIS TESTING	76
	Hypothesis	77
IX	CONCLUSION	96
REFERENCES		104
APPENDIX		110

LIST OF TABLES

TABLE	PAGE
I Opinions on Growth According to Length of Residence	36
II Differing Perceptions of Change of Recent In-migrants and Long-time Residents	37
III A Comparison of Age Cohorts of Newcomers and Long- time Residents	39
IV A Comparison of the Ages of Newcomers and Long-time Residents	39
V A Comparison of Origins of Migrants by Length of Residence in the Alsea Area	41
VI A Comparison of Migrants' Sending Communities by Length of Residence in the Alsea Area	41
VII A Comparison of Regions of Migrants' Sending Communities by Length of Residence in the Alsea Area	42
VIII A Comparison of Newcomers' and Long-time Residents' Length of Residence in Oregon	43
IX A Comparison of Length of Residence in Migrants' Sending Communities by Length of Residence in the Alsea Area	43
X Frequency of Moving by Length of Residence	44
XI Reasons for Moving Given by Recent and Early Migrants .	45

TABLE	PAGE
XII A Comparison of the Social Integration of Newcomers and Long-time Residents	46
XIII A Comparison of Church Membership of Newcomers and Long- time Residents	48
XIV A Comparison of Incomes of Newcomers and Long-time Residents	49
XV A Comparison of Occupations of Newcomers and Long- time Residents	52
XVI Types of Lifestyles of Newcomers and Long-time Residents	62
XVII Analysis of Variance Summary Table	63
XVIII A Comparison of Positions on Herbicide According to Age	77
XIX Analysis of Variance Summary Table	78
XX Position on Herbicides According to Education	79
XXI A Comparison of Positions on Herbicides According to Number of Newspapers, Magazines, and Journals Read	81
XXII A Comparison of Positions on Herbicides According to Proportion of Friends that Live Outside the Alsea Area	81
XXIII A Comparison of Positions on Herbicides According to Frequency of Driving to a City	82
XXIV Position on Herbicides According to Size of Community of Childhood	83

TABLE	PAGE
XXV Position on Herbicides According to Membership in Organizations	84
XXVI Position on Herbicides According to Church Member- ship	85
XXVII A Comparison of Positions on Herbicides According to Frequency of Visiting Neighbors	86
XXVIII A Comparison of Positions on Herbicides According to Opinion Leadership	87
XXIX A Comparison of Positions on Herbicides According to Whether the Respondent Farms	88
XXX Position on Herbicides According to Size of Unit	88
XXXI Position on Herbicides by Gross Household Income	90
XXXII Positions on Herbicides According to Home Ownership ...	90
XXXIII A Comparison of Positions on Herbicides According to Lifestyle of Household	91
XXXIV Positions on Herbicides by Type of Industry	92
XXXV Positions on Herbicides by Length of Residence in the Alsea Area	93
XXXVI Position on Herbicides by Possibility of Children in the Future	94
XXXVII Summary Table of Hypothesis Tested	95
XXXVIII A Typology of Innovativeness	101

LIST OF FIGURES

FIGURE	PAGE
1. The Classical Diffusion of Innovation Paradigm	11

CHAPTER I

INTRODUCTION

The central theme of this paper is the issue of the adoption and rejection of an ambiguous and controversial technological innovation in a small and comparatively isolated rural community. The particular innovation, the use of herbicides such as 2, 4, 5-T and 2, 4-D to control competing vegetation in conifer forests, is considered to be an "ambiguous" innovation in light of the lack of unanimity of opinion among scientists regarding the efficacy and the safety of these chemicals. To study this particular problem in this particular community is a rare privilege and opportunity because of the worldwide attention that has focused upon the herbicide controversy which originated in the Alsea area.

This conflict could be profitably studied using a variety of sociological explanatory systems such as collective behavior or social movement theory. However, this study employs a traditional explanatory framework, applying it to a perceived "deviant" case, and thereby learning not only much in descriptive terms about the controversy but simultaneously evaluating the flexibility and utility of a respected mainstream sociological research tradition.

This strategy of this analysis consists in first examining the development of diffusion theory, with particular attention being paid to the classical diffusion of innovation model, as it has come to be known. Secondly, an overview of population processes currently transforming the social and demographic composition of rural communities

will be presented. Thirdly, the general features of the diffusion of innovation in the Alsea area will be investigated. At that point, the data that were gathered in a study conducted in the area will be examined to determine if the same social and demographic processes observed to be operating on the national level are evident in this controversy over the use of herbicides. These community socio-demographic and attitudinal characteristics will then be integrated, along with other data, into the classical diffusion of innovation model, recasting it into a present day, actual context. In the process of doing so, the operation of channels of communication internal and external to the community, specific community norms, and the tolerance of deviancy within the community will be considered.

Finally, once the empirical processes are delineated and clarified, the data gathered concerning the characteristics of adopters, rejecters, and those indifferent to the innovation, will be utilized to test selected hypotheses derived from the classical diffusion of innovation model.

CHAPTER II

THEORETICAL FRAMEWORK

Social change has been defined as "the process by which alteration occurs in the structure and function of a social system" (Rogers and Shoemaker, 1971:7). Theories of social change, according to Rose (1980) consist of four types: (1) evolutionary theories, (2) dialectical theories, (3) cyclical theories, and (4) factor theories. The first category includes Spencer's theory of the evolution of societies. An example of the second category is Marx's theory of the class struggle; Sprokin's theory of social and cultural dynamics is illustrative of the third type; and diffusion of innovation belongs in the last category. The uniqueness of diffusion of innovation lies in the belief that the source of social change is not in large, inevitable, and historic forces but rather is traceable to the simple presence or absence of factors. A complete explanation of social change, of course, would involve the examination of the phenomenon of invention as well as an inquiry into the consequences of the diffusion of innovations. Some of the consequences of the diffusion of a specific innovation will be addressed, but it is well beyond the scope of this paper to delve into arguments involving parallelism, the "psychic unity of mankind," and other issues germane to the discussion of invention, per se (Hagerstrand, 1938). Instead, this paper will examine the traditionally important "classical theory of innovation" and, in light of recent population processes occurring in rural social systems, suggest a possibly more innovative

application of the model.

THE EVOLUTION OF THE DIFFUSION OF INNOVATION MODEL

As Hagerstrand (1938: 174) observes, a society is an ordered system in which all individuals and material equipment are components.

If in a subregion of the system a hitherto unknown element is introduced, say, for example, a new technical device, a new way of allotting social roles, or a new cultural manifestation, this event constitutes a perturbation that under certain conditions may be transmitted out into the surrounding regions and propagate itself until eventually the whole system has become permeated and at the same time to some degree transformed. A permeation of this kind, either partial or total, is known as a diffusion of innovation.

Katz, et al. (1963: 237) detailed more fully the process of diffusion of innovation, defining it as:

the (1) acceptance, (2) over time, (3) of some specific item - an idea or a practice, (4) by individuals, groups or other adopting units, linked to (5) specific channels of communication, (6) to a social structure, and (7) to a given system of values, or culture.

Rogers and Shoemaker (1971: 34) elaborated the concept of the "specific item" or Hagerstrand's "element" more precisely into an "innovation" which was an "idea, practice, or object perceived as new by an individual" (emphasis added). They insisted that the crucial quality of an innovation is not its "objective newness" or the fact that it is new knowledge, but that even though the innovation may have been known to the individual for some time, the person has not developed either a favorable or an unfavorable attitude toward it.

The diffusion of innovation model, herein referred to as the "classical diffusion model," can trace its existence back to the musings of Herodotus in the fifth century B.C., but its empirical tradition really began with the work of the early anthropologists, who as Katz

(1963: 238) wryly noted, "were greatly impressed with the significance of diffusion, even overly impressed." Fortunately, American anthropologists eschewed the European diffusionists' grand theories of cultural development, being content to attend to the humbler task of studying the spread of specific items.

The study of the diffusion of innovation has experienced alternating periods of dormancy and intense interest. In the 1920's and 1930's sociologists studied the diffusion of innovations such as the city manager plan, the third party movement, and the ham radio. After languishing in the 1940's, keen interest in the diffusion tradition developed simultaneously in several different disciplines.

It was in the field of rural sociology that diffusion research really exploded. Since the Second World War, American agriculture has been passing through an unprecedented period of revolutionary growth fueled by the rationalization and industrialization of farming practices. Because most of these new farming practices were developed through research performed at central points such as land grant colleges and urban private industries, the dissemination of these new practices throughout the rural subregions became of paramount importance for manufacturers, the United States Department of Agriculture (USDA) its extension agents, and "rational" farmers.

Research in diffusion has had a great potential in American agriculture because of rural sociology's historic interest in "social engineering" which stressed empirical facts, the utilization of the scientific method, and an approach which was problem oriented.

As early as the 1920's the USDA supported research on diffusion campaigns and their effectiveness, but it was Ryan and Gross's (1943)

classic "Hybrid Corn Study" that earned new respect for the study of the diffusion of innovation. Revealing new areas to be explored such as the relationship between cosmopolitaness, the social characteristics of adopters, types of adopters, and channels of communication, tantalizing leads were developed to be followed up by subsequent researchers encouraged and funded by the USDA, private industry, and colleges. Funds were available.

Revealing a remarkable lack of cross-fertilization between disciplines, research was also being conducted at this time, in the early 1950's, by workers in medical sociology and education. Just as commercial sponsors saw the merit of funding research in rural sociology, the pharmaceutical firm of Charles Pfizer and Company provided funds for Coleman, Katz, and Menzel in medical sociology to carry out their classic study of the diffusion of "gammanyn" by physicians. An important facet of the study, the researchers' gaining access to drugstore prescription records, enabled them to rely upon objective data rather than just the physicians' recall of when they started prescribing the drug. Interviews also resulted in sociometric data on opinion leadership and the precise channels of the spread of the drug through the physician community.

Coleman, Datz, and Menzel's study, Medical Innovation: A Diffusion Study (1966), like that of Ryan and Gross's, stimulated great interest among medical sociology researchers, particularly in application to the study of the diffusion of family planning practices. The insights gained from the "drug study" confirmed the validity of the "two-step" theory of communication first noted by Lazarsfeld (1944) and his associates in their study of the 1940 presidential elections, revolutionizing the

then-current communication theory, and challenging the mass-society perspective.

In the 1950's, educational researchers were very enthusiastic about new research being done on the spread of new educational practices. Fed by (a) a widely perceived time lag between innovations and adoptions, (b) the hysteria in the educational community in the wake of Sputnik, (c) the new emphasis middle class parents placed upon education, and (d) concern over national defense in general, educational research responded with alacrity. Under the sponsorship of powerful agencies, innovations studied included modern math, driver training, and kindergartens (Rogers and Shoemaker, 1971). The diffusion of innovation perspective was also held in very high esteem by theorists who were heralding the "end of ideology" or the "end of class conflict" (Matras, 1975).

In addition to the studies being conducted in the United States, research was also being conducted abroad, an example being Sharp's (1952) noteworthy contribution to the study of dysfunctional consequences with his anthropological analysis of the effects of the steel ax on aboriginal tribe.

During the late 1950's and mid 1960's the applied aspects of diffusion research came to be utilized in attempting to ameliorate social problems domestically and to encourage the modernization of underdeveloped countries to the so-called "take-off point." However Goss (1979) notes that "crosscultural application of diffusion principles to agricultural development programs in underdeveloped nations has been associated with instances where consequences have been undesirable." Beltran (1976: 759) argues that this is a result of the origins of diffusion theory:

Certain general assumptions, explicit or not, were made in and for the situation of highly developed countries (such as the United States) and then uncritically applied to the different conditions of Latin America and other countries. One basic assumption of the diffusion approach is that communication itself can generate development regardless of socio-economic and political conditions. Another assumption is that increased production and consumption of goods and services constitute the essence of development... A third assumption is that the key to increased productivity is technological innovation, regardless of whom it may benefit and whom it may harm.

It was during the 1960's, however, that the first systematic attempt was made to synthesize all the research on a multitude of innovations in the United States and abroad, into "a single integrated body of concepts and generalizations" (Goss, 1979). Somewhat paradoxically, it was also during this period that the enthusiasm for researching innovations appeared to wane. The generating of knowledge, argued Goss (1979), "appears to have reached a watershed in the late 1960's. According to a recent bibliography....the annual frequency of diffusion research increased until about 1968, and has declined since then."

It is a puzzle for sociology of science as to why work in an empirical tradition decreased after it appeared to be achieving normal science (Kuhn, 1970) status. Widespread disillusionment with technological progress, discouragement with seemingly intractable social problems domestically, and the ideological deinstitutionalization of the "modernization school" (Horowitz, 1979) as an effective policy orientation toward international social change, all probably contributed to this decline.

In spite of diffusion research's lack of popularity with social science researchers, Rogers and Shoemaker's synthesis is useful because, in accordance with Hoover's (1980: 56) criteria, it (a) provides a

pattern for the interpretation of data, (b) links one study with another, (c) supplies a framework with which concepts and variables acquire special significance, and (d) allows us to interpret the larger meaning of our findings for ourselves and others. The integrated set of concepts and generalizations that meets these criteria has become known as the "classical diffusion of innovation model."

ON MODELS

In spite of the vagaries in its development, the study of the diffusion of innovation has retained its original scope. Rural sociology in general has always emphasized the empirical analysis of "social facts," attempting Mertonian "middle range" theory construction by reconciling theoretical concepts with empirical referents.

In doing so, it has been argued, research becomes related to theory and theory, in turn, becomes related to research. Concepts such as "innovativeness" are related to other concepts such as "cosmopolitaness" in what Rogers and Shoemaker term a "theoretical hypothesis." This theoretical hypothesis is tested using an empirical hypothesis which utilizes empirical referents that through an "epistemic relationship" are as isomorphic as possible with the concepts (Rogers and Shoemaker, 1971: 89). In attempting to operationalize the concepts, these empirical referents can be scales, indexes, or answers to direct questions.

Basically, the classical diffusion of innovation model resembles in form the S-M-C-R-E model of communication. Source (inventors, scientists, change agents, etc.), message (perceived attributions, relative advantage), channel (mass media, interpersonal), receivers (members of a social system) and effects (knowledge, attitude, behavioral

change) (Rogers and Shoemaker, 1971: 18-19).

Rogers and Shoemaker (1971: 102) elaborated this model into a "Paradigm of the innovation-decision process." "Antecedents," "Process," and "Consequences" form the three main phases in the overall process. "Receiver variables" and "social system variables" are Antecedents. Variables such as (a) personality characteristics (e.g., general attitude toward change, etc.), (b) social characteristics (e.g., cosmopolitaness), and (c) perceived need for the innovation, are receiver variables. Social system norms, tolerance of deviancy, communication integration, as is "et cetera" are social system variables.

Within the section called "Process" there are communication sources sending stimuli through the channels, impacting differentially depending upon the stage of adoption. The stages are called (1) Knowledge, (2) Persuasion, (3) Decision, and (4) Confirmation. The aforementioned receiver and social system variables, directly through contact and indirectly through selective perception, determine in a large part, the knowledge the individual receives when the individual is exposed to the innovation and gains some understanding of it.

Persuasion, the second stage, is the product of information passed through channels from the communication sources, knowledge, and the perceived characteristics of innovations. These last include (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability. The individual uses these types of inputs in forming attitudes toward the innovation.

After passing through the two previous stages, making minidecisions along the way, it is in the third stage, Decision, that the individual "engages in activities which lead to a choice to adopt or reject the

FIGURE 1

This diagram does not show the consequences of the innovation, merely the consequences of the process.

(after Rogers and Shoemaker, The Communication of Innovation, 1971)

innovation" (Rogers and Shoemaker, 1971: 103). Trialability is one of the important factors in the decision stage. The probability of rejecting the innovation is increased if the innovation cannot be divided into smaller pieces for trial on a limited basis. Rejection, which is either optional (uncoerced, individual), collective (the majority of social system members involved), or authority based (coercively directed), leads to either later adoption or continued rejection. Adoption, leads to either continued adoption or discontinuance. Discontinuance can be either replacement, in which a previously adopted idea is superseded by a better idea, or disenchantment, the discarding of an adopted idea because of dissatisfaction (Rogers and Shoemaker, 1971: 103-111).

Confirmation, occurring in the "Consequences" phase of the diffusion of innovation, is the stage at which a person, or a group, having made a decision, attempts to prevent dissonance by seeking reinforcement. Reversals, however, may occur if there are conflicting messages about the innovation (1971: 103).

Rogers and Shoemaker (1971: 174-195) have also developed, by transforming a cumulative S- curve of adoption into a bell-shaped frequency curve, five ideal types of Adopter Categories which are exhaustive, mutually exclusive categories representing the five standard deviations about the mean. These are called Innovators ("venturesome"), Early Adopters ("respectable"), Early Majority ("deliberate"), Later Majority ("skeptical"), and Laggards ("traditional"). They argue revealingly,

Alienation from a too-fast-moving world is apparent in much of the laggard's outlook. While most individuals in a social system are looking to the road of change ahead, the laggard has his attention fixed on the rearview mirror (1971: 185).

While the contribution Rogers and Shoemaker made in attempting to integrate the findings of over 1500 empirical reports has been recognized by most researchers, there have been some criticisms levelled at the classical diffusion of innovation model. These criticisms have usually centered around (a) the model's psychological bias, (b) internal problems concerning categories and stages, and (c) the pronounced narrowness of the research tradition it has fostered.

Ramsey, Polson and Spencer (1959: 35), Beltran (1976), and Goss (1979: 759) argued that the

main limitation of the classical diffusion model was its insensitivity to contextual and social-structural factors in Society... that is, an individualistic or psychological bias."

Rogers himself later (1973) acknowledged this bias. Jones (1973: 75) faulted the model for inadequately considering the consequences of innovation, in spite of the discussion of functions and dysfunctions included in the last chapter of Rogers and Shoemaker's Communication of Innovations (1971). Campbell (1966) and Goss (1979) also critiqued the overly rationalistic picture of the decision making process. As Coughenour (1973: 75) notes,

Most social theorists, I believe, regard "decision" as an action rather than a consequence thereof, and the effort to associate the four so-called functions with processual stages is not convincing.

Klonglan and Coward (1970) disagreed with the stages of adoption scheme, feeling that more consideration ought to be given to symbolic adoption, Presser (1969: 513) also felt that the category of innovator has artificially restricted parameters.

The third criticism, the narrowness of research, would seem to be the most damning indictment of the model. Its psychological orientation

may be rectified, stages and categories may be clarified, but the narrowness of research, the result of major institutional orientations, is much more difficult to correct.

Recalling the earlier criticisms of rural sociology in general, Cougheneour (1973), Jones (1973), Pampel and van Es (1977), Taylor and Miller (1978), insisted that rural sociology, diffusion theory, and diffusion research have not adequately studied the adoption of environmentally beneficial practices, charging that there exists a bias toward technology in much of the research.

Jones (1973) and Zaltman and Duncan (1977) argued that very little attention has been given to either rejectors or resistance to change, with most of the research addressing adoption only. Jones (1973: 73) pointedly declared:

Unfortunately, the empirical research literature until recently has contained relatively little about rejection, either as a fact or a process. This undoubtedly reflects the initial (and much continuing stimulus to American research on the sociological aspects of agricultural innovation, in which crudely stated, the basic, and very meaningful questions were: "how effective has the extension effort been in disseminating information on and in influencing the acceptance of new practices" and "what are the factors related to adoption?" These questions are ethnocentric, but their use has diffused widely.

Rogers and Shoemaker, to their credit, acknowledged these criticisms and conceded that the stages and their functions may occur in a different order, or be skipped entirely, depending upon the innovation and the individual (1971: 121). Rogers also later (1973) acknowledged the criticism concerning the individualistic bias, and called for a rejection of the technological bias in the researching of diffusion.

It now seems timely to update the classical diffusion of innovation model and place it in the contemporary sociocultural context or rural

America. Much has changed in agriculture since 1941 when Neal Gross was a young graduate student accosting Iowa farmers in their barnyards at daybreak. In order to prevent this research tradition from decaying into an irrelevant anachronism, it is necessary that these changes be recognized and integrated into the diffusion of innovation model.

This study hopes to be a first tentative step in reorienting the tradition in the direction of addressing the more challenging task of analyzing the processes involved in the diffusion of controversial and ambiguous innovations. First, the changing rural migration processes which are now transforming rural America will be explored and their theoretical implications discussed. Secondly, the effects of this transformation will be examined in concrete detail as they impact upon one rural community: the Alsea Basin area of the state of Oregon. Thirdly, these concrete effects will then be integrated into a classical diffusion of innovation framework as social system variables and communication processes. Lastly, important empirical hypothesis derived from the model will then be tested. The results of this hypothesis testing will then be interpreted in order to gain a partial understanding of the acceptance and rejection of contemporary innovations in a changing rural America.

CHAPTER III

POPULATION PROCESSES IN RURAL AREAS

In remarking upon the emerging ubiquity of the urban environment, Palen (1979: 146) observed,

Our rhetoric still glorifies small-town life styles while bemoaning the vices of the big city--long after both, in the stereotypical form, have ceased to exist.

That these forms have ceased to exist is the consequence of large societal-level changes which have contributed to the dispersion of population. Elaborating upon Servan-Schreiber's (1967) delineation of the intensification of human experience accompanied by reduced demand for face-to-face contact, both of which are caused by new communication technology, Berry (1973: 55) explains,

The body can, therefore, be located where it finds the non-electronic experiences most satisfying, and thus the second part of the change--increasing localism.

Already population is trending accordingly. Settlement patterns are spreading broadly over the continental landscape, localized at those places where the climate and the landscape are the most pleasant.

Because non-electronic experiences are very satisfying in rural environments, we are witnessing the "Turnaround." The "Turnaround" has been called the most significant demographic change of the century (Schwarzweiler, 1979) because of the amazing reversal in the direction of migration that has occurred since the late 1960's. In contrast to the practically depopulating decline in rural areas in the 1940's and

1950's, rural areas in the 1970's actually gained in population relative to urban areas. Between 1950 and 1960, over 5 million people left rural areas and were not replaced. This trend moderated in the 1960's possibly because the number of potential migrants left in rural areas was exhausted. In any case, slightly less than 3 million people left rural areas without being replaced.

It became evident in the 1970's that major population processes were changing. In contrast to the pattern of population distribution in which rural areas experienced very large amounts of net outmigration, in the 1970's it was noticed that so many people were moving to rural areas that these nonmetropolitan counties were experiencing a net in-migration. In a mere three years, from 1970 to 1973, there was a net immigration into rural areas of about 1.2 million people (Schwarzweiler, 1979: 10).

The idea of the "Turnaround" or more prosaically, counterstream migration, is not new. The notion of a counter-current was set forth in the 1880's and of course, just the definition of a migrant stream as "the movement of people along well-defined routes" (Campbell and Johnson, 1976: 128) inherently implies the possibility of movement in the opposite direction. This can take either one of two forms: the return migration of former residents to the area, or the primary migration of new people to the community of destination. For our purposes, it is enough just to study the counterstream migration phenomenon in general terms as the subjects surveyed who were immigrants to the Alsea area were nearly all primary migrants, suggesting that return migration be a much more pertinent aspect of the Turnaround in other areas of the nation.

In attempting to establish some of the characteristics of these

primary migrants in comparison to residents of destination communities such as the Alsea area of Coastal Oregon, Campbell and Johnson (1976: 130-140) offer some useful propositions from migration research to consider: (a) Age: "Primary migrants have a wide variation in age." A significant number of primary migrants are between twenty and forty and another large number was of retirement age; (b) Family composition: "Primary migrant family composition closely resembles the composition of families in the total population of the destination communities..." This means that there were more complete families among the primary migrants; (c) Education: "Primary migrants have a higher median number of years of schooling completed than... the total population in the community of destination," and (d) Occupation: "Primary migrants are more likely to be engaged in professional or skilled occupations than the total population of the community of destination."

Other analysis of the Turnaround similarly focus upon the same types of variables with only some modification of the details, emphasizing where the growth is occurring, the motives for migration, and the consequences for the receiving communities.

Edith Graber (Graber, 1974: 509), in her study of a Colorado mountain town noted that in comparison to "old timers," "newcomers" are characterized by a higher level of education, are younger, and more likely to commute to a job out of town. The mountain towns do seem representative of the kinds of places that are growing. Schwarzweller (1979: 12) indicated that many of the rapidly growing areas are those that have a special appeal to retirees and vacationers. They offer scenery, outdoor activities, and "the promise of a stressfree way of life" (1979: 11). Much of the new growth, as much as two-thirds,

according to Calvin Beale (1975: 953), is occurring in areas adjacent to and/or within commuting distance of metropolitan areas. This is known as "flight to the fringe," the "adjacency effect," "spillover growth" or "urban splatter" (Schwarzweiler, 1979: 13).

Primary migrants move to rural areas for four major reasons, argued Ivan Light (1980: E19). One reason being the increased demand for energy and agricultural products. More people are working in this area as mechanization has slowed and demand has accelerated. Light's second source of migrants, the retired, seems particularly descriptive of small towns such as Alsea. These people seek not farms but an area with a lower cost of living. People who will make a financial sacrifice to achieve quality of life comprise Light's third source of migrants. The fourth classification of migrants consists of service industry employees that have migrated to small towns to meet the need for services fostered by the demands and pressures resulting from the other three groups.

Schwarzweiler (1979: 18) sees such factors as increased per capita disposable income and more generous federal and private retirement plans facilitating the movement of people to where they wish to live: in small towns and rural areas. He insists, however, that noneconomic reasons play a very important role in the decision to migrate to a non-metropolitan area.

Robertson and Robertson (1978: 17) summed up the noneconomic aspects, declaring that they were:

...convinced that the environmental and "back-to-the-land" movements of the sixties and early seventies were spreading through the middle class (many of those we interviewed were recent transplants from large communities); that America was going to come home; that the institutions against which we raged in the sixties would be rebuilt; that we would

learn how to live as neighbors once more; and that the small rural communities were the places to do all this.

Later the Robertsons abandoned this innocent vision, realizing that it was an oversimplification, and warned that the migration of urban populations to rural communities leads to the wreaking of "a kind of cultural havoc" with the result that "rural communities will be forced to abandon the traditional qualities that we most seek in them: (Robertson and Robertson, 1978: 19).

Hennigh (1978) examined, as a manifestation of this "cultural havoc," the opposition to school budgets in small rural towns in Oregon. Hennigh perceived this opposition as not being a matter of economics but rather the result of dramatic changes in ongoing social processes in the community. Hennigh argues (1978: 189) that,

as newcomers who want to participate in ongoing social processes move into an area, formal organizations proliferate and representation of their members by traditional leaders declines. People feel threatened by loss of control over their own political destiny. They either withdraw support from leaders or, when that fails, rebel against them... Schools are the most structurally constrained from making accommodation and so receive the most severe public rejection.

This interfusing of the rural with the urban-- whether interpreted in terms of "being doomed to repeat in small communities, the very mistakes we made in larger ones," (Robertson and Robertson, 1978: 19) or the "renaissance," "revival," and "rebirth" of nonmetropolitan America (Schwarzweiler, 1979: 17), or as setting the stage for future rebellions-- offers exciting new areas for investigation by researchers working in the tradition of the diffusion of innovation. With this knowledge and awareness of the demographic transformation of the rural scene in mind, the next step is to study in concrete detail these processes in action as they affect a specific case involving the adoption and rejection of an innovation.

CHAPTER IV

THE PROBLEM

Introduction

In order to understand this case of the resistance to the diffusion of an innovation, it is necessary to first examine the physical parameters of the controversy, considering both physical and social barriers to innovations, the innovation itself, and a brief synopsis of the events surrounding its diffusion and resistance in the Alsea area.

THE PARAMETERS

Alsea, Oregon, situated in a small valley in the Coast Range, is a beautiful, unincorporated town of less than 900 people, counting those in the surrounding countryside. Located in a green scenic area, it enjoys a mild, moist marine climate, with an annual precipitation of between 10 and 120 inches (USDA, 1980). This precipitation usually is in the form of a seemingly continual drizzle, resulting in gloomy and gray, overcast days for as much as nine months of the year. Residents often take a quiet and perverse pride in the climate, maintaining that only certain people can adjust to the climate and those that stay either live with the rain with patience and humor or become psychologically disturbed.

Vegetation such as Sitka spruce, western hemlock, western red cedar, Douglas and grand fir, and red alder thrive in the moist temperate climate. Unfortunately for wood fiber production, many brush species and "weed trees" vigorously compete with the "timber crop" species for

available light, moisture, and nutrients (USDA, 1980).

According to long-time residents of the Alsea area, in the 1920's and 1930's the valley boasted a sizable population and a solid economic base built upon a thriving dairy industry. As economic conditions deteriorated, an outmigration pattern ensued, depleting the area of population.

For the past twenty years, the population of Alsea has not changed very much in a numerical sense. Some of this stability in the population of the town can be accounted for in two very different ways: physical barriers, and zoning restrictions. Even though Alsea is separated by 30 miles from Corvallis, a small college city of over 40,000, the linking road snakes its way so tortuously through the Coast Range that the drive can sometimes take as much as an hour. Some of the people of Alsea recognize the twin functions of this twisting road: it allows easy access to Corvallis for services and groceries, yet it discourages taking more than one or two trips a week. Consequently, Alsea's attractiveness as a bedroom community for Corvallis is reduced. That some people define the road as a protective barrier is evinced when proposals are made to straighten out some of the curves in the road. Many residents view these attempts with unmistakable hostility and suspicion. Similarly, efforts to pave some of the gravelled secondary roads in the area have also been greeted with a conspicuous lack of enthusiasm. Petitions, in fact, have been circulated in opposition to road improvements. In view of this opposition and the rising price of energy, the Alsea area is likely to remain somewhat isolated.

It could be argued that an even more important factor contributing to the town's apparent stability of population is the restrictive zoning

of the area. Due to the community's inability (or unwillingness?) to process sewage, it is extremely difficult to obtain a building permit to build a new dwelling in the town. This is so difficult, in fact, that one respondent (interview, 1980) observed that one house has to burn down before another can be built.

Almost equally restrictive are the statutes of the state of Oregon's Land Conservation and Development Commission (LCDC). Attempting to save existing farmland and preserve it for agricultural use in the future, the commission formulated a comprehensive plan in the early 1970's. This plan stipulated that no agriculturally zoned land could be sold in lots smaller than twenty or forty acre parcels, depending upon its location.

Another restriction covering land use was recently proposed under Greenway legislation. This legislation, designed to protect scenic waterways, was thought by some to require a farmer to obtain permission from a state agency to make any changes on his property lying within 100 yards of the Alsea river. This, it was claimed, would have included plowing, planting, cutting, etc. The proposed legislation would have encouraged, through the selective siting of recreational facilities on the river, more recreational use of the river. Put more plainly, "city people" would then be coming in and using the river, intruding in on the determinedly homogeneous, undifferentiated "space" of the locals.

When the sewage-related restrictions were enacted, some ambivalence and grumbling were expressed by the citizenry. This discontent became more pronounced and strident with LCDC's restrictions on the size of lots. This was more serious because most farmers believed it impossible to make a living farming only forty acres. It would have been possible,

though, to subdivide up a pasture or two to provide a little extra retirement income. Many farmers were planning on doing this or, at least, setting aside a few acres for the children to come and live on when the parents became old.

The anger that was expressed over the first two actions was comparatively mild viewed in the context of the outrage accompanying the opposition to the Greenway. Here, it seemed, was a fiendish plan that went straight for the vitals of the most sacred tenets of agrarianism: the right to do what you want on your own land without asking anyone's permission, and the right to be left alone. Sharply reminiscent of Vidich and Bensman's (1958) analysis of a small town being stripped of its powers by an impersonal mass society, the locals in Alsea saw their sacred property rights being arbitrarily discarded by elitist, urban bureaucrats. As it turned out, the Greenway plan was shelved in light of the fierce opposition that it provoked. In this controversy, a classic clash pitting the country against the city, everyone in the Alsea valley came together-- young and old, liberal and conservative, newcomer and old-timer-- to fend off the invaders. Although this controversy demonstrate the unity that might be fostered by conflict, other conflicts involve cleavages within the community cutting along old antagonisms. The resistance to the diffusion of innovation is a good example of a controversy involving not only specific elements such as herbicides, but also seems to be a controversy stemming from what Coleman (1957: 6) described as "bases for response." These bases for response are economic interests, values, and power, etc., which Coleman argued provide the initial driving force in a dispute. These bases for response resemble quite closely Rogers and Shoemaker's (1971) antecedent

variables. Continuing with the classical diffusion of innovation model, we should examine the innovation in question and its diffusion to the Alsea area.

THE INNOVATION

The phenoxy herbicides-- 2, 4, 5-T, 2, 4-D, and silvex-- are synthetic growth hormones which were discovered in 1942. They possess the interesting property, used in the right concentrations, of causing plants to literally grow themselves to death. This useful ability made them soon invaluable in farming where herbicides could cut fuel-consuming tillage, reduce erosion, and conserve soil moisture. During a season of farming it is estimated that herbicides can reduce from 60 hours to 12 the time needed to keep an acre of corn free from weeds (Boraiko, 1980: 178). These herbicides, of such obviously superior technology, were studied by the diffusion of innovation researchers both in the U.S. and in Latin America (Lionberger, 1953).

Although Rachel Carson warned about the hazards of 2, 4-D in Silent Spring (1962), most of the attack was directed at pesticides, not herbicides. According to Davis (1979: 84), concern about herbicides was not voiced until the war in Vietnam. He observed,

The herbicide industry, particularly that portion associated with the phenoxy herbicides, was given a tremendous boost by World War II, but may have been mortally wounded in the war in Vietnam.

In Vietnam, Agent Orange (a 50-50 mixture of 2, 4, 5-T and 2, 4-D) and Agent White (2, 4-D and Picloram) were liberally sprayed from U.S. Air Force planes along main roads and streams. This defoliation was done with the intent of denying cover to the enemy from which to launch ambushes (Davis, 1979 and Bitsas, 1977).

It has since been demonstrated that both Agent Orange and 2, 4, 5-T contain as a contaminant in manufacturing, the chemical TCDD, also known as Dioxin. Agent Orange, in particular, contained "extraordinary" amounts of TCDD (Boraiko, 1980: 178). Called the "deadliest man-made molecule ever assembled," one account declared that one ounce of dioxin would be enough to kill 800,000 people (Bitsas, 1977: 3). Arthur W. Galston (1979: 87) noted that

In view of the fact that TCDD has recently been shown to exert deleterious effects on laboratory rats and primates in the parts per trillion range (ppt), even the lower levels pose potential health hazards. This danger is heightened by the apparent extreme biological stability of TCDD and its reported appearance in animals and man following spraying of range and pastureland... it is difficult to avoid the conclusion that a sizable number of Americans may be at risk because of chronic low-level exposure to TCDD in their diet.

Even as early as 1969, the National Academy of Science/National Research Council had received a report indicating that 2, 4, 5-T showed a significant potential to cause birth defects (Davis, 1979: 92). A few months later, the report was leaked to the press, purportedly by one of Nader's Raiders. This led to accusations of a cover-up, especially in view of the stories being printed at the time in Saigon papers describing an increase in the number of birth defects reported in Saigon hospitals. This increase might simply have been due to the increased number of doctors in the area. Also, no herbicide spraying had been done around Saigon (Davis, 1979: 93).

However, in early 1970, the secretaries of the Department of Health, Education, and Welfare and the United States Department of Agriculture suspended all uses of 2, 4, 5-T in lakes, ponds, and on ditch banks; all uses on food crops except rice were also suspended. Later, in 1971, a 2, 4, 5-T Advisory Committee met for over a year and

prepared a report for the administrator of the Environmental Protection Agency recommending that 2, 4, 5-T be restored to use providing that it contained no more than 0.1 parts per million of dioxin.

This report was criticized in Science magazine, triggering a wave of letters to the editor. Later, an article in The New Yorker as well as a book on the Serveso disaster, The Poison That Fell From The Sky, may have acted to keep the question of the safety of 2, 4, 5-T in the public mind (Davis, 1979: 94). Davis (1979: 95), in commenting upon the public opinion about herbicides, compared the present attitude to McCarthyism noting,

There is a general climate of fear that surrounds agricultural chemicals... McCarthy was able to accomplish these injustices only because the general public was very worried about communism at that time... There is a close parallel between what was happening then and the situation now: we seem now to be suffering a similar paranoia concerning agricultural chemicals.

THE DIFFUSION TO THE ALSEA AREA

Unquestionably, herbicides have been used in the Siuslaw forest for decades; however they were applied for the most part with back-pack or "hack and squirt" technology. The county and state road crews also routinely sprayed the roadsides to clear them of weeds.

By the 1970's, because of increased demand for timber and new efforts to replant old logged areas which had gone back to brush, techniques learned in Vietnam to defoliate jungles became a regular part of intensive forest management. The Bureau of Land Management, the U.S. Forest Service, and private timber companies utilized helicopters in site preparation before replanting and to "release" replanted seedlings from competing species of plants. The aerial application of

herbicides in the Alsea Forests reached a peak in the 1975-76 season. According to foresters at the Alsea Ranger Station, use of herbicides declined after then because of "political pressure" (interview A, 1980). Still, in 1978, herbicides were applied to over 150,000 acres in the state of Oregon (Kiesling, 1979).

Since the ban imposed in 1970 exempted forests, and the areas surrounding Forest Service and Bureau of Land Management land were sparsely populated or unpopulated, little thought was apparently given to citizens' resistance to this technology. However, the helicopters were a conspicuous sight and people began to take renewed interest in this form of technology. It was also the U.S. Forest Service's policy to notify residents of adjacent land with a hand-delivered letter that nearby Forest Service land was to be sprayed. Conceivably this could not only be construed as a frank admission of the hazards of the technology; it could have also increased the residents' sensitivity to their health in the period following the spraying.

In a rapid train of events, an organization called Citizens Against Toxic Sprays (CATS) was formed in 1975 in a small community just over the ridge from Alsea. A year later, in 1977, CATS took the Forest Service to court and won. In the Alsea area, eight women were asking the Environmental Protection Agency to determine whether there was a link between their miscarriages and herbicide spraying. This resulted in the Alsea I and Alsea II studies and the subsequent temporary ban which the EPA placed on 2, 4, 5-T.

The Forest Service, scientists at Oregon State University, scientists at Dow Chemical Company, and representatives from most private timber companies are in agreement on the opinion that this step represents

the triumph of politics over science and logic. As the state Department of Agriculture (Keisling, 1979: 6) reportedly declared, the herbicides are "safe, effective, and necessary." The U.S. Department of Agriculture is still so convinced of the safety and need for 2, 4, 5-T that it entered the cancellation proceedings as an intervenor for Dow Chemical Company and against the Environmental Protection Agency (Van Strum, 1979: 47).

In summary, this case of the resistance to the diffusion of innovation presents us with a rich combination of variables which can be studied: (a) a possible conflict of pattern in the immigration to the area; (b) differing degrees of communication integration and support of social system norms by aggregates; (c) differing communication sources and channels; (d) differences in receiver variables of rejectors and acceptors of the innovation; and (e) greatly differing perceived characteristics of the innovation itself.

This controversy offers an almost unparalleled opportunity to update the classical diffusion of innovation model by taking into account the hitherto unrecognized impacts of rural demographic changes and the added factor of an controversial innovation.

With these factors in mind, we will now direct our attention to (a) a description of the study carried out; (b) a report on the population processes occurring in the area; and (c) how these processes are impacting upon social system variables such as norms, tolerance of deviancy, and communication integration.

CHAPTER V

THE DESIGN AND EXECUTION OF THE STUDY

In order to learn why people in the Alsea area either accept or reject this innovation, it is necessary to gather empirical data pertaining to (1) demographic shifts in the area and their consequences, and (2) attributes of the residents of the area and their attitudes toward the use of phenoxy herbicides. These data will then give us a meaningful description of the conflict as well as be utilized in the testing of important hypothesis derived from the classical diffusion of innovation model.

The Study

The study consisted of two distinct phases: (A) the gathering of background information pertaining to the rejection of herbicides, and (B) the telephone interviewing of a sample of residents drawn randomly and systematically from the telephone listing of the Alsea area. The background research was conducted in order to (1) gather some notion of the vocabularies and the parameters of the debate, (2) learn more about demographic changes in the area and their implications, (3) understand the importance of interpersonal communication networks in the transmission of ideas about the rejection or acceptance of herbicides, and (4) understand the values and norms of the social system as perceived by residents of the Alsea area.

The Setting

The Alsea valley area recommended itself as a setting for this study of light of the following considerations: (a) the Alsea area was the site of the landmark Alsea I and II studies conducted by the Environmental Protection Agency to determine if there existed a relationship between the spraying of herbicides and miscarriages; (b) the impact of the local conflict on national policy regarding herbicides; (c) the extraordinary attention devoted to the area by the media; (d) the limited scope and density of interpersonal interactions within the area because of its relative isolation; and (e) the researcher's acquaintance with the area and some of its residents. The area around Alsea was also chosen because it was thought that a combining of both the small town and its outlying areas would provide the greatest diversity of attitudes, occupations, and lifestyles.

BACKGROUND RESEARCH

In gathering data concerning the herbicide controversy in general, symposia held in January and March 1980, were attended and taped as were four interviews with different participants. Another lecture by a Forest Service representative was also attended with a short interview conducted afterwards. Representatives from the Western Environmental Trade Association, the Oregon Environmental Council, the Oregon Student Public Interest Research Group, Keep Oregon Oregon, and the Northwest Coalition for Alternatives to Pesticides were interviewed. Leaders of the opposition to herbicides in both Rose Lodge, and Lincoln City, Oregon, were interviewed. Forests units in Rose Lodge and in the Neskowin area, which were scenes of conflict over the use of the herbicide

spraying, were visited.

In Lobster Valley, Oregon, extensive interviews were conducted with both well-known opinion leaders and their neighbors. In this snow-ball sample, 12 people were interviewed.

In order to gain further background on the resistance to herbicides, secondary sources such as the Willamette Week, Portland, Oregon, the Corvallis, Oregon Gazette-Times, Co-Evolution Quarterly, Oregon Student Public Interest Research Group (OSPIRG) publications and documents, the Oregon Environmental Council's Earthwatch Oregon, a pamphlet produced by Women for Timber, and U.S. Forest Service publications such as Methods of Managing Competing Vegetation were examined.

THE SAMPLE SURVEY

In the last part of June and the first week of July, a systematic sample was drawn from the Alsea telephone directory and 68 households were interviewed. The survey population was comprised of the 335 non-commercial listings in the Alsea section of the Pioneer Telephone Cooperative's June, 1979 directory. According to representatives from the Pioneer Telephone Cooperative, 42 subscribers requested that their numbers not be published in the directory. According to a survey conducted in 1975, 36 households in the Alsea service area were without telephone service. The sampling frame was obtained by using a random start selected by choosing a one digit number from ten pieces of paper that had been shuffled. After choosing the first number, every fifth number was called until the sampling frame was exhausted. Again, another digit was drawn from random from pieces of paper and a new start was obtained. This second time, every seventh number was dialed until the

sampling frame was exhausted. The observation unit was the household with a total of 68 final sampling units being interviewed.

It was anticipated that respondents in the area might be over-saturated with inquiries about the herbicide issue. It was also anticipated that rural people would not wish to participate in a survey conducted over the telephone, being asked personal questions by an unseen, self-identified urban interviewer. In spite of these trepidations, 68 households participated in the survey, albeit with varying degrees of suspicion/hostility or cooperation. Respondents often became quite garrulous, in fact, often elaborating and qualifying their responses for almost an hour. Only one respondent broke off after the interview had begun and that occurred after about ten minutes. The average interview lasted for 25-30 minutes.

Out of the sampling frame chosen, only four persons contacted refused to be interviewed. One person contacted was so deaf as to make the interview impractical, although two people who were hard of hearing were successfully interviewed. Twenty-one persons in the sampling frame were not able to be contacted. Therefore, out of a total sampling frame of 94 units, 68 responded, each of which had an equal probability of being sampled, resulting in a response rate of 72.5%. A further discussion on the strategy of telephone interviewing and response rate calculation, a copy of the interview schedule, and a description of the analysis of the data are in the technical appendices at the end of this paper.

THE SURVEY INSTRUMENT

An interview instrument was constructed, pre-tested, and administered

to 68 residents of the Alsea area. The instrument was designed to elicit responses dealing with nine major areas of theoretical interest. These included: (1) attitudes toward growth and change in the area, (2) migration and residential patterns of the household, (3) extent of household's connectivity with cities outside the Alsea area, (4) degree of social integration of household in community, (5) amount of contact with mass media, (6) attitudes and beliefs about herbicides, (7) extent of communication about herbicides, (8) lifestyles of households, and (9) household attributes such as family size, income, education, ownership and size of farm, and age of head of household.

With this understanding of how the sample survey was conducted, we will now turn to the results of the survey to see how population redistribution is affecting the Alsea area.

CHAPTER VI

POPULATION PROCESSES IN THE ALSEA BASIN

Population Change

Even though the town of Alsea itself, because of zoning and geography, has experienced little population growth in the past 15 years, the region surrounding the town has experienced a resurgence of growth strongly resembling the "Turnaround" phenomenon. The 1970 Census revealed Oregon as one of 17 states in the U.S. to have nonmetropolitan growth in excess of 10% in the decade of the sixties. More specifically, the county in which Alsea is located grew from over 45,800 in 1965 to over 71,300 in 1979, an increase of over 60% in less than 15 years. Even when the growth of the city of Corvallis is controlled for, the remainder of the county still experienced a 59% increase in population in less than fourteen years (Center for Population Research and Census, 1971, 1979). Alsea is thus experiencing a certain degree of stability in a turbulent environment.

When the people in the Alsea area were asked their opinions on the amount of growth that was occurring in the area, most (64.7%) responded that it was about right (Table I). They were often careful to point out that although the region might be growing rapidly, Alsea itself, because of the zoning restrictions, had grown very little. Elaborating upon their choice of "about right," they expressed satisfaction with this situation. Only 4.4% favored more growth, one addressing the problem by stating, "the government is holding things too tightly"

(interview 4).

However, over one-third of the long-time residents perceived even very limited growth as being "too much." Even a considerable proportion of the newcomers who contributed to this growth said there was too much growth. This seemingly paradoxical perspective lends weight to Graber's (1974: 510) observation of how "everyone wants to be the last person to move in..."

TABLE I
OPINIONS ON GROWTH ACCORDING
TO LENGTH OF RESIDENCE

<u>Opinion on Growth in the Alsea Area:</u>	<u>Length of Residence in the Alsea Area</u>	
	<u>15 Years or Less</u>	<u>More than 15 Years</u>
	%	%
Not Enough	8.6	63.6
About Right	65.7	36.4
Too Much	25.7	36.4
	<u>100%</u>	<u>100%</u>
	(35)	(33)

Uncertainty coefficient: 0.04

Significance: 0.1

(Please refer to the technical appendix for an interpretation of the statistical measures employed in this study.)

Further probing about the question of population change revealed that when residents were asked whether the Alsea area had changed, although most (58.5%) still felt the area had stayed about the same, there was more difference in the responses according to length of residence.

TABLE II
DIFFERING PERCEPTIONS OF CHANGE OF RECENT
INMIGRANTS AND LONG-TIME RESIDENTS

"Has the Alsea area changed...?"	Length of Residence in the Alsea Area	
	15 Years or Less	More than 15 Years
	%	%
For the worse	11.4	27.3
Stayed the same	68.6	48.5
For the better	$\frac{20.0}{100.0}$	$\frac{24.2}{100.0}$ N=68
Uncertainty coefficient: 0.04		
Significance: 0.17		

When discussing change, because of their longer frame of reference, the long-time residents were much less likely to say that the area had stayed the same. Some respondents had lived in the area since the early 1900's and had seen a great deal of change. The long-time residents were over twice as likely as the newcomers to see these changes as being for the worse though. Regardless of length of residence, changes for the worse were traced to "hippies," "too many foreigners," "Californians," "hippies flaunting dope," and "traditions have gone down the drain." Only rarely was increased social heterogeneity mentioned as a change for the better. Some mention of unemployment as change for the worse was verbalized. This was much less frequent than anticipated, considering the recession in the timber industry, with several mills in the Alsea area closed down.

Changes for the better tended to concern infrastructural changes

such as electricity, television, telephones, and the new fire and rescue station. "Zero growth" was also mentioned as a change for the better (interview 6).

Replacement

The recognition by 41% of all the residents and the majority (51.5%) of the long-term residents that the area has changed may also stem from their recognition of the replacement of turnover phenomenon (Matras, 1975: 365). Although little or no net increase is apparent in numerical terms, the character of the area is changing because of population processes. Not sheer dynamic density, but rather, selective migration is impacting the area. The number of entrants might be in equilibrium with the number of departures but this lack of change should not blind one to the striking shifts in age, occupational, income, and other attribute distributions that are taking place.

As Table III graphically demonstrates, and Table IV captures somewhat more precisely, many of the new people who have moved into the area in the past fifteen years are, as predicted by the literature (Campbell and Johnson, 1976, disproportionately younger (51% less than 40 years old) or the retired (20.0%). This finding is also consistent with migration theory which holds that migration is most prevalent among the young and those who are making life commitments (Matras, 1975: 363). It is also consistent with the belief that the old do not move in general, but they are disproportionately moving back to the more scenic areas when they retire and can afford to do so.

As shown in Table III, an important transformation has occurred in terms of the number of people in the younger age cohort of immigrants in

TABLE III

A COMPARISON OF AGE COHORTS OF
NEWCOMERS AND LONG-TIME RESIDENTS

(Sample Data)

Newcomers (15 Years or Less)Long-Time Residents (More than 15 Years)

TABLE IV

A COMPARISON OF THE AGES OF
NEWCOMERS AND LONG-TIME RESIDENTS

<u>Age</u>	<u>Length of Residence in Alsea Area</u>	
	<u>15 Years or Less</u>	<u>More Than 15 Years</u>
	<u>%</u>	<u>%</u>
20-29	25.7	18.2
30-39	25.7	6.1
40-49	14.3	21.2
50-59	14.3	30.3
60 and over	20.0	24.3
	<u>100%</u>	<u>100%</u>
	(35)	(33)

Uncertainty coefficient: 0.09
 Significance: 0.12

N: 68

comparison to the number of people in the younger age cohorts of long-time residents. Over twice as many younger immigrants live in the area in comparison to long-time younger residents. This distribution is strikingly reversed among the 40 to 60 year old cohorts. Whereas younger long-time residents have apparently migrated out and younger residents have migrated into the area, the older long-time residents have stayed while few middle-aged newcomers have arrived.

Several interpretations might be inferred from this pattern, one being that different kinds of people are moving in, in comparison to those that are moving out. But even more importantly, not only a cohort difference exists between those that are moving in and those that have stayed, but those that have stayed may be very different from both migrating groups because of the extent to which migration is selective of different characteristics. Those who have stayed during a time of high outmigration may not possess the requisite adaptability and flexibility needed for successful migration. Blau and Duncan (1967) found that in terms of occupational attainment, the careers of migrants are "clearly superior" to those of nonmigrants (Matras, 1975: 360).

Our next question should be to find out how these long-time residents and newcomers differ in other characteristics such as origins and reasons for migrating. In regard to origins, Table V suggests that, although most of migrants as well as nonmigrants spent their childhood in small cities, towns or rural areas, newcomers were over twice as likely to have grown up in a medium or large city as compared to long-time residents of the Alsea area. This is not a very strong difference due to the size of the sample but the proportions still suggest some partial evidence to support the long-time residents' fears of a tide of

TABLE V

A COMPARISON OF ORIGINS OF MIGRANTS BY
LENGTH OF RESIDENCE IN ALSEA AREA

<u>Size of Community where Spent Childhood</u>	<u>Length of Residence in Alsea Area</u>	
	<u>15 Years or Less</u>	<u>More than 15 Years</u>
	%	%
50,000 and over	25.0	9.7
less than 50,000	75.0 <u>100%</u> (32)	90.3 <u>100%</u> (31) N: 63

Uncertainty coefficient: 0.045
Significance: 0.20

city folks inundating the area.

However in comparing the migration patterns of recent immigrants with those of early immigrants, this pattern is even more obvious in tracing the sending community of these migrants (Table VI).

TABLE VI

A COMPARISON OF MIGRANTS' SENDING COMMUNITIES
BY LENGTH OF RESIDENCE IN THE ALSEA AREA

<u>Size of Sending Community</u>	<u>Length of Residence in Alsea Area</u>	
	<u>15 Years or Less</u>	<u>More than 15 Years</u>
	%	%
50,000 and over	34.3	15.4
less than 50,000	65.7 <u>100%</u> (35)	84.6 <u>100%</u> (13) N: 48

Gamma: 0.48
Significance: 0.35

Even when compared to other groups of migrants, recent migrants have just moved from small cities or larger cities. They are over twice as likely to have moved from urban areas than were earlier migrants. However, as can be seen from Table VII, recent immigrants are much more likely to have come from the Pacific Northwest than were earlier immigrants. Earlier immigrants were almost twice as likely to have come from California.

TABLE VII

A COMPARISON OF REGIONS OF MIGRANTS'
SENDING COMMUNITIES BY LENGTH OF RESIDENCE IN THE ALSEA AREA

<u>Region of Sending Community</u>	<u>Length of Residence in Alsea Area</u>	
	<u>15 Years or Less</u>	<u>More than 15 Years</u>
	%	%
Oregon and Washington	64.7	46.2
California	26.5	46.2
Midwest	2.9	-
East	5.9	7.7
	<u>100%</u> (34)	<u>100%</u> (13)

N: 47

Gamma: 0.29
Significance: 0.5

In terms of length of residence in the State of Oregon, long-time residents, not surprisingly, have lived in Oregon for a long time. Almost 70% have lived in Oregon for over 30 years. In addition to this true-but-trite finding, a surprising proportion of newcomers have also lived for quite a while in Oregon, the majority having lived in the state for over eleven years.

TABLE VIII

A COMPARISON OF NEWCOMERS' AND LONGTIME
RESIDENTS' LENGTH OF RESIDENCE IN OREGON

<u>Length of Residence in Oregon</u>	<u>Length of Residence in Alsea Area</u>	
	<u>15 Years or Less</u>	<u>More than 15 Years</u>
	%	%
10 years or less:	45.7	---
11 to 29 years	28.6	30.3
30 years or more	<u>25.7</u>	<u>69.7</u>
	<u>100%</u>	<u>100%</u>
	(35)	(33) N: 68

Gamma: 0.78

Significance: 0.000

For purposes of correlating transience or stability in migration patterns, lengths of residence in previous communities can be compared according to migrant status.

TABLE IX

A COMPARISON OF LENGTH OF RESIDENCE
IN MIGRANTS' SENDING COMMUNITIES
BY LENGTH OF RESIDENCE IN ALSEA AREA

<u>Length of Residence In Sending Community</u>	<u>Length of Residence in Alsea Area</u>	
	<u>15 Years or Less</u>	<u>More than 15 Years</u>
	%	%
10 years or less	51.4	24.2
11 to 20 years	17.1	9.1
over 20 years	<u>31.4</u>	<u>66.7</u>
	<u>100%</u>	<u>100%</u>
	(35)	(13)

Gamma: 0.54

Significance: 0.01

Early migrants were apparently long-time residents of their sending communities, being more than twice as likely as recent migrants to have lived in their previous communities for over 20 years. Admittedly, these findings, like previous ones, are undoubtedly confounded with age and cohort effects, but it is still apparent that there are significant differences in length of prior residence for the different "waves" of immigrants. Recent migrants are overtwice as likely to have lived in their previous communities for less than 10 years. This finding is consistent with the literature on migration which discusses the importance of "staging areas" (Berry, 1973) for migrants who move first to an intermediate community before moving to the community of destination.

Addressing more specifically the question of transience, the overwhelming proportion (84%) of both recent and early migrants report not having moved frequently as adults. However, out of the proportion that admitted having moved frequently as adults, recent migrants are disproportionately represented with seven times as many recent migrants than early migrants reporting having moved frequently as adults (28.6 vs. 3.1).

TABLE X
FREQUENCY OF MOVING BY LENGTH OF RESIDENCE

	<u>Length of Residence in the Alsea Area</u>	
	<u>15 Years or Less</u>	<u>More than 15 Years</u>
"Did you move frequently as an adult?"	%	%
No	71.4	96.9
Yes	28.6	3.1
	<u>100%</u>	<u>100%</u>
Uncertainty coefficient: 0.09	(35)	(32) N: 67
Significance: 0.01		

One explanation for this disparity may be due to the general greater mobility of recent migrants, but also at least 4 of the subjects interviewed reported having retired from such highly mobile occupations as the military and petroleum engineering. Conceivably, many people who have pursued very active and mobile careers retire from these occupations and move to rural areas not to contemplate the sublime beauty of nature from afar but, rather, to continue an active life of hunting and fishing. Several retired respondents also spoke of being members of "trailer groups" with whom they often travel all over the United States pulling a trailer house. In other words, we cannot infer from the data that these mobile people are only the young and the restless.

After having seen the more demographic aspects of the differences between early and more recent migrants, let us now look at the reasons the respondents gave for having moved into the area.

TABLE XI

REASON FOR MOVING GIVEN BY RECENT AND EARLY MIGRANTS

Migrated to the Alsea Area

<u>Reason Given for move:</u>	<u>15 Years Ago or Later</u>	<u>More than 15 Years Ago</u>
	%	%
Quality of life "last frontier, etc."	42.9	18.8
Occupational considerations	22.9	6.3
Family, friends in Area	17.1	56.3
Retired	17.1	18.8
	<u>100%</u>	<u>100%</u>
	(35)	(16) N: 51

Uncertainty coefficient: 0.15

Significance: 0.02

Recent migrants are more than twice as likely as early migrants to cite "quality of life" or "the last frontier" as their reasons for moving to the Alsea area (42.9% vs. 18.8%). Economic reasons still play a role, though, especially for the recent migrants. Recent migrants are more than three times as likely as early migrants to say they moved because of job related circumstances (Table XI). Somewhat unexpectedly, the overwhelmingly most frequent reason early migrants gave for moving, and reported more than three times as often as recent migrants, was family and friends in the area. Whereas the recent migrants are following a newer trend of living out your preferences, earlier migrants relied on a more traditional, "two-step" migration pattern, first moving with or to relatives and friends and eventually setting up a home of one's own. Social networks, therefore, have played a particularly important role in the integration of long-time residents of the area. It is important to note, however, that in comparing the organizational participation of newcomers and long-time residents, the former are three times more likely than long-time residents to report nonparticipation in any organization.

TABLE XII

A COMPARISON OF THE SOCIAL INTEGRATION
OF NEWCOMERS AND LONG-TIME RESIDENTS

"Do members of your household belong to any clubs, lodges, granges, unions, churches, or other groups?"	<u>Length of Residence in Alsea Area</u>	
	<u>15 Years or Less</u>	<u>More than 15 Years</u>
	%	%
No	45.7	15.2
Yes	54.3	84.8
	<u>100%</u>	<u>100%</u>
Uncertainty coefficient: 0.09	(35)	(33) N: 68
Significance: 0.01		

These data flatly contradict Hennigh's (1978) argument that residents in small towns, and newcomers especially, are avid organization joiners. It should not be assumed, though, that newcomers to the Alsea area are social isolates. Even though newcomers are not as likely to belong to organizations as long-time residents, they are somewhat more active in visiting their neighbors. Newcomers reported visiting their neighbors an average of about 5 times a month while long-time residents visited their neighbors an average of about 3 times per month. This pattern of social interaction suggests that newcomers to the Alsea area desire to participate in the ongoing social life of the community as indicated by their visiting with their neighbors, however, it also seems that newcomers are not recruited into the community's organizations, or alternatively, newcomers perceive these organizations as being irrelevant to their interests and needs.

It is possible, as Karp, Stone, and Yoels (1977) might argue, that newcomers might develop a subjective identification with a community that they are not a part of, through the frequent visiting of one or two neighbors. It should be apparent, though, that regardless of the newcomers' subjective identification with the community, they do not seem to have access to the organizational resources of the community to the degree enjoyed by long-time residents. Similarly, the community appears to be unwilling or unable to socialize and integrate the newcomers into the community through organizational membership.

In regard to other measures of social integration, recent migrants were found to be much less likely to be members of a church (43%) in comparison to long-time residents of the area (64%). The differences in church participation between the two groups could be even more

pronounced in light of the information volunteered by some of the newcomers that they were members of the Assembly of God church in Southern California, and many of the members of the church moved, en masse, to the Alsea, Oregon area. No long-time residents reported moving to the area because of church membership. As noted earlier, early migrants moved to the Alsea disproportionately because of family and/or friends who already lived in the area and probably did not move simultaneously as a group. This information might be interpreted as supporting the notion that many of the newcomers to the area hold traditional values and migrated in search of a rural environment that might be more compatible with their conventional beliefs than a rapidly changing urban setting.

TABLE XIII

A COMPARISON OF CHURCH MEMBERSHIP
OF NEWCOMERS AND LONG-TIME RESIDENTS

	<u>Length of Residence in Alsea Area</u>	
	<u>15 Years of Less</u>	<u>More than 15 Years</u>
"Do you belong to a church?"		
	%	%
No	57.1	36.4
Yes	42.9	63.6
	<u>100%</u>	<u>100%</u>
	(35)	(33) N: 68

Uncertainty coefficient: 0.03

Significance: 0.14

In order to get some idea of the differences in socioeconomic status and lifestyles between the two groups, reported income, occupation, education, family composition, and self-described lifestyles will now be examined.

Income

According to the respondents surveyed, the incomes of newcomers and long-time residents are about equally distributed across the range, although a few more long-time residents than newcomers reported falling in the second to lowest category: between \$5 and \$10,000 annually. These data must be considered in light of the extreme reluctance and suspicion evidenced by many respondents in answering questions about income. Only the most general approximations of respondents' incomes were obtainable. Nevertheless, these data do not support, in the specific case of Alsea, Oregon, Graber's (1974) and others' observations that recent immigrants have higher incomes than long-time residents.

TABLE XIV

A COMPARISON OF INCOMES OF NEWCOMERS
AND LONG-TIME RESIDENTS

Household income before taxes:	<u>Length of Residence in Alsea Area</u>	
	<u>15 Years or Less</u>	<u>More than 15 Years</u>
	%	%
\$4,999 or less	9.7	6.9
\$5,000 to \$10,000	19.4	31.0
\$10,001 to \$15,000	25.8	13.8
over \$15,000	45.2	48.3
	<u>100%</u>	<u>100%</u>
	(31)	(29)

Gamma: -0.14
Significance: 0.5

Occupation

Employing Light's (1980) typology of the occupations of immigrants

to rural areas, newcomers and long-time residents of the Alsea area are seen to differ significantly, both statistically and substantively. In terms of the type of industry participation, there appears to be little difference between newcomers and long-time residents as far as government employment. It seems unusual to find such a similarity in length of residence of public employees in light of the fact that many of these people are forest service employees who supposedly are transferred frequently (Colfer and Colfer, 1978). Light's (1980) noting of the importance of service employment to immigrants is supported nicely by the data: newcomers are almost 10 times as likely to be employed in service occupations as are long-time residents (29.4% vs. 3.1%).

In contrast to other analysis (Campbell and Johnson, 1976, Graber, 1974), a remarkable number of newcomers to the area do not commute or have professional and administrative jobs but work in agriculture or logging. Still, the proportion of newcomers (35%) is far less than that of long-time residents (59%) in terms of participating in extraactive occupations. When occupations were coded according to the National Opinion Research Center's classifications, it was discovered that the occupations of newcomers do not have significantly higher prestige than those of long-time residents. These data do not support Campbell and Johnson's (1976) contention that primary migrants are more likely than the total population of the community of destination to be engaged in professional or skilled occupations. The means of the prestige scores for both groups, being in the thirties, are quite low, indicating either a preponderance of semi-skilled workers or a very large range in scores. It should be noted that a very wide split in scores characterizes the newcomers (variance: 162) much more than the long-time residents who seem

to be much more homogeneous (variance: 79) and have lower prestige occupations.

Education

Considering education, an analysis of the data indicates that newcomers have slightly more years of education than long-time residents, but this could very easily be an age effect. Because of the small number of respondents surveyed, a valid elaboration was difficult to perform, with the only differences within age cohorts being noticed in the young adults who apparently had more education if they were newcomers. Newcomers in general completed a mean number of 13.3 years of schooling while long-time residents, who are an older group, completed a mean of 12.1 years of school.

Family Composition

When respondents were surveyed as to how many children under 18 were in their household, newcomers responded with a mean of 0.85 while long-time residents reported a mean of 0.39 children per household. In spite of the apparent smallness and similarity of the means, .5 children is an important difference demographically. This indicates that newcomers are much more likely to be familistically oriented than long-time residents.

Respondents were given a forced-choice question that offered three different types of households as choices for describing the respondents' lifestyle. The choices concerned why the family lived in the Alsea area.

Long-time residents are much more prone to live there because they work in the outdoors in extractive industries. They are almost twice as likely as recent migrants to see themselves as rational, modern, and

TABLE XV

A COMPARISON OF OCCUPATIONS OF NEWCOMERS
AND LONG-TIME RESIDENTS

Occupations according to industry:	<u>Length of Residence in Alsea Area</u>	
	<u>15 Years or Less</u>	<u>More than 15 Years</u>
	%	%
Public Employment (Forest Service, county, state, school, etc.)	11.8	12.5
Extractive (Farming, logging, etc.)	35.3	59.4
Service (grocery, cafe, business, etc.)	29.4	3.1
Retired	<u>23.5</u> <u>100%</u> (34)	<u>25.0</u> <u>100%</u> (32)
		N: 66
Uncertainty coefficient: 0.11		
Significance: 0.03		

risk taking. Recent migrants, on the other hand, are much more concerned with escaping an overpolluted society and being as self-sufficient as possible.

The most frequent (49.9%) response was, that they simply wanted a nice place to live, with a slower pace of life, even if it did entail a reduced standard of living.

Conclusions

The purpose in studying in such detail migration processes and their consequences is to draw in as strong terms as possible the outlines for possible conflict. The preceding findings have shown that some newcomers are very different from previous migrants and natives. Many, but

not most, are younger, come from larger cities, are more mobile, have a little more education, more likely to work in service industries, and are more likely to have children under 18 in the household.

The really salient feature of this migration is the lack of participation by newcomers in the social networks and community life in the town. This could be the result of unwillingness or lack of interest on the part of newcomers or a manifestation of the conflicting value orientations of the two factions.

With this overview of the migration processes in mind, we will now turn to the specific conflict over the innovation of herbicides, paying particular attention to how social system variables inhibit the diffusion and encourage the rejection of an innovation will be examined.

CHAPTER VII

SOCIAL SYSTEM VARIABLES AND COMMUNICATION PROCESSES

In keeping with the framework of the Classical Diffusion of Innovation Model, not only demographic and socio-economic variables should be considered but the more "social" aspects of the diffusion process are viewed as being particularly vital to the understanding of the phenomenon. Therefore, this paper will now move in this direction, making an exploratory and all too short examination into the social system norms, tolerance of deviancy, and integration of communication and communication channels in the Alsea area. Additionally, the subjectively perceived characteristics of the innovation that are transmitted through these channels will be briefly described. All these factors are important facets in understanding the processes that the Classical Model is attempting to capture in all their complexity.

SOCIAL SYSTEM NORMS

Nearly all of its residents, newcomers and long-time residents alike, view the Alsea area as being a traditional community. Respondents surveyed stated that they thought the community was traditional (82.8%) as opposed to modern (17.2%). This perception did not change very much among newcomers; more of whom (87.5%) viewed the community as being traditional, compared to long-time residents (78%). Most people commented, in passing, on how much they hoped the status quo would remain. Evidence of the traditional values of the community, might be inferred from the

norms of helping neighbors and friendliness that were continually mentioned. An important aspect of these norms is when they become manifested to the residents. One respondent commented on how she had to live there for two or three years before people became very friendly, because she was from California. She remained stigmatized until, "All of a sudden, after a couple of years, people just became really friendly and helpful" (interview 10). Another respondent in a face-to-face interview spoke of how hard it was to "fit" into the community if you were from the outside. He was able to become absorbed into the community because he associated with the sons of a well known, old, and powerful family in the area. Speaking of how some people had been arrested in a small town on the Oregon coast for attempting to smuggle a shipload of marijuana, he noted, "When people acted the way they did in a small town, they are just walking around with a sign saying: 'Bust me'" (interview 6).

For all the emphasis the people in Alsea place upon friendliness, it is interesting to consider how relatively little actual neighboring goes on. Respondents reported, as noted in the last section, visiting neighbors on the average of only once a week or so. Respondents did mention, however, there were occasional organized gatherings, such as potlucks held where people would get together. One respondent also mentioned that people were not quite as friendly as they used to be and noted that more people were like "hermits." Part of the reason for this, he maintained, was because people worked in Corvallis, leaving home early in the morning and returning exhausted late at night (interview 8).

There is something also about the occupation of logging that reduces the amount of social interaction in which one participates.

One respondent remarked that he got up at 3:30 or 4:00 AM, drove an hour or so to work in the woods, got off work in the afternoon and by the time he got home, had dinner and read the paper, it was time to go to bed (interview 9). He commented in the interview that maybe it would have been better to just be a "hippie" and not have to work so hard.

There are in the community a norms about hard work, understandable in an area where there is so much logging and farming. These occupations are dangerous and often very difficult and perhaps this increases the resentment that some people feel toward "hippies" in the area. This is somewhat contradictory, because as noted earlier, many newcomers are involved in extractive industries, although admittedly most are in service industries.

The differences in values that long-time residents perceive as existing between themselves and newcomers causes much friction in the community. This conflict may, according to Buttel and Flinn (1977) be traceable to the old conflict between ruralism and agrarianism.

According to Buttel and Flinn (1977), ruralism is of urban origins, growing out of romanticism which had the result of defining country living as allowing "the charms of Nature to gratify and illumine" and recommended the country for "more room, less racket, better health, more freedom, and closer relations with sun and sky..." (Buttel and Flinn, 1977: 545).

Agarianism, on the other hand, according to Buttel and Flinn (1977: 546), consists of

the fundamental role of agricultural industry, the equation of democracy with independent family farmers, the moral virtue attached to farming, and the artificiality and evils of city life--made agriculture a sanctified calling.

The conflict develops, Buttel and Flinn (1977: 545) argued became

The agrarian, steeped in the virtues of hard work and honest toil, often despised the ruralist dilettante. Most farmers lacked the funds and the leisure time for arcadian country living and tended to view the land in utilitarian terms. This utilitarian value could make the farmer a soulless plunderer in the eyes of the ruralist, who found elevation -- not mere economic sustenance --- in the country.

More specifically Buttel and Flinn see these value orientations operating powerfully in rural areas today,

Such antipathies have not disappeared, especially where farmers are forced to defend pesticide usage and their autonomy of decision-making over the objections of "outsiders" seeking to preserve tranquility and environmental quality.

As noted before, newcomers are much less likely than long-time residents to define their households as being modern, extractive, and technologically competent. The overwhelming proportion want a slower pace of life and considerable proportion (31% compared to only 19% of long-time residents) want to get away from an over-industrialized, polluted society.

Many subscribe to the notion, articulated by Berger (1979: 66) that

urban industrial civilization may...sink into oblivion under the weight of its garbage, its pollution, its racial conflicts, its imperialist wars, and its individual loneliness.

TOLERANCE OF DEVIANCY

A second social system variable suggested by the classical diffusion of innovation model addresses the degree that deviance is tolerated in the social system.

It seems that after interviewing people in both face-to-face interviews and over the telephone that there are two contradictory motives

for living in the Alsea area: (1) to get away from the stifling, oppressive regimentation of the city and get back to where people will leave you alone, and (2) to get away from the chaos, crime, and rampant evil of an urban system out of control, and get back to the orderly, regulated existence of rural life.

These two differing expectations hypothesized result in the incomplete realization of both ideals. As deviants by Berger (1979), seem to leave the city and go to the country only to be met by people who left the city to avoid deviants. The resulting compromise is negotiated with the help of appealing to the values of agrarianism, with the emphasis upon individualism, and by invoking an ideology closely resembling Turner's reference (1931) notion of the frontier as a safety-valve for an urban civilization. Berger (1979: 66) has found that the safety-valve hypothesis seems to be operating, noting,

despite widespread hostility to hippies and "counter-cultural phenomena, the rural communes studied by my research group have not been hassled by public officials nearly as much as one might expect, given this hostility and their vulnerability to harassment over issues such as drugs, sex, building and health codes, child welfare, and, formerly, draft evasion. Legal harassment of this population, according to safety-valve thinking, might well turn out to be more trouble than it is worth (emphasis in original).

This subscribing to the notion of live-and-let-live is borne out in the efforts of the agent of formal social control in the Alsea area to practice selective law enforcement. This agent, a sheriff, does not have an office but can be contacted either by phone or by going to his home. According to one respondent, the sheriff very carefully and with deliberation explained that he did not go around "poking his nose into other people's business unless there was a complaint" (interview 2).

The point was made very plainly that if the subject was not blatantly violating laws, minor indiscretions would be tolerated.

One such minor offense includes the "squatting" on public lands. Because of the zoning restrictions noted earlier, the average young aspirant to the country lifestyle is unable to purchase property on which to live. Therefore, one of the latent dysfunctions of the zoning restrictions is in compelling these people to live secretly on public land and thereby to discourage adherence to community norms through socialization into the community through routine participation. It may also be surmised that deviancy would be even more facilitated through this lack of social control. This is also a problem in the controversy surrounding the diffusion of herbicides in the area. Forest service officials complain that much of the anger over the herbicides results from "squatters" being accidentally exposed to the herbicides because the Forest Service did not know that anyone was living in the area (interview 7).

Respondents interviewed were often indignant about the "hippies" violating norms against cohabitation and other small offenses, but they reserved their full anger over the introduction of drugs into the area by these outsiders. There does seem to be a certain foundation for their concern.

A considerable degree of self-sufficiency and a more favorable trade-off between income maintenance and rural amenities can be achieved through the cultivation (mostly on public land) of "Sinsemilla" grade marijuana. Marijuana cultivation in California has been estimated to produce a crop worth over 1 billion dollars a year. In Oregon, the crop is estimated to be worth over 250 million dollars a year (Sinsemilla

Tips, 1980: 4). Because of its sparse population and favorable climate, most of the cultivation in Oregon is found in the Coast Range. Carefully fertilized, pruned, manicured, and packaged, Sinsemilla marijuana can be sold for as much as \$1,800 a pound by the grower (Sinsemilla Tips 1980: 4).

Informants have noted that it is not difficult to grow Sinsemilla on a small scale, say not more than 50 or so plants, and be able to make payments on a small farm and have an annual profit of \$8,000 to \$9,000. Some indication of the ubiquity of this cottage industry may be inferred from the existence of Sinsemilla Tips, a "Domestic Growers Journal" and "Full Moon Farm Products, Inc.," a growers' supplier, both of which are located in Monroe, Oregon - a small town of less than 500 people - located in Benton county about 20 miles from Alsea.

One grower interviewed that he was very unlikely to be arrested for growing marijuana but if one were arrested and convicted, it was better to be fined or have to spend a few weeks in jail, than to be put on probation. When a grower is on probation, he has no way of earning any money growing marijuana for several years if he complies with the terms of the probation. On the other hand, a fine would be paid and the farming resumed.

When respondents were asked about the marijuana being grown and whether that was the real reason people were against herbicides, over 60% of those opposed, indifferent, and in favor of herbicides agreed that it was true. Over 80% of those indifferent or in favor of herbicides mildly or strongly felt that the real reason some people are opposed to herbicides can be traced to the cultivation of marijuana.

Many people who favor the use of herbicides noted that the real

reason "those women" were having miscarriages was because of their "lifestyles" or, put more bluntly, because they used drugs.

INTEGRATION OF COMMUNICATION AND COMMUNICATION CHANNELS

Almost 60% of those interviewed had known for 10 years or less that these herbicides were being used in the forest. Most of these people said that they had learned about these chemicals by hearing about them over the television or reading about them. Of those who knew about the chemicals before ten years ago, they found out about them by working in the woods, talking to friends in the Forest Service, or just watching road crews spray the sides of the highways.

Most of those interviewed (81%) found out about the controversy about the safety of these chemicals, not through talking with their neighbors in the community, but through the mass media. Some stated that they knew the chemicals were not good for people because they read the directions on the bottles or had become ill themselves.

These reports are consistent with diffusion theory which states that people first become aware of innovations through the mass media. However, in this "two-step" model, persuasion, decision, and confirmation depend upon interpersonal channels. Of those adopting the innovation, in terms of an attitude favoring the aerial application of herbicides in the forest, 79% said that their friends were also not opposed to the innovation. Of those rejecting the innovation in the sense of having an attitude opposing the aerial application of herbicides, 91% said that their friends were also not in favor of herbicides. This finding is not only statistically significant (0.0001), but also indicates the extent to which there is high cohesion and homogeneity within the two

TABLE XVI
TYPES OF LIFESTYLES OF NEWCOMERS
AND LONG-TIME RESIDENTS

	<u>Length of Residence in the Alsea Area</u>	
	<u>15 Years or less</u>	<u>More than 15 Years</u>
	%	%
"Efficient, risk-taking, technological, modern" extractive	17.1	32.3
"Just want slower pace of living even if less money"	51.4	48.4
"Get away, self-suffi- cient"	31.4 <u>100%</u> (35)	19.4 <u>100%</u> (31)

N: 66

Uncertainty coefficient: 0.03
Significance: 0.2

different groups. It supports the hypothesis that says "the attitude towards innovation of an individual's reference group will correlate with his attitudes towards adoption" (Triandis, 1971: 351).

This two-step process of communication is also obvious when it was asked of respondents whether or not they had read or seen any account in the media about the herbicide controversy in Alsea. Almost 100% said they had, with only one blind and partially deaf man being unaware of herbicides entirely. When surveyed as to whether the media accounts told the "real story," most (64%) rejecters of the idea of the aerial application of herbicides insisted that the accounts were accurate. This contrasts with the perspective of the adopters of the idea of applying herbicides aerially, the majority (75%) of whom felt that the accounts were inaccurate and biased. This finding, besides being statistically

TABLE XVII

MEANS, VARIANCES, AND RESULTS OF TESTS OF SIGNIFICANCE
BETWEEN MEANS OF SELECTED CHARACTERISTICS OF RECENT
MIGRANTS AND LONG-TIME RESIDENTS OF THE ALSEA AREA

Criterion Variables	Length of Residence in Area:							
	N	Mean	Variance	N	Mean	Variance	F	Sig.
Education	32	13.34	11.4	30	12.13	3.71	2.95	0.09
Age	34	42.0	250.2	33	49.5	281.6	3.59	0.06
NORC Prestige Scores	35	38.66	162.2	32	35.97	78.54	0.07	0.90
Number of Children in Household	35	0.85	1.77	33	0.39	1.77	2.72	0.1
Trips per month to City	35	9.06	44.9	32	8.06	40.7	0.38	0.53
Acreage owned	13	32.2	1621.9	18	113.2	188.4	2.31	0.1
Visits per month	35	4.94	51.5	32	2.87	6.6	2.44	0.12
Years lived in Oregon	33	19.03	285.7	32	40.3	272.7	26.4	.0001

Note that, compared to long-time residents, newcomers are a much more heterogeneous group, with variances on all socio-demographic indices except age and number of children, much larger.

significant (0.008), could be an important indication of how individuals attend selectively to the mass media, unconvinced merely by its accounts.

In terms of communication sources, the change agents who are attempting to encourage the adoption of the innovation, in the sense of being in favor of the use of herbicides, have not been very successful. One of the problems is that when experts from the Forest Service and Oregon State University would address an audience, heterophilous communication would occur between two different status groups with two widely differing definitions of chemicals, safety, and the forest.

According to Willamette Week Kiesling, (1979: 25), the following exchange occurred in a meeting about 15 miles out of Alsea.

As occurs so often, the officials ended up angering rather than reassuring their listeners. "They called our woods 'plantations' and we all realized what that made us," Parker (an anti-herbicide activist) says. When 30 people offered to clear brush by hand, the district forester demurred. "He told us that he would be out of a job if he discontinued spraying. He also told the group they'd have to take the matter to court to stop the spraying."

The next day CATS did just that, hiring Eugene lawyer Bruce Anderson to handle the case.

Carol Van Strum (1979: 46), a former college professor and librarian from California, living about 20 miles out of Alsea, described herbicide rejecters' interpretations of the innovation at a similar meeting:

...the same community met with the Forest Service to confront them over the dangers of 2, 4, 5-T, silvex, and 2, 4-D, and were met with the complacent assurances of safety...With one exception, the people who met here were parents, most of them women. Their overwhelming concern was their children. "What are the long-range effects of these sprays? Will my children grow up to be sterile? Will they have cancer? How do they know what it may or may not do to children?"

"So this stuff is in our water, on our food, in the air. So my kids look OK. What about their kids? Or the ones that come after? Maybe this is the way it will all end, nothing but mongoloids in 80 years, they won't even be able to walk... and when they die, when we all die, we'll be buried and our bodies won't even break down, we'll be so full of chemicals."

It should be pointed out here that the great majority of those interviewed in this study (73%) reported never been to a public meeting addressing the herbicide or any other issue. Slightly, however, more (30%) adopters than rejecters (27%) of the innovation of herbicide attended meetings on that and other issues.

If change agents promoting the adoption of herbicides have not been effective in utilizing the mass media as reflected by adopters hostility to the media, change agents for the opposition to diffusion have been extremely effective.

Bonnie Hill, who teaches journalism, English, and basketball, lives with her husband, who ties flies, on a remote farm out of Alsea, surrounded by Bureau of Land Management property. In 1975, she had a miscarriage, and two years later, read reports of the effects of 2, 4, 5-T on monkeys. Discovering that 2, 4-D and 2, 4, 5-TP (silvex) had been sprayed near her a month before her miscarriage, she became further interested in the correlation between miscarriages and spraying. Remembering hearing of former students who had miscarriages, Mrs. Hill gathered data on spraying activities and discovered that every women studied lived within $\frac{1}{2}$ to 2 miles of a sprayed area (Van Strum, 1979: 45).

In May of 1978, Bonnie Hill and seven other women were able to persuade the Environmental Protection Agency to do the Alsea I and II studies which subsequently led to the ban on 2, 4, 5-T. According to Carol Van Strum (1979: 46) [who is also, coincidentally, an editor for Coevolution Quarterly, the successor to the Whole Earth Catalog, published in the heart of rural America: Sausalito, California].

Van Strum related how it was accomplished:

We were effective because we yelled and screamed and

insisted on the testing and surveys being done right. Those first questionnaires were inadequate. Alsea II (the larger study) was done because we yelled and screamed. I was awful, I was rude, I ranted with them over the phone, bullied them into it. That's the only way you can get them to move... So EPA, under pressure from one angry pediatrician, eight persistent women, and the media, which braved the wilderness to follow it all, conducted their studies (emphasis added)...

No problem of communication, here, evidently. Van Strum, Bonnie Hill, and Richard Armentrout from nearby Lincoln City all seem to be very effective in communicating with the mass media. They are all well-educated people who have worked as teachers or professors and are quite skillfull communicators.

As noted in a book on communication listed in the Coevolution Quarterly, (1979: 121):

In general, gaining access to media depends on your own personal development of important skills: cultivating personal contacts at newspapers and stations; ...presenting yourself and your issue or interest in such a way as to attract, rather than to distract, the media; being fully informed on the issues yourself; understanding the proper TIMING for releases conferences; ...and--of great importance to the success of any media effort--coming on coolly, competently, and professionally, knowing what you're doing. Don't be afraid of the media...they rely on you for information.

Van Strum (1979: 47) continued with her description of the fight against herbicide in a postscript:

There is going to be this symposium in Portland June 15, a most important one, it seems. On Wed. morning at 4:30 a.m. I was wakened by a TV crew who wanted to film a spraying operation...I called a logger neighbor who came over and we did some quick sleuthing and with the help of blind luck were able to locate where the Forest Service was spraying that day (they are very secretive about when and where they are going to spray on any given day), so when we turned up at the unit with all this TV gear, boy were they surprised.

We filmed them spraying the whole unit and did some interviews--it was a good show, including a shot of the helicopter spewing 2, 4-D right over Ryan Creek, the water supply of a family who had begged the Forest Service to

change their plans and even offered to brush the unit manually for free. All for the cause, we got doused with the stuff ourselves in the course of filming it...I want to have a family and a garden and animals and teach school, and I end up writing rebuttal testimony or lugging 80 pounds of TV equipment up to a clear-cut at 6 a.m.

Judging from her own account, Ms. Van Strum possesses the requisite skills to present her case effectively. The symposium at Portland was organized by Richard Armentrout, another activist located in a small rural community.

In contrast to the cooperation that anti-herbicide change agents are able to obtain from the mass media, the change agents working for herbicides have been less successful. Mike Newton, a professor at Oregon State University in Corvallis, decided to dramatize the benign effects of herbicide by experiment; using himself, his wife (founder of Women for Timber), and a hapless graduate student. They taped onto their bodies large sponges soaked in 2, 4, 5-T and then measured the amount of herbicide excreted from their bodies in a 24 hour period.

The experiment was not received as the work of a dedicated scientist but greeted by derision and incredulity. Most people saw it as the work of a scientist warped by too close contact with agribusiness and the giant chemical companies. OSU reprimanded Newton for violating its procedures regarding experiments in human subjects.

In the face of such clumsy efforts to change public opinion, the Forest Service decided that the best method of resolving the controversy is not in an adversary fashion but instead by managing the dispute by "scoping" (Hamilton, 1980: 8).

The technique involves asking for as many participants as possible to meet to work out Environmental Impact Statement. At the meeting,

participants are randomly distributed into small groups which are supposed to generate alternative proposals. Because these groups are formed at random and they are supposed to reach a consensus, participants representing minority opinion are overwhelmed by the interactional power of the group, and just like Lewin's reference housewives, are likely to join in talking about how much they like to eat beefheart (Lewin, 1951).

Thus, the outcome for the Forest Service is (1) they can learn the scope or dimensions of the debate, (2) they can spot the future conflicts early, and (3) they can engineer consensus and change attitudes on present conflicts through the use of small group processes.

The anti-herbicide forces may be very sophisticated with the use of the media, but it is on this level, persuasion, that they seem unable to communicate effectively with the people in the Alsea area. Two examples support this argument: (1) Richard Armentrout explicitly admitted the futility of attempting to change locals' attitudes and instead changed his strategy so as to influence those very important opinion leaders: physicians (interview 6). And (2) although many (45%) of the adopters favoring the use of herbicides agreed that we don't really know very much about these chemicals and how they work. But, importantly, they repeatedly emphasized how much they disliked "those women" and how "they were all just trying to draw attention to themselves." One woman angrily denounced a picture of Hill in the National Geographic magazine as being a "grave injustice to the Alsea area" and went on to relate how relatives had called her up from the East Coast and asked if that was the kind of people that lived in Alsea: hippies (interview 17).

Many respondents also noted somewhat scornfully that Ms. Hill,

after miscarrying, had another child and was pregnant a third time, so it must have not hurt her too much. Other women who reportedly miscarried have also subsequently had healthy children.

In short, persons actively working in opposition to herbicides are ineffective in interpersonal channels because they violate two major generalizations about success of change agents: "Change agent success is positively related to his homophily with clients" and "Change agent success is positively related to his credibility in the eyes of his clients" (Zaltman and Duncan, 1977: 203).

As an example of loss of legitimacy among locals and the maintaining of legitimacy among followers, the case of Carol Van Strum, one of the leaders of Citizens Against Toxic Sprays may again be cited. During the night of New Year's Eve, 1978, while the Van Strums were not at home, a tragic fire started at their house killing 5 children who were there alone. This tragedy caused Van Strum to break off working with CATS and the group subsequently collapsed. This tragedy probably did not increase Van Strum's legitimacy in a small town where norms dictate not leaving children alone in a house, regardless how old they are, to go to a party. In contrast, Susan Parker, a former toy buyer from Los Angeles, now living about 20 miles out of Alsea, insists that the fire was the result of chemical companies' attempting to silence anti-herbicide forces (Kiesling, 1979: 24).

After having examined the social system norms operating in the Alsea area, the community's tolerance of deviance, and the integration of communication and channels in the area, it is important that the last variable in the model be examined: the subjectively perceived characteristics of the innovation that have been transmitted through those

channels of communication. In this manner the disparity between the proponents or adopters and the rejectors or opponents of the idea of the aerial application of herbicides will become even more evident.

Perceived Characteristics of the Innovation

Rogers and Shoemaker (1971: 21) described innovations as consisting of two components, (a) an idea component and (b) an object component, or the physical manifestation of the idea. It is not, however, they maintained, necessary to have an object component in an innovation. In that case, the adoption of an innovation is essentially a symbolic decision.

"Symbolic adoption," wrote Klonglan and Coward (1970: 78), "is the acceptance of the idea component of an innovation, or the decision that an innovation is appropriate for the adopting unit. Symbolic rejection is the adoption unit's decision that the new idea is not acceptable."

In this study, the rejection or adoption of the innovation of herbicide is defined in symbolic terms, although over 82% of the adopters admitted using herbicides on their own property. Because the controversy not only involves the herbicide itself, but also its mode of application, by aerial spraying, adoption and rejection have been seen in this study as symbolic decisions, which are operationalized by the response to the question, "Does your household favor or oppose the aerial spraying of these chemicals (herbicides) in the forest?" Favoring is presumed to mean adoption and opposition is considered to be rejection, with the choice "Don't care" indicating no decision has been made.

Fliegel and Kivlin (1966) and Rogers and Shoemaker (1971) as well as others, feel that attributes of innovations as perceived by the receivers, are important factors in the diffusion of innovations. Rogers and Shoemaker (1971: 22) argue that the following characteristics are

crucial: (1) relative advantage, (2) compatibility, (3) complexity, (4) triability, and (5) observability.

Relative advantage is the degree to which an idea is perceived as better than the idea that it supersedes. There is a lively debate going on in many quarters over the relative advantage of the aerial application of herbicides. The Forest Service and the Oregon Department of Forestry predicted a decline in timber yields of 11%, a loss of \$1.1 billion dollars in revenue, and 20,000 jobs lost if 2, 4, 5-T was to be banned (Keisling, 1979: 1).

The Hoedads, a tree planting cooperative based in Eugene, Oregon, and a supporter of Northwest Coalition Against Pesticides, and Citizens Against Toxic Sprays, sees manual release (the weeding by hand of competing vegetation from around fir seedlings) as the best way to manage the forest. Of course, the Hoedads, being a forest workers' cooperative, could benefit if chemical treatments were discontinued. The Hoedads perceive the innovation of herbicide in two ways, (1) it may be harmful to the health of forest workers, and (2) it is not needed because what release that needs to be done, can be performed by hand.

Some respondents interviewed in Alsea also admitted that it would be good to have the added employment that such a ban would provide. Others interviewed insisted that the work would just go to illegal aliens, Cubans, and boat people.

The Forest Service, on the other hand, claims that manual release is much too expensive and ineffective, while at the same time exposes workers to the risk of injury from chainsaw accidents incurred while attempting to cut brush in inaccessible areas.

The Hoedads also maintain that the entire herbicide controversy is

a smokescreen to distract the public's attention from how private timber companies are cutting more timber than they should. If the truth about how herbicides do not work comes out, representatives claim, the timber companies will be forced to cut less timber per year (Bitsas, 1977: 12).

When respondents in Alsea were asked whether they thought herbicides worked, 22% of all respondents thought the chemicals were not effective, 30% said they did not know, and 48% thought the chemicals were effective. Interestingly, 17% of the adopters thought the chemicals might not always work very well. But even 30% of the rejecters, as well as 60% of the adopters knew the chemicals worked.

One farmer made a typical testimonial, noting, "Without herbicides, we simply could not farm" (interview 17). Even a rejecter, after relating how bad he thought 2, 4, 5-T was for your health, noted somewhat wistfully, "Boy, that stuff sure could kill the blackberry bushes, though" (interview 12).

In terms of compatibility, or the degree to which the innovation is perceived as compatible with the values, past experiences, etc., of the receivers, 86% of the rejecters of herbicides did not use any (or as little as possible) chemicals on their own property. This indicates that most rejecters find the aerial application of herbicides not to be compatible with their own values. It could also be argued that because rejecters of the idea of herbicides also have more children and younger families than adopters and hence more sensitive to risk of birth defects and other possible hazards that might affect children in their later lives. This familistic orientation should be remembered in light of research which indicates (Fliegal and Kivlin, 1966) that those innovations that are perceived as being most rewarding and least risky are

the most rapidly accepted.

Another consideration involves values and experiences associated with alternative lifestyles. Many of the people who have rejected the use of herbicides also feel some hostility to the larger, overindustrialized, polluted society. In a type of reverse "halo effect" herbicides are seen as part of the bundle involving the war in Vietnam, big timber companies which clearcut, and big businesses such as Dow Chemical Company.

Another value mentioned by some rejecters of herbicides concerns what is becoming a civil right of being able to prevent trespass on your property. Spraying herbicides with their accompanying drift, is seen by these people as criminal trespass. As one person put it, "People have a right not to be sprayed" (Keisling, 1979: 25).

Complexity is the degree to which an innovation is perceived as difficult to understand or use. When respondents were asked to what degree do they agree or disagree with the following statement, "We don't know very much about these chemicals and how they work," 53% of all respondents either mildly or strongly agreed. This included 88% of the rejecters as well as 45% of those adopting the innovation. This indicates that the innovation is seen as being very difficult to understand. Respondents also mentioned such recently discovered health hazards such as asbestos as being perhaps similar to herbicides, in the sense of not having its effects detected until it was too late. In this same vein, adopters of herbicides would sometimes acknowledge that there might be a possible hazard involved in using herbicides but argument involving individual attribution. They declared that some people might be "allergic" to herbicides, "the same way some people are to bee stings" (interview 13).

Therefore, it only followed that these people should not be living where they might come into contact with what they are allergic to, that is, they should move.

Trialability is the degree to which an innovation may be experimented with on a limited basis. Most rejecters of the innovation are not enthusiastic about experimenting with herbicides on a limited basis. All 100% of the rejecters reported that using larger buffer areas when spraying was still unsatisfactory. They wanted no spraying, period. Thirty per cent did, however, admit that it might not be as bad if the herbicides were applied with backpack sprayers or using "hack and squirt" methods in which an incision is made in a tree and the chemical is squirted in under the bark.

Sixty-one per cent of the rejecters of herbicide insisted, however, that any amount of these chemicals is too much. In contrast, the Forest Service and scientists at Oregon State University are continually making fine distinctions between sizes of droplets, concentrations of chemicals, and type of carrier.

Many people who are opposed to the use of herbicides fail to recognize the difference between 2, 4, 5-T and 2, 4-D. The latter chemical does not contain any dioxin although some experiments have indicated that it might be a carcinogen.

It is at the stage of testing that most rejecters see the real lack of divisibility of the innovation of herbicide. When chemicals such as 2, 4, 5-T and 2, 4-D were approved for sale, the testing procedures were only able to detect chemicals at parts per thousand or at the most, parts per million. Today, rejecters insist that these chemicals have been detected and shown to be toxic at a level of parts per billion

(interview 18).

Observability is the degree to which the results of the innovation are visible to others. Many respondents reported first becoming aware of herbicides when they saw spray trucks on the highways or helicopters in the sky above the forest. The helicopters, in particular, have become sinister symbols to rejecters of herbicides. The observability of the effects of herbicides also provides rejecters of herbicide evidence of when top damage occurs to fir trees which have been sprayed too heavily or at the wrong time. Observability also provides dramatic testimony of the possible hazards of the chemical. One respondent put it this way: "When you hack a cut in a tree three feet around at the butt and squirt in a little of this stuff, it almost starts to die before your very eyes. I feel that if it does that to a tree, what must it do to people?" (interview 20).

In this section we have explored the norms of a social system under the pressure of immigration processes, the changing tolerance of deviance, how change agents working for the adoption or the rejection of a controversial innovation utilize the different channels of communication with varying degrees of expertise, and what kinds of perceptions of this controversial innovation have resulted.

Utilizing this basic general context as a backdrop for a more systematic study of selected generalizations about the process of the diffusing of controversial innovation, the testing of selected hypothesis to determine the applicability of the model to the Alsea area case will now be undertaken.

CHAPTER VIII

HYPOTHESIS TESTING

In the preceding chapters, the development of the classical diffusion of innovation model, the transformation of rural areas in general, the resulting population processes have been delineated empirically to show how those processes were affecting one community in particular, the Alsea area.

It is crucial to re-examine the classical diffusion of innovation in the context of these population processes because the classical model has always assumed a stable, static traditional rural system, unaffected by immigration. It is equally important, if not more so, to study the rejection of controversial innovations in modern communities as it is to study (with a tinge of condescension) Bolivian women who do not adopt the practice of boiling water. Additionally, in this particular case, the immigrants possess many of the characteristics presumed to be most highly associated with the adoption of innovation, but may in fact, have the values and beliefs most closely associated with the rejection of this particular innovation (Tremblay and Dunlap, 1978; Buttel and Flinn, 1977). Lastly, immigrants have brought with them urban skills and media sophistication that have enabled them to diffuse their ideas not only to the community but back to the mass society which can then exercise a large measure of control over the small community.

In light of these additional contextual features of this particular process of the diffusing of an innovation, some crucial hypothesis derived

from the classical model will be evaluated in order to determine if the process of diffusion occurring in the Alsea area conforms to the predictions of these hypothesis, thereby lending support to the vitality and usefulness of the classical model.

HYPOTHESIS

Age

Age is inversely related to adoption of an innovation. The data gathered in the Alsea area contradict the hypothesis that age is inversely related to the adoption of an innovation, in this case, the idea of the aerial application of herbicides.

TABLE XVIII

A COMPARISON OF POSITIONS ON
HERBICIDE ACCORDING TO AGE

<u>Position on Herbicides</u>	<u>Age</u>		
	<u>20-39</u>	<u>40-59</u>	<u>60 and older</u>
	%	%	%
Rejected	61.5	25.9	13.5
Indifferent	11.5	14.8	20.0
Adopted	<u>26.9</u>	<u>59.2</u>	<u>66.7</u>
	<u>100%</u>	<u>100%</u>	<u>100%</u>
	(26)	(27)	(15)

Uncertainty coefficient: 0.16
Significance: 0.04

N: 68

The data indicates that persons 60 years and older are more than twice as likely as people between 20 and 39 to adopt the innovation (66.7% vs. 26.9%). This conclusion is further supported by the finding that the mean age of adopters (51.8) is considerably higher than the mean age of

TABLE XIX

MEANS, VARIANCES, AND RESULTS OF TESTS OF SIGNIFICANCE
BETWEEN MEANS SELECTED CHARACTERISTICS OF REJECTING,
INDIFFERENT, AND ADOPTING RESPONDENTS

Criterion Variables	Position on Herbicides									
	Rejecting			Indifferent			Adopting			Sig.
	N	Mean	Variance	N	Mean	Variance	N	Mean	Variance	
Age	24	36.2	136.0	10	48.3	333.1	33	51.8	269.3	7.54 0.001
Education	23	14.0	5.67	7	13.1	2.47	32	11.75	8.77	5.16 0.0089
NORC										
Prestige Score	24	37.5	168.8	10	38.6	272.4	33	36.8	135.7	0.075 0.92
Number of Children in Household	25	1.08	2.4	10	0.4	0.26	33	0.36	0.73	3.07 0.05
Trips to City/Month	24	10.8	44.9	10	5.1	11.2	33	8.06	44.6	3.03 0.05
Acreage Owned	10	18.9	256.0	7	141.	79,580	14	91.3	9,785	1.51 0.23
Visits/Month	24	4.79	40.8	10	4.1	12.5	33	3.33	5.4	0.48 0.62
Years in Oregon	23	18.9	237.3	10	31.2	318.4	32	36.6	406.6	6.3 0.003

rejecters of the innovation (36.2).

Education

Education is directly related to the adoption of an innovation. The data fail to support this hypothesis. Adoption of the innovation does not increase with education. In fact, rejection of the innovation progressively increases with increasing education. A comparison of means similarly does not lend support to the hypothesis with adopters completing a mean of only 11.7 years of education and rejecters completing 14 years of schooling.

TABLE XX

POSITION ON HERBICIDES ACCORDING TO EDUCATION

Position on Herbicides	<u>Level of Education Completed</u>				
	Grade	High School	Some College	College Graduate	Graduate Work
	%	%	%	%	%
Rejected	0	30.0	47.1	60.0	75.0
Indifferent	0	13.3	11.8	20.0	0
Adopted	<u>18.8</u> 100% (6)	<u>56.7</u> 100% (30)	<u>41.2</u> 100% (17)	<u>20.0</u> 100% (5)	<u>25.0</u> 100% (4)

N: 62

Uncertainty Coefficient: 0.12

Significance: 0.16

Although the numbers in the categories are very small and there are very few college graduates and those that have postgraduate work, it seems that these people who have completed 16 or more years of school are almost three times more likely to reject the innovation than adopt it (67.5% vs. 27.5%).

These findings on the association between rejection and education reflect both age effects and mobility outside the area, rather than just effect of education on adoption of that particular innovation. By measuring extent of schooling, we know to some extent, the cosmopoliteness of the person, too, in the sense that the person had left a local area and lived in a medium sized city for at least a while.

Cosmopoliteness

Cosmopoliteness is the degree to which an individual's orientation is external to a particular social system. In this study, cosmopoliteness was operationalized through the use of empirical referents as: number of magazines, journals, and newspapers read by the household; proportion of friends that live outside the Alsea area in cities the size of Corvallis or larger; frequency of driving to a city; and origins, or size of community where the respondent grew up.

Because cosmopoliteness is positively associated with the adoption of innovation, according to the classical diffusion of innovation model, (1) the adoption of the innovation of herbicides should be positively associated with number of magazines read; (2) the adoption of innovation should be positively associated with proportion of friends living in outside cities the size of Corvallis or larger; (3) the adoption of innovation should be positively associated with frequency of driving to a city; and (4) adoption of innovation should be positively associated with growing up in urban areas of 10,000 people or larger.

Concerning the number of magazines read, the data support the hypothesis, although the findings lack formal statistical significance. Over half of those reading over two magazines are adopters of the

TABLE XXI

A COMPARISON OF POSITIONS ON HERBICIDES
ACCORDING TO NUMBER OF NEWSPAPERS,
MAGAZINES, JOURNALS READ

Positions on Herbicides	<u>Number of Newspapers, Magazines, Journals Read</u>				
	0 or 1	2	3	4	5 or more
Rejected	36.3	41.2	16.7	25.0	40.0
Indifferent	36.4	5.9	33.3	16.7	5.0
Adopted	<u>27.2</u> <u>100.0</u> (11)	<u>52.9</u> <u>100.0</u> (17)	<u>50.0</u> <u>100.0</u> (6)	<u>58.3</u> <u>100.0</u> (12)	<u>55.0</u> <u>100.0</u> (20)

Uncertainty Coefficient: 0.12

Significance: 0.12

innovation of herbicide, in the sense of favoring the aerial application of herbicides.

TABLE XXII

A COMPARISON OF POSITIONS ON HERBICIDES
ACCORDING TO PROPORTION OF FRIENDS
THAT LIVE OUTSIDE THE ALSEA AREA

Positions on Herbicides	<u>Proportion of Friends Outside Alsea Area</u>				
	a few	some	many	half	almost all or all
Rejected	33.3 (6)	46.2 (6)	15.4 (2)	33.3 (3)	50.0 (7)
Indifferent	16.7 (3)	23.1 (3)	7.7 (1)	22.2 (2)	0 (0)
Adopted	<u>50.0</u> <u>(9)</u> <u>100.0</u> (18)	<u>30.8</u> <u>(4)</u> <u>100.0</u> (13)	<u>76.9</u> <u>(10)</u> <u>100.0</u> (13)	<u>44.4</u> <u>(4)</u> <u>100.0</u> (9)	<u>2.8</u> <u>(6)</u> <u>100.0</u> (14)

Uncertainty Coefficient: 0.07

Significance: 0.53

In terms of the proportion of friends living outside the Alsea area in cities the size of Corvallis or larger, the data fail to support the hypothesis. It appears that having only a few friends or having almost all your friends live in cities outside Alsea makes little difference on whether you adopt or reject herbicides.

TABLE XXIII

A COMPARISON OF POSITIONS ON HERBICIDES ACCORDING
FREQUENCY OF DRIVING TO A CITY

Positions on Herbicides	<u>Frequency Per Month</u>				
	0-3	4	5-12	14-16	20 or more
Rejected	16.7 (8)	27.8 (5)	42.9 (9)	50.0 (2)	53.8 (7)
Indifferent	16.7 (2)	27.8 (5)	14.3 (3)	0 (0)	0 (0)
Adopted	66.7 (8)	44.4 (8)	42.9 (9)	50.0 (2)	46.2 (6)
	<u>100.0</u> (12)	<u>100.0</u> (18)	<u>100.0</u> (21)	<u>100.0</u> (4)	<u>100.0</u> (13)

Uncertainty Coefficient: 0.08

Significance: 0.36

Frequency of driving to the city also does not appear to be a very good predictor of position on herbicides. The data do not support the hypothesis that those who drive to a city more than once a week are more likely to be adopters rather than rejecters.

Again, the level of significance indicates that these findings could be due to chance factors or sampling error. When the analysis of variance was performed on number of trips to the city per month, comparing rejecters, the indifferent, and adopters, there was a significant difference between their means and variances (see Table 17). There was an F

statistic of 3.03 significant at the 0.05 level. Rejecters had the highest mean (10.8) with adopters second (8.06), and the indifferent with the lowest (5.1).

For the last component of cosmopolitaness, origins, again, we have findings with very little statistical significance and with very weak level of association. People from very large cities are more than twice as likely to be rejecters of herbicides as adopters, but for communities of 10,000 to 500,000, adopters are disproportionately represented. Once again, bear in mind that these numbers are so small as to be almost meaningless. However, size of community where raised does not seem to be a very good predictor of position on herbicides and we therefore conclude that the data fail to support the hypothesis.

TABLE XXIV
POSITION ON HERBICIDES ACCORDING TO
SIZE OF COMMUNITY OF CHILDHOOD

Position on Herbicides	<u>Population of Community</u>			
	over 500,000	10,000 to 499,000	2,500 to 10,000	less than 2,500
	%	%	%	%
Rejected	55.6	30.7	28.6	32.3
Indifferent	22.2	15.3	28.6	11.7
Adopted	<u>22.2</u> 100% (9)	<u>53.8</u> 100% (13)	<u>42.9</u> 100% (7)	<u>55.8</u> 100% (34)

Uncertainty Coefficient: 0.06
Significance: 0.76

Organizational Membership

According to the classical diffusion of innovation model, organiza-

tional membership is positively associated with the adoption of innovations. With the predictor variable operationalized as whether anyone in the household is a member of an organization, the data support the hypothesis, although at a 0.07 level of significance. Not only are the families that have memberships in organizations more than twice as likely to adopt than reject the innovation, it is also the case that those families who are either indifferent or have adopted the position favoring the use of herbicides are over three times as likely to have memberships in organizations than not.

TABLE XXV
POSITION ON HERBICIDES ACCORDING TO
MEMBERSHIP IN ORGANIZATIONS

Position on Herbicides	<u>Organizational Membership</u>	
	No	Yes
	%	%
Rejected	57.1	27.7
Indifferent	29.5	17.0
Adopted	33.3	55.3
	<u>100%</u>	<u>100%</u>
	(21)	(47)

Uncertainty Coefficient: 0.04

Significance: 0.07

Religiosity

The classical diffusion of innovation model also holds that religiosity is inversely associated with the adoption of innovation. The data fail to support this hypothesis. Although the significance level of 0.1 suggests that chance may have affected this finding, still,

TABLE XXVI
POSITION ON HERBICIDES ACCORDING
TO CHURCH MEMBERSHIP

Position on Herbicides	<u>"Do you belong to a Church?"</u>	
	No	Yes
	&	&
Rejected	46.9	27.8
Indifferent	15.6	13.9
Adopted	37.5	58.3
	<u>100%</u>	<u>100%</u>
	(32)	(36)
		N: 68

Significance: 0.19

in the Alsea area, people who are not members of a church are much more likely to be rejecters compared to church members (47% vs. 28%).

Neighboring Behavior

The theory also argues that visiting with neighbors is positively associated with the adoption of innovations. This idea is based upon the assumption that people find out about new innovations from other sources such as their neighbors. As can be seen in Table XXV, people who visit their neighbors 4 times a month are much less likely to adopt the innovation than are those who visit less frequently. Again, the significance is at the 0.4 level, so that it can only be said that in this particular sample, neighboring behavior is not a good predictor of adoption behavior and the data do not support the hypothesis, if anything, they contradict it.

TABLE XVII
A COMPARISON OF POSITIONS ON HERBICIDES
ACCORDING TO FREQUENCY OF
VISITING NEIGHBORS

Positions on Herbicides	<u>Frequency of Visiting per Month</u>		
	0-3	4	5 or more
	%	%	%
Rejected	27.3	45.8	45.5
Indifferent	12.1	16.7	18.2
Adopted	60.0	37.5	36.4
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
	(33)	(24)	(11)

N: 68

Uncertainty Coefficient: 0.02

Significance: 0.4

Opinion Leadership

Since adoption of innovation is the consequence of being modern, open to change, and having high status, adoption of innovation is hypothesized to be directly associated with opinion leadership. In the Alsea area case, however, there is a moderately strong (0.31) and statistically significant (0.04), negative association between opinion leadership and the adoption of the innovation of herbicides. An even stronger association between opinion following and the adoption of innovation can be seen with adopters being three times more likely to be opinion followers than rejecters. Therefore, the hypothesis should be rejected because the data demonstrate a reverse process occurring.

TABLE XXVIII

A COMPARISON OF POSITIONS ON HERBICIDES
ACCORDING TO OPINION LEADERSHIP

Positions on Herbicides	<u>"Do people ask you your opinion?"</u>	
	No	Yes
	%	%
Rejected	20.0 (7)	50.0 (14)
Indifferent	17.1 (6)	14.3 (4)
Adopted	62.9 (22)	35.7 (10)
	100.0 (35)	100.0 (28)

Uncertainty Coefficient: 0.31
Significance: 0.04

Farming and Size of Farm

The classical diffusion of innovation model, as well as other studies (Lionberger, 1953; Kivlin and Fliegel, 1967), suggest that being a farmer and the size of unit that one owns are directly associated with the adoption of an agricultural innovation. The test of this hypothesis resulted in statistically nonsignificant findings, but for this particular sample at least, those that farmed were no more likely than nonfarmers to adopt the innovation. The data do not support the hypothesis because there apparently is no relationship between adoption and whether or not the respondent farms.

Table XXX indicates that positions on herbicides are associated with size of unit. While rejecters make up the majority of the small unit owners, over 71% of those owning farms larger than 100 acres were

TABLE XXIX
A COMPARISON OF POSITIONS ON HERBICIDES
ACCORDING TO WHETHER RESPONDENT FARMS

Positions on Herbicides	<u>"Do you farm?"</u>	
	No	Yes
	%	%
Rejected	36.8 (14)	34.5 (10)
Indifferent	10.5 (4)	20.7 (6)
Adopted	52.6 (20)	44.8 (13)
	<u>100.0</u> (38)	<u>100.0</u> (29)
Uncertainty Coefficient: 0.01		
Significance: 0.50		

TABLE XXX
POSITIONS ON HERBICIDES ACCORDING TO SIZE OF UNIT

Positions on Herbicides	<u>Size of Unit in Acres</u>			
	2-10	11-100	101-300	301 to Highest
	%	%	%	%
Rejected	54.5	30.8	0	0
Indifferent	9.1	38.5	0	50.0
Adopted	36.4 <u>100%</u> (11)	30.8 <u>100%</u> (13)	100.0 <u>100%</u> (5)	50.0 <u>100%</u> (2)
Uncertainty Coefficient: 0.20				N: 31
Significance: 0.06				

adopters with none being a rejecter of the innovation. The association is moderate at 0.2 and even though there are very small numbers in some categories, the findings are significant at the 0.20 level. Therefore the data support the hypothesis that adoption is associated with size of farm.

Social Status

According to the classical model, social status is directly associated with adoption of innovations. The variable, social status, was operationalized as (1) opinion leadership, (2) NORC occupational prestige scores, (3) educational attainment, (4) home ownership, and (5) income.

As we have already noted, both educational attainment and opinion leadership are not good predictors of adoption. Rejecters have higher educational levels and are more likely to be opinion leaders. According to an analysis of variance on NORC scores, adopters have the lowest mean score, although these findings are not statistically significant. In terms of income, the entire population is rather evenly distributed with no significant relationship evident between income and position on the aerial application of herbicide.

Home ownership also does not seem to be a good predictor of position on herbicides. Most of the people that rent have adopted the position of favoring the application of herbicides and most owners have also adopted the same position.

Types of Lifestyles

According to the literature, adoption of innovation is directly associated with a lifestyle which can be characterized as being that of

TABLE XXXI
POSITIONS ON HERBICIDES BY
GROSS HOUSEHOLD INCOME

Position on Herbicides	<u>Gross Income for Last Year</u>			
	less than \$5,000	\$5,000- \$10,000	\$10,001- \$15,000	over \$15,000
Rejected	20.0	26.7	50.0	35.7
Indifferent	40.0	13.3	8.3	14.3
Adopted	40.0	60.0	41.7	50.0
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>
	(5)	(15)	(12)	(28)

Uncertainty Coefficient: 0.03

Significance: 0.61

TABLE XXXII
POSITIONS ON HERBICIDES ACCORDING TO HOME OWNERSHIP

Positions on Herbicides	<u>"Do you own or rent?"</u>	
	Own	Rent
	%	%
Rejected	34.5	30.6
Indifferent	14.5	20.0
Adopted	50.9	50.0
	<u>100.0</u>	<u>100.0</u>
	(55)	(10)

Uncertainty Coefficient: 0.00

Significance: 0.8

the "rational farmer" who works outside, has a favorable attitude toward risk and a commercial orientation, and is technologically competent.

TABLE XXXIII
A COMPARISON OF POSITIONS ON HERBICIDES
ACCORDING TO LIFESTYLE OF HOUSEHOLD

Positions on Herbicides	<u>Lifestyle of Household</u>		
	Modern, Risk Takers, Businesslike, Techno- logically Competent	Less Money, Slower Pace	Self-sufficient Be Left Alone
	%	%	%
Rejected	18.8	21.2	82.4
Indifferent	6.3	21.2	11.8
Adopted	<u>75.0</u>	<u>57.6</u>	<u>5.9</u>
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
	(16)	(33)	(17)

Uncertainty Coefficient: 0.19

Significance: 0.0001

The data here are as would be predicted by the hypothesis. There is a moderately strong (0.19) association as a significance level of 0.0001, between lifestyle of household and position on herbicide. The data support and hypothesis.

In addition to orientation, it would also seem logical to hypothesize workers in an extractive industry would be more likely to adopt rather than reject this particular innovation. Also, workers in the service sector will be more likely to reject rather than adopt the innovation. As Table 32 demonstrates, both the hypothesis that extractive workers are more likely and service workers are less likely to adopt the innovation are supported by the data. Adopters in extractive industries (51%) outnumber rejecters (38.7%). Similarly, workers in

service industries are almost four times likely to be rejecters than adopters of the innovation. Curiously enough, public sector workers (perhaps because some of them are Forest Service workers) are more than twice as likely to adopt than reject the innovation and retirees are almost 10 times as likely to adopt the innovation than reject it. This pattern is significant at the 0.01 level of significance.

TABLE XXXIV
POSITIONS ON HERBICIDES BY
TYPE OF INDUSTRY

Position on Herbicides	<u>Type of Industry</u>			
	Public Employment	Extractive	Service	Retired
	%	%	%	%
Rejected	37.5	38.7	72.7	6.3
Indifferent	0.0	9.7	9.1	31.3
Adopted	<u>62.5</u> <u>100%</u> (8)	<u>51.6</u> <u>100%</u> (31)	<u>18.2</u> <u>100%</u> (11)	<u>62.5</u> <u>100%</u> (16)

Uncertainty Coefficient: 0.14
Significance: 0.01

Length of Residence

Diffusion literature also maintains that length of residence is associated with adoption. Again, as has been noted in previous chapters, length of residence is another measure of cosmopolitaness, mobility, origins, and urban values: all of which are associated with adoption of innovation. Thus, the longer a person has lived in the Alsea area, the more likely he is to be a rejecter and not an adopter of the innovation of herbicide.

TABLE XXXV
POSITION ON HERBICIDES BY LENGTH OF
RESIDENCE IN THE ALSEA AREA

Position on Herbicides	<u>Length of Residence in Alsea Area</u>	
	15 years or less	more than 15 years
	%	%
Rejected	51.4	21.2
Indifferent	11.4	18.2
Adopted	37.1 <u>100%</u> (35)	60.6 <u>100%</u> (33)

N: 68

Uncertainty Coefficient: 0.05

Significance: 0.03

As can be seen, adoption of herbicide is weakly and negatively associated with length of residence, the association being significant at the 0.03 level. Using length of residence as the independent variable, newcomers are more than twice as likely as long-time residents to reject the innovation. Long-time residents, in turn, are almost twice as likely as newcomers to adopt the innovation. The association is further demonstrated in the analysis of variance table in which years in Oregon was associated with position on herbicide, significant at the 0.003 level. Because the relationship is in the opposite direction predicted because length of residence is positively associated with adoption, the hypothesis fails to be supported.

Family Composition

Because the model suggests that age is inversely related to the adoption of innovation and education and income are positively associated

with adoption, it could be argued that membership in a younger cohort is positively associated with the adoption of an innovation. Therefore, having a family or planning on having more children in the future should also be positively associated with the adoption of an innovation as herbicides. The data contradict this hypothesis with the analysis of variance table indicating that number of children in the household is inversely associated with the adoption of innovation. Also, those households that are expecting to have more children are three times more likely than those not expecting any more children to reject the innovation of herbicide (61% vs. 28%). This finding is significant at the 0.02 level.

TABLE XXXVI

POSITION ON HERBICIDES BY POSSIBILITY
OF CHILDREN IN THE FUTURE

"Will you have more children in the future?"

Position on Herbicides	No	Yes
	%	%
Rejected	28.0	61.1
Indifferent	14.0	16.7
Adopted	58.0	22.2
	<u>100%</u>	<u>100%</u>
	(50)	(18)

N: 68

Uncertainty Coefficient: 0.05

Significance: 0.02

The best way to evaluate the scope, depth, and power of a particular theoretical edifice is to expose selected hypothesis derived from that theoretical approach to the test of predicting, with some explanatory

power, associations and relationships that can be substantiated through data collection and analysis. This chapter examined how the data collected in the Alsea area corresponded with predicted values derived from the Classical Diffusion of Innovation Model. Out of twelve hypothesis tested, four hypothesis were supported by the data (Table 37).

TABLE XXXVII

SUMMARY TABLE OF HYPOTHESIS TESTED

<u>Variables Examined</u>	<u>Do the data support the hypothesis?</u>
1. Age	no*
2. Education	no*
3. Cosmopolitaness	
magazines read	yes
urban friends	no
commuting to city	no
origins	no
4. Organizational membership	yes (0.07)
5. Religiosity	no
6. Farming as an occupation	no
7. Size of farm	yes (0.06)
8. Neighboring	no
9. Opinion leadership	no*
10. Social status	
age	no*
opinion leadership	no*
occupational prestige	no
income	no
home ownership	no
education	no*
11. Lifestyle	yes*
12. Length of residence	no*
13. Family composition	no*
14. Type of industry	yes*

(*Significant statistically at a level of at least 0.05)

CHAPTER IX

CONCLUSION

This paper has presented an analysis of the processes induced in the controversy over the aerial application of herbicides in the Alsea area, utilizing as an explanatory theoretical framework, the classical model of the diffusion of innovation. Attention has been called to the manner in which this research tradition evolved and how its final form was the result of shaping by the social, technological, and economic interests that it was called upon to serve. For various reasons, both empirical and political, this classical model gradually lost legitimacy in the late 1960's. It was criticized even at its peak of popularity, however, for such glaring omissions as the failure to take into consideration the more social aspects of the diffusion of innovation, its blatant pro-technology bias, and its conspicuous inattention to the diffusion of environmental innovations.

The study described in this paper attempted to move away from the direction that this research tradition has taken and utilized this explanatory system in the analysis of the diffusion of a controversial and ambiguous innovation which has the potential of negatively effecting the environment and health of the people in the area. Integrated within the model was an emphasis upon the turbulent social processes that appear to be occurring in the Alsea area which have been exacerbated by population shifts. In demographic terms, Alsea was shown not to be experiencing social change in the form of increased dynamic density so

much as it was experiencing a turnover in that a different type of young person had been migrating to the area at the same time or after younger natives had left for urban areas. Although it has been shown that many of the in-migrants to the area are retired, this influx of younger newcomers had a definite affect upon the norms and values of the social system, if in no other way than to threaten them. Although it has been demonstrated that most respondents reported being reared in a smaller community, recent in-migrants were more likely to report being reared in a medium sized or larger city, often in Oregon, suggesting that many of the values held by newcomers which are deplored by long-time residents are not "Californian" but Oregonian. This is even more plausible when one considers the impact communication, media, and transportation hubs such as Eugene and Portland have upon the hinterlands such as the Alsea area. It would also appear that given the urban "sending communities" of the in-migrants, urban values and beliefs impell people away from cities. This emphasis upon values can be further detected in that recent in-migrants are much more likely than earlier in-migrants to have moved for quality-of-environment reasons.

Another and perhaps more important feature of recent in-migrants is their reluctance or inability to participate in the community organizations of the Alsea area. This might either be a result of the values of the in-migrants who have moved to the area for "appreciative" reasons or alternatively, they simply are more privately and familistically oriented and anti-organizational. The lack of interest in organizations could also be traced to the fact that, as Hatch (1979) argued, most small town organizations have ceased to have a community or civic orientation and are now more likely to be simply occupational interest groups.

The heterogeneity that characterizes newcomers to the Alsea area appears to have created diversity in the system of social norms as well as increased tolerance of deviance. This diversity is mirrored in the proliferation and complexity of segregated communication patterns. This would account for the manner in which homophilous communication patterns reinforce and sustain each other as manifested by the observation that few people who have taken a stand either for or against herbicides have friends who might disagree with them. It is these communication patterns that evidently function to maintain the different informal consensual realities of the perceived characteristics of the innovation of herbicides as its complexity, relative advantage, compatibility, triability, and observability. In this fashion, not only can symbolic adoption or rejection of the innovation be facilitated, but also reconfirmed and reinforced after the decision has been made.

When selected hypothesis were empirically tested, the results were often inconclusive due to the small number of respondents limiting the degree of elaboration that could be attempted. However, the data did suggest that in this specific case, younger age, higher education, opinion leadership, family composition, and length of residence were not associated with the adoption of innovation as was predicted. In fact, all five factors were found to be statistically significant predictors of the rejection of innovation. The factors of lifestyle and type of industry were the only two variables that seemed to be associated with the adoption of innovation in a statistically significant manner. Organizational membership and size of farm were predictors of the adoption of innovation as suggested by the model, although the findings did not meet the criteria of significance of less than 0.05.

In light of these findings, one has reason to doubt the utility and applicability of the Classical Diffusion of Innovation Model, at least as it has been employed in a problem involving the diffusion of a controversial, ambiguous, and perhaps, almost totally symbolic innovation. This could be attributed to several different factors. Perhaps as characteristics associated with urban life become common in rural areas, then distinctions between urban and rural areas become trivial and variables such as cosmopolitaness and functional connectivity lost theoretical and empirical relevance. Other variables such as occupation, education, length of residence, family composition, and income seem to be almost inextricably bound up with the effects of cohort membership. This would account for why age, in diffusion of innovation literature, is the most commonly cited variable associated with adoption. In the case of the Alsea area, the younger cohort and not the older cohorts seem to hold the so-called conservative position regarding rapid technological change.

In examining this social system in the Alsea area, it is apparent that the community has split into two distinct camps on the herbicide question. This division is particularly salient because it overlaps with other cleavages and antagonisms such as age, values, occupation, and urbanism. It could be argued that the status group comprised of newcomers is doubly negatively privileged because of the twin characteristics of age and recency of residence. It could also be noted that the adopters, in a sense, have not made individual decisions to adopt as such, but appear to have collectively adopted the innovation of herbicides and are now committed to the defense of that adoption in the face of evidence presented by the newcomers and outsiders. Probably age is the crucial factor in this choosing of sides, because the older

people who are newcomers recognize the greater legitimacy of the adherents to adoption in the face of the less legitimate, younger, and urban newcomers with more suspect values.

It is also important to recognize that since age is a good predictor of the rejection of the innovation of herbicides, it could also be argued that young families, who might be more at risk than older families, have a very good reason to reject the use of herbicides, just out of self-interest. Older families would be less likely to be presented with such an unambiguous definition of risks and rewards.

One possible alternative and perhaps more useful application of the Classical Diffusion of Innovation Model would involve the respecification of the definition of "innovation." Departing completely from the research tradition that habitually focused upon technological innovation as the object of interest, an "environmental ethic" could be defined as the innovation of concern to the researcher. This was attempted in research conducted previously to this study in the Alsea area. Students (N=132) in different college classes were surveyed as to a range of attitudes covering a distribution of environmental, ecological, energy, and public health issues. About fifteen separate questions were asked and almost fifteen different domains of content emerged when items were subjected to factor analysis. In short, most students saw little relationship between recycling and air pollution or nuclear power and the cutting of "old-growth" timber. This finding of heterogeneity of association is also consistent with informants' reports (interview 6) that many people who were opposed to herbicides had no interest whatsoever in the environment or ecology and that some people interested in ecology were in favor of the herbicides.

This lacking of a consistent ideological perspective appears to be a characteristic of environmentalism. Stallings (1973: 456-480) argued that it is only the "core" members constituting about 10-15% of the organization that demonstrate any homogeneity of belief in most environmental organizations. He emphasized that movement ideology such as slogans and speeches should never be confused with individual belief structures.

Still, methodological difficulties aside, it would be theoretically possible to specify an "environmental/ecological" ethic as a symbolic innovation. Although it would depart completely from the research tradition, a study could be performed in the Alsea area that defined "anti-technology" as the innovation of interest. In a society that was gradually becoming aware of the latent dysfunctions of the uncritical acceptance of technology, persons rejecting the increased use of technology could be considered "modern" and those persons adopting more technology could be viewed as "traditional" (Table 38).

TABLE XXXVIII

A TYPOLOGY OF INNOVATIVENESS

		Direction of Change of Societal Evaluation of Technology	
		Pro	Anti
Individuals' and Groups' Evaluations of Technology	Pro	INNOVATORS	LAGGARDS
	Anti	LAGGARDS	INNOVATORS

However, it should be again noted that in the study reported in this paper that if innovativeness was to be defined as the rejection of the herbicidal technology, then still only the variables of age, education, length of residence, and family composition would be statistically significantly associated with innovativeness. In other words, little additional power of prediction could be gained by utilizing the Classical Diffusion of Innovation model rather than merely examining competing interests. The younger cohorts, being more at risk and having more employment options and mobility, could have been predicted intuitively as being more innovative in the sense of rejecting herbicidal technology.

It should be recognized that this paper has been an exploratory effort to utilize a traditional rural sociological explanatory model, the Classical Diffusion of Innovation Model. This study of the Alsea area was conducted both in order to understand in concrete detail, the complexity and general parameters of the controversy in the Alsea area. The data gathered were then utilized in order to judge how adequately the model was able to explain the diffusion of a controversial and ambiguous innovation in a changing rural environment.

It now seems that the model has only limited utility in understanding and explaining the conflict that is occurring in the area. Perhaps, a different theoretical framework, emphasizing the collection action that is occurring between and within factions should be applied in the Alsea area. However, the Alsea area should not be regarded as being unique or unusual in that as Coleman (1957) has pointed out, the greatest controversies over such innovations as school desegregation have always occurred in small towns. The public amiability of a small town, as Hatch (1979) also observed, usually is a cover for private disharmony. In a

very real sense, the very existence of small town friendliness is a measure of the social control that the community is attempting to exert on its members.

Viewed in such a light, the controversy in Alsea is not unusual or remarkable: the events that are unfolding in the area are the result of the fortuitous conjoining of factors that have resulted in social change.

REFERENCES

- Babbie, Earl R. The practice of social research. Belmont, California: Wadsworth Publishing Company, Inc. 1979.
- Beale, Calvin L. The revival of population growth in nonmetropolitan America. Washington, D.C., USDA Economic Research Service (June) 1975.
- Beltran, Luis Ramero. "Alien premises, objects and methods in Latin American communication research," *Communication Research* 3(2): 107-134. 1976.
- Berger, Bennett M. "American pastoralism, suburbia and the commune movement," *Society/Transaction* (#8): 64-69. 1979.
- Berry, Brian J. L. The human consequences of urbanization: divergent paths in the urban experience of the twentieth century. New York: St. Martin's Press. 1973.
- Bitsas, Bill. "Herbicide dangers difficult to prove," *The Impact* — (4): 3. 1977.
- Boraiko, Allen A. "The pesticide dilemma," *National Geographic* — 157: 148-183. 1980.
- Buttel, Frederick H. "Economic growth and the welfare state: implications for the future of environmentalism," *Social Science Quarterly* (Autumn) 58: 692-699. 1978.
- Buttel, Frederick H. and William L. Flinn. "Conceptions of rural life and environmental concern," *Rural Sociology* 42(4): 344-355. 1977.
- Buttel, Frederick H. and William L. Flinn. "Environmental politics: the structuring of partisan and ideological cleavages in mass environmental attitudes," *Sociological Quarterly* (Autumn) 17:477-490. 1976
- Buttel, Frederick H. and William L. Flinn. "The structure of support for the environmental movement," *Rural Sociology* 39(1): 56-69. 1974.
- Campbell, Rex R. "A suggested paradigm of the individual adoption process," *Rural Sociology* 31(4): 458-466. 1966

- Campbell, Rex R. and Daniel M. Johnson. "Propositions on counterstream migration," *Rural Sociology* 41(1): 127-141. 1976.
- Carson, Rachel L. *Silent spring*. Boston: Houghton Mifflin. 1962.
- Coleman, James S. *Community conflict*. Glencoe: Free Press. 1957.
- Coleman, James S., E. Katz and H. Menzel. *Medical innovation: a diffusion study*. Indianapolis: Bobbs-Merrill Company. 1966.
- Colfer, Carol J. Pierce and A. Michael Colfer. "Inside Bushler Bay: lifeways in counterpoint," *Rural Sociology* 43(2): 204-220. 1978.
- Coughenour, C. Milton. "A review of communication of innovations: a cross-cultural approach," *Rural Sociology* 38(1): 67-71. 1973.
- Crain, Robert L. "Fluoridation: the diffusion of an innovation among cities," *Social Forces* (June) 44: 467-475. 1966.
- Davis, William J. in Galston, Arthur W. "Herbicides: a mixed blessing," *Bioscience* 29(2): 85-90. 1979.
- Dillman, Don A. *Mail and Telephone Surveys*. New York: Wiley. 1978.
- Dunlap, Riley E. and Robert Bruce Heffernan. "Outdoor recreation and environmental concern: an empirical examination," *Rural Sociology* 40(1): 18-29. 1975.
- Fliegel, Frederick C. and Joseph E. Kivlin. "Attributes of innovations as factors in diffusion," *American Journal of Sociology* 72(3): 235-248. 1966.
- Flinn, William J. "Influence of community values on innovativeness," *American Journal of Sociology* 75(4): 983-991. 1970.
- Galston, Arthur W. "Herbicides: a mixed blessing," *Bioscience* — 29(2): 85-90. 1979.
- Gartrell, John W. and C. David Gartrell. "Status, knowledge, and innovation," *Rural Sociology* 44(1): 73-94. 1979.
- Goss, Kevin F. "Consequences of diffusion of innovations," *Rural Sociology* 44(4): 754-772. 1979.
- Graber, Edith E. "Newcomers and oldtimers: growth and change in a mountain town," *Rural Sociology* 39(4): 504-513. 1974.
- Hagerstrand, Torsten. "The diffusion of innovations," pages 174-178 in *International Encyclopedia of Social Sciences*. New York: MacMillan and Company. 1938.

- Hamilton, Phil. "Scoping out your opinion," *Earthwatch Oregon* 12: 8-10. 1980.
- Hatch, Elvin. *Biography of a small town*. New York: Columbia University Press. 1979.
- Hawley, Amos H. *Societal growth: processes and implications*. New York: Free Press. 1979.
- Hennigh, Lawrence. "The good life and the taxpayer's revolt," *Rural Sociology* 43(2): 178-190. 1978.
- Hoffer, Charles R. and Dale Stangland. "Farmers' attitudes and values in relation to adoption of approved practices in corn growing," *Rural Sociology* 23(4): 112-120. 1958.
- Hoover, Kenneth R. *The elements of social scientific thinking*. New York: St. Martin's Press. 1980.
- Horowitz, Irving L. In *Societal Growth*, edited by Amos Hawley. New York: Free Press. 1979.
- Jones, Gwyn E. "A review of communication of innovations: a cross-cultural approach," *Rural Sociology* 38(1): 71-75. 1973.
- Karp, David A., Gregory P. Stone, and William C. Yoels. *Being urban: a social psychological view of city life*. Lexington, Maine: D. C. Heath and Company. 1977.
- Katz, Elihu. "Communication research and the image of society convergence of two traditions," *American Journal of Sociology*, (65): 435-440. 1960.
- Katz, Elihu. "The social itinerary of technical change: two studies on the diffusion of innovation," *Human Organizations* 20: 70-82. 1962.
- Katz, Elihu, Herbert Hamilton, and Martin J. Levin. "Traditions of research on the diffusion of innovation," *American Sociological Review* 28(2): 237-252. 1963.
- Keisling, Phil. "The spraying of Oregon," *Willamette Week* (December) 6: 3, 10, 17, 24. 1979.
- Kivlin, Joseph E. and Frederick C. Fliegel. "Differential perceptions of innovations and rate of adoption," *Rural Sociology* 32(1): 78-91. 1967.
- Klongan, Gerald E. and E. Walter Coward, Jr. "The concept of symbolic adoption: a suggested interpretation," *Rural Sociology* 35(1): 77-83. 1970.

- Kuhn, Thomas S. The structure of scientific revolutions. Chicago: University of Chicago Press. 1970.
- Lazarsfelt, Paul Felix, B. Bererlson, and H. Gaudel. The people's choice: how the voter makes up his mind in a presidential campaign. New York: Columbia University Press. 1944.
- Lewin, Kurt. Field theory in social science: selected theoretical papers. New York: Harper. 1951.
- Light, Ivan. "Urban dropouts in rural America," New York Times (February 17): E19. 1980.
- Lionberger, Herbert F. "Some characteristics of farm operators sought as sources of farm information in a Missouri community," Rural Sociology 18(4): 325-338. 1953.
- Margolin, Malcolm. "Hurray for the alder, scourge of the woods," CoEvolution Quarterly (Winter): 35-36. 1976.
- Marsh, C. Paul and A. Lee Coleman. "Farmers' practice-adoption rates in relation to adoption rates of 'leaders,'" Rural Sociology 19(2): 180-181. 1954.
- Matras, Judah. Social inequality, stratification, and mobility. Englewood Cliffs: Prentice-Hall, Inc. 1975.
- Metz, A. Stafford. "An analysis of some determinants of attitude toward fluoridation," Social Forces 44(4): 476-484. 1966.
- Oregon Women for Timber. "Everything you wanted to know about 2, 4, 5-T and 2, 4-D but were afraid to ask, or why Herb Sprayman is smiling." Corvallis: Oregon Women for Spraying. No date.
- Palen, J. John. The urban world. New York: McGraw-Hill. 1978.
- Pampel, Fred, Jr., and J. C. van Es. "Environmental quality and issues of adoption research," Rural Sociology 42(1): 57-71. 1977.
- Picou, J. Steven, Richard H. Wells, and Kenneth L. Myberg. "Paradigms, theories, and methods in contemporary rural sociology," Rural Sociology 43(4): 559-583. 1978.
- Presser, Hartley A. "Measuring innovativeness rather than adoption," Rural Sociology 34(4): 510-527. 1969.
- Ramsey, Charles E., Robert A. Polson, and George E. Spencer. "Values and the adoption of practices," Rural Sociology 24(1): 35-51. 1959.

- Redfield, Robert. The little community and peasant society and culture. Chicago: University of Chicago Press. 1967.
- Rice, Dave. "Alternative farms a growing trend," The Impact (June): 11. 1978.
- Robertson, James and Carolyn Robertson. The small towns book: show me the way to go home. Garden City: Anchor Books. 1978.
- Rogers, Everett and George M. Beal. "The importance of personal influence in the adoption of technological changes," Social Forces 36(4): 329-335. 1958.
- Rogers, Everett M. and Wickey L. Meynen. "Communication sources for 2, 4-D weed spray among Columbian peasants," Rural Sociology 30(2): 213-219. 1965.
- Rogers, Everett M. and F. Floyd Shoemaker. Communication of innovation. New York: Free Press. 1971.
- Rose, Jerry D. Introduction to sociology. Chicago: Rand McNally and Company. 1980.
- Rosenberg, Morris. The logic of survey analysis. New York: Basic Books. 1968.
- Ryan, Bryce and Neal C. Gross. "The diffusion of hybrid corn seed in two Iowa communities," Rural Sociology 8(1): 15-24. 1943.
- Salcedo, Roldolfo N., Hadley Read, James F. Evans, and Ana C. Kong. "Rural-urban perspectives of the pesticide industry," Rural Sociology 36(4): 554-562. 1971.
- Schnaiberg, Allan. The environment: from surplus to scarcity. New York: Oxford University Press. 1980.
- Schwarzweiler, Harry K. "Migration and the changing rural scene," Rural Sociology 44(1): 7-23. 1979.
- Sills, David L. "The environmental movement and its critics," Human Ecology 3: 1-41. 1975.
- Sinsemilla Tips. "Interview with a grower," Domestic Growers Journal 1(2): 4-5. 1980.
- Stallings, Robert A. "Patterns of belief in social movements: clarifications from an analysis of environmental groups," Sociological Quarterly 14(3): 465-480. 1973.

- Taylor, David L. and William L. Miller. "The adoption process and environmental innovations: a case study of a government project," *Rural Sociology* 43(4): 634-648. 1978.
- Tremblay, Kenneth R. Jr., and Riley E. Dunlap. "Rural-urban residence and concern with environmental quality: a replication and extension," *Rural Sociology* 43(3): 474-491. 1978.
- Triandis, Harry C. *Attitude and attitude change*. New York: Wiley. 1971.
- Turner, Frederick J. *The frontier in American history*. New York: Holt. 1931.
- United States Department of Agriculture. *Methods of managing competing vegetation: a programmatic environmental statement*. Portland: United States Department of Agriculture. 1980.
- Van Strum, Carol. "Ask the women," *CoEvolution Quarterly* 22(Summer): 44-47. 1979.
- Vidich, Arthur J. and J. Bensman. *Small town in mass society: class, power, and religion in a rural community*. Princeton, N. J.: Princeton University Press. 1958.
- Wallace, Walter L. *Logic of science in sociology*. Hawthorne, New York: Aldine Publishing Company, Inc. 1977.
- Wilkening, Eugene A. "Roles of communicating agents in technological change in agriculture," *Social Forces* 34(4): 361-367. 1956.
- Wilkening, Eugene A. "Sources of information for improved farm practices," *Rural Sociology* 15(1): 19-30. 1950.
- Zaltman, Gerald and Robert Duncan. *Strategies for planned change*. New York: John Wiley and Sons. 1977.

APPENDIX

The 68 units surveyed comprised 23% of the total survey population of 335 households. The survey population is approximately 82% of all the households in the Alsea service district. These 68 households, therefore, are 16.5% of all the households in that service area.

Dillman (1978: 63) also notes, though, that mail surveys have the lowest probability of producing socially desirable responses, telephone surveys the next, and face-to-face interviews have the highest. Face-to-face interviews were not economically feasible, given the geographical dispersion of the respondents in the area.

Dillman (1978: 241) also does not consider the proportion of calls completed to calls attempted to be a measure of a response rate. Instead, he likens it more to face-to-face interviews where only refusals by persons contacted are calculated into the response rate. According to this method of calculating response rates, the response rate of this survey on rejection of herbicides would be 93%.

Because of the way this survey was conducted, calling on weekdays, weeknights, weekends, and even on the Fourth of July, it is probable that most of the people who were not contacted were on vacation or out of town for an extended period of time. It could even be that they are only part-time residents in the area. It is thought however, that the people who were contacted are representative of the people in the area because both men and women, and young and old cooperated with the survey.

Dillman (1978: 241) notes that Random Digit Dialing may be

preferable to Directory Sampling, but he points out that those who have requested unlisted numbers have done so in an effort to avoid unsolicited calls. He notes, "Therefore we believe it is likely that this group will exhibit higher refusal rates than other groups."

Random Digit Dialing was not feasible in the Alsea area because of the small number of telephones. Conceivably one might dial random numbers for hours before getting a response.

Descriptive statistics, used to measure the strength of the association between variables, varied according to the nature of the variable: the uncertainty coefficient, a proportional reduction of error (PRE) measure, similar to Goodman and Kruskal's Tau and more sensitive than Lambda, was employed with nominal variables. Gamma, another PRE measure, was used to analyze pairs of variables which can be ordinally ranked. Gamma allows the prediction of the ordinal ranking of one variable on the basis of knowledge of the values of the other variable.

Measures of the significance of the association between variables, or in other words, the probability of the measured association being due to sampling error, were accomplished through the use of the Chi-square test for larger samples and Fisher's exact test for smaller samples. Of course, when using a sample size so small, statistical significance should not be confused with substantive significance. An association may be interesting and important without being necessarily statistically significant (Babbie, 1979).

The data gathered in this survey were coded, punched, and analyzed by the Statistical Package for the Social Sciences. A one-way analysis of variance was performed on selected ratio variables in the testing of hypothesis about position on herbicides and migrational patterns.

1. As you are probably aware, the population of this part of the state has been growing in the past few years. How do you feel about this growth in the Alsea area? Do you feel that it is not enough, about right, or too much?

1 NOT ENOUGH
2 ABOUT RIGHT
3 TOO MUCH

4 _____

2. How long have you lived in _____?

5&6 _____

3. Where did you live before coming here? _____, _____

1 LARGE CITY (over 500K)
2 MEDIUM CITY (150-499K)
3 SMALL CITY (50-150K)
4 SEMI-URBAN (10-49K)
5 SEMI-RURAL (2, 5-9,999)
6 RURAL (less than 2,500)
7 FARM

7 _____

4. How long did you live there?

(region)

8 _____
9&10 _____

5. Why did you move here?

11 _____

6. Have you moved frequently as an adult?

1 NO
2 YES

about how many times?

12 _____
13 _____

7. How long have you lived in Oregon?

14&15 _____

8. How large was the place you grew up?

16 _____

9. Since you have been in _____, do you believe that it has changed for the better, the worse, or stayed about the same?

1 WORSE

2 SAME

3 BETTER

Is there one change
that you particularly
object to? Why?

Is there one change
that you particular-
ly like? Why?

17 _____

10. All things considered, how do you feel about this area? Is it an undesirable or a desirable place to live?

UNDESIRABLE

3 NEUTRAL

DESIRABLE

1 VERY
2 SOMEWHAT

5 VERY
4 SOMEWHAT

18 _____

THE NEXT FEW QUESTIONS CONCERN THE PEOPLE YOU KNOW BOTH IN YOUR IMMEDIATE COMMUNITY AND THOSE THAT LIVE ELSEWHERE...

11. Out of all the people you know, what proportion of them would you say live in towns the size of Corvallis or larger?

7 ALL
6 ALMOST ALL
5 MANY
4 HALF

3 SOME
2 A FEW
1 NONE (Skip to 15)

19 _____

12. How frequently do you speak or write to these people?
(per month)

20 _____

13. About how many of the people you know live in the Eugene area?

21 _____

14. About how many of the people you know live in the Corvallis area?

22 _____

15. How often, would you say, a member of your household drives to Waldport, Corvallis, or some other town?
(per month)

23 _____

NOW LET'S LOOK AT THE PEOPLE WHO LIVE IN YOUR COMMUNITY...

16. In general, how well do you get along with the people who live near you?

5 VERY WELL
4 SOMEWHAT WELL
3 NEITHER GOOD NOR BAD
2 NOT TOO WELL
1 QUITE POORLY

24 _____

17. How often, on the average, do you visit these people or have them over to your house?
(per month)

25 _____

18. Do members in your household belong to any clubs, lodges, granges, unions, churches, or other organized groups such as the PTA?

1 NO
2 YES

(number) 26 _____
27 _____

church?

1 NO
2 YES 28 _____

WE ARE PARTICULARLY INTERESTED IN WHAT PEOPLE IN YOUR AREA THINK ABOUT THE MASS MEDIA SUCH AS TV, RADIO, NEWSPAPERS, AND MAGAZINES.

19. Do people in your household read any newspapers, magazines, or professional journals like farm journals?

1 NO
2 YES

(number) 29 _____
30 _____

20. Do you think the media such as TV, radio, and magazines report events accurately?

1 NO
2 YES

31 _____

21. Compared to the rest of the nation, do you think your community is traditional or modern?

1 TRADITIONAL
2 MODERN

32 _____

22. Have you seen any programs on TV or read any stories in national magazines about the use of chemical sprays in the forests around Alsea?

1 NO
2 YES

33 _____

23. Do these accounts seem to be telling the "real story" of what is really going on?

1 NO
2 YES

34 _____

24. Does your household favor or oppose the aerial spraying of these chemicals in the forest?

1 OPPOSE

2 DON'T CARE

3 FAVOR

35 _____

a. Would it be OK if these chemicals were sprayed with larger buffer strips?

1 NO 2 YES

36 _____

b. Would it be OK to use these chemicals if they were applied with backpack sprayers?

37 _____

c. Would other types of chemicals be acceptable?

38 _____

d. Do you use any kinds of chemicals on your own property?

39 _____

e. Do you have "No Spraying" signs posted on your property?

40 _____

f. Do you believe that any amount of these chemicals is too much?

41 _____

g. Have you signed a petition calling for a ban on serial spraying?

42 _____

a. Do you have these chemicals on your own property?

43 _____

b. Would it be OK if a helicopter sprayed chemicals near your own property?

44 _____

25. Some say that the people who use sprays for a living and their families have been doing this for as much as thirty years and have had normal health and pregnancies. Do you agree or disagree with this?

DISAGREE

3 NEUTRAL

AGREE

1 STRONGLY

5 STRONGLY

2 MILDLY

4 MILDLY

45 _____

26. Some have also said that thousands of tests and decades of safe experience have proven the safety of these sprays. Do you agree or disagree with this?

DISAGREE

3 NEUTRAL

AGREE

1 STRONGLY

5 STRONGLY

2 MILDLY

4 MILDLY

46 _____

27. It has also been said that we really don't know very much about these chemicals and how they work. Do you agree or disagree with that?

DISAGREE

3 NEUTRAL

AGREE

1 STRONGLY

5 STRONGLY

2 MILDLY

4 MILDLY

47 _____

28. Some people have also said that the real reason why people are against herbicides is because people are growing marijuana up on the clear-cuts and they don't want their crops discovered or killed. Do you agree or disagree with that?

DISAGREE	3 NEUTRAL	AGREE	
1 STRONGLY		5 STRONGLY	
2 MILDLY		4 MILDLY	48 _____

29. Some people also say that these herbicides don't really work very well and are not a good way to manage the forest.

DISAGREE	3 NEUTRAL	AGREE	
1 STRONGLY		5 STRONGLY	
2 MILDLY		4 MILDLY	49 _____

NOW I WOULD LIKE FOR YOU TO TRY AND REMEMBER BACK WHEN YOU FIRST HEARD ABOUT THESE CHEMICALS.

30. When did you first know that chemicals were being used to control brush and trees in the forest?

(years ago) 50&51 _____

31. How did you find out?

52 _____

32. Do you know that these chemicals might be harmful to humans?

53 _____

33. When did you first discover that?

(years ago) 54&55 _____

34. Among the people you know, do you think that most of them favor or oppose the use of these sprays?

OPPOSE	3 NEUTRAL	FAVOR	
1 STRONGLY		5 STRONGLY	
2 MILDLY		4 MILDLY	56 _____

35. Have you ever talked to someone from:

the Hoedads (1 NO, 2 YES, 3 AGREE WITH, 4 MONEY, MEMBER, 5 DISAGREE WITH) 57 _____

Women for Timber 58 _____

N.C.A.P. 59 _____

C.A.T.S. 60 _____

any other organization related to the herbicide question 61 _____

36. Have you ever talked to:

Bonnie Hill? (1NO, 2 YES, 3 SUPPORT, 4 OPPOSE) 62 _____
 Richard Armentrout 63 _____

Nortie Kalishman? 64 _____

Mike Newton? 65 _____

37. When you talk with people about such things as the herbicide controversy, what kinds of people do you talk to?

(F.S., Extension Service) 65 _____

38. Compared with other people you know, do people ask you your opinion on these kinds of issues?

1 NO
 2 YES 66 _____

39. Have you ever gone to a public meeting on the herbicide controversy or any other issue?

1 NO
 2 YES (What?) 67 _____

NOW I WOULD LIKE YOU TO THINK OF THE DIFFERENT KINDS OF PEOPLE AND HOUSEHOLDS THAT LIVE IN YOUR COMMUNITY. OF COURSE ALL HOUSEHOLDS ARE VERY DIFFERENT AND NO TWO ARE ALIKE BUT I WOULD LIKE TO READ TO YOU DESCRIPTIONS OF 3 DIFFERENT TYPES OF HOUSEHOLDS AND I WANT YOU TO TELL ME WHICH MORE CLOSELY RESEMBLES YOUR OWN HOUSE HOLD.

Household "A" lives in this area because they either farm or work in the woods. They are very efficient and businesslike and will take risks if they feel that the returns will justify it. They make a good living and pride themselves on being modern and technologically competent.

Household "B" lives in this area because it is a nice place to live even though they don't make very much money. They just prefer a slower pace of life.

Household "C" lives in the area because it is one of the last places left where you can get away from a polluted overindustrialized society. They live here because they want to be left alone, raise their own food, and become as self-sufficient as possible.

WHICH FAMILY SOUNDS THE MOST LIKE YOUR OWN FAMILY, NOT EXACTLY OF COURSE BUT WHICH ONE IS THE CLOSEST?

A=1; B=2; C=3 68 _____

40. Continuing along this line, what is the main occupation of your household?

NORC 69&70 _____
 Industry 71 _____

41. Do you farm?
1 NO
2 YES 72_____
- How large? 73,74,75_____
42. Do you own or rent?
1 OWN
2 RENT 76_____
43. What is the highest grad of school or year of college
that the head of the household has completed? 77&78_____
44. How many children in your household are under the age
of 18? 79_____
45. Under 10? 80_____
46. Do you think your household will have any more children?
1 NO
2 YES 81_____
47. Did your household income before taxes exceed
\$10,000 last year?
3 YES	NO
MORE THAN \$15,000?	MORE THAN \$5,000?
NO	4 YES
1 NO	2 YES
	82_____