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MENNONITE ARCHITECTURE: DIACHRONIC EVIDENCE FOR RAPID DIFFUSION IN RURAL COMMUNITIES

by

Jeffrey Lynn Eighmy

A Dissertation Submitted to the Faculty of the

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I hereby recommend that this dissertation prepared under my direction by Jeffrey Lynn Eighmy

entitled Mennonite Architecture: Diachronic Evidence for Rapid Diffusion in Rural Communities

be accepted as fulfilling the dissertation requirement for the degree of Doctor of Philosophy

J. E. Downing — 10/6/77
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Dissertation Director, Acting — Date

As members of the Final Examination Committee, we certify that we have read this dissertation and agree that it may be presented for final defense.

Richard H. Hevdon — 10/6/77

Courtenay Cronin — 10/6/77

Final approval and acceptance of this dissertation is contingent on the candidate's adequate performance and defense thereof at the final oral examination.

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ABSTRACT

Previous research has almost uniformly described social change among conservative rural populations as slow or conservative. However, in a number of reported cases innovations have diffused quite rapidly through conservative rural communities. The problem is, then, how to reconcile the general impression concerning social change in these communities with the possibility of rapid internal diffusion. Numerous possibilities exist. Internal diffusion in these communities may not, indeed, be rapid. On the other hand, the rate of social change for these communities may not be significantly different from that for any other type community. Finally, both observations may be correct, in which case the concept of social change in conservative rural communities will need refining.

To attack the problem it was first necessary to define what is meant by the term conservative rural community. It was defined as an isolated, homogeneous community dominated by face-to-face, primary relations with a stable group membership. For conservative rural people the community serves as the primary focus of social life beyond the family and exercises considerable power over individual behavior.

It was hypothesized that the extreme normative constraints characteristic of conservative rural communities encourages a high adoption rate to maintain uniformity and for the same reason retards the date of initial introduction of innovations. It is the latter that

leaves the impression of conservative social change and the former that explains the cases of rapid diffusion.

It was decided to investigate this proposal through a comparison of diffusion in a conservative rural population with another, less conservative population. Two Mennonite groups, the Sommerfelders and Altkolonier, in Mexico come close to meeting the ideal requirements and were studied during nine months of field work. Since few written documents exist for these groups, it was necessary to use datable architecture to derive comparable records of behavioral change. Nine time periods from 1922, the date of migration to Mexico, to 1976 were established and nine architectural samples for each period selected. A total of 241 Altkolonier and 121 Sommerfelder houses were recorded. Changes in architectural attributes were then analyzed through the time periods to determine frequency shifts and behavior change trends. These trends were then compared between the groups for differences in date of introduction and rate of diffusion.

Comparable change trends were found in trends for 21 attributes. In only one instance did the more liberal Sommerfelder introduce a change trend after the Altkolonier. The conservative Altkolonier tended (15 of 21 attributes) to change at a faster rate. Thus, the hypothesis is supported. The more conservative group tends to postpone introduction of an innovation but when finally adopted, the innovation diffuses more rapidly than in the liberal group. These findings suggest that it is time to reevaluate the nature of social change in conservative rural communities. It is apparently inappropriate to characterize these groups as "slow changing." They innovate later but

the rate of diffusion may often be more rapid than modern, urban communities. They are slow to change only in the sense of time of adoption.

The use of material culture to provide a diachronic record of social behavior for an analysis of change in social behavior through time proved extremely rewarding. In most cases it was possible to date past behavior to within two years and thus retrieve at little expense a record of over fifty years of behavior.

CHAPTER 1

SOCIAL CHANGE IN CONSERVATIVE RURAL COMMUNITIES

Anyone who has grown up in a small town has noticed the importance of group pressure and city folks need only remember their teenage years to recall the importance of group pressure. Fear of rejection and isolation leave individuals in the grip of group expectations. Mark Twain (1968:61) felt that groups even have the power to make individuals do things with which they really disagree -- lynching, for example.

> The vast majority of the race, whether savage or civilized, are secretly kind-hearted and shrink from inflicting pain, but in the presence of the aggressive and pitiless they don't dare to assert themselves. Think of it! One kind-hearted creature spies upon another, and sees to it that he loyally helps in iniquities which revolt both of them.

An interesting aspect of conformity is that even though it is a constricting force on behavioral variation, the objects conformed to, constantly change.

> A new thing in costume appears--the flaring hoop skirt, for example--and the passers-by are shocked, and the irreverent laugh. Six months later everyone is reconciled; the fashion has established itself; it is admired, now, and no one laughs, public opinion resented it before, public opinion accepts it now, and is happy in it (Twain 1962:23).

An important question converning change when extreme conformity is present is <u>how</u> the change comes about. Often we ask ourselves why a certain change occurred. Twain (1962:23), for example, felt changes occurred because the influential introduced them. However, the

question asked in this dissertation concerns the course of social change within groups which have strong patterns of behavioral conformity. The question was first posed for me by an incident of adoption diffusion reported for a group of Amish in Pennsylvania by John Hostetler (1968:316-324).

Automobile Adoption Among the Hoog Amish

The Hoog Amish are one of the more progressive churches in the conservative Old Order Amish sect. Despite the extensive use of motorized transportation, however, the official rule among the Hoog Amish prohibited the ownership of automobiles. Considerable informal discussion centered on the desire to own automobiles. The issue of automobile ownership finally came to the surface when the son of a well-thought-of family purchased a used automobile. The father refused to have the car on his property, and under considerable pressure the boy returned the car to the dealer. A week later another young Amish man bought a car and kept it at the place of his employment. The young man was immediately excommunicated which offended his younger brother who bought a car himself in protest.

These developments justified bringing the issue of automobile ownership before the church. Through informal discussion, it was evident that very few objected to the coming of the automobile. When the vote was taken, the automobile was accepted almost unanimously. Only four persons did not give assent, and they immediately joined a more conservative Old Order Amish group in the vicinity. On the following Sunday, eight automobiles were present at worship services. Several

weeks later most of the members came in automobiles, and when Hostetler made his observations, from forty to fifty automobiles were parked in a single barnyard with perhaps one or two carriages present. Only four old people of a total of seventy households had not purchased autos. Thus, in a matter of weeks the automobile had completely spread through the Hoog Amish population.

The Problem of Rapid Internal Diffusion

This example of Amish social change might seem surprising since the Amish and other Anabaptist[1] groups are usually thought of as changing slowly:

> Changing a major rule requires time in Amish society. It may take decades, and a half century or more to observe even the slightest symbolic change (Hostetler 1968:316).

Miller (1950:147) concludes that the Amish of North America have adhered "tenaciously" to customs and traditions established during the 16th century. Hostetler and Huntington (1967:110) give the stability of Hutterite society major credit for the long term survival of their communal society. Houghton (1926:5) also points to the stable community organization of the Amish in central Illinois as the explanation for the "durability" of their unique social life. None of the accounts of Anabaptist society deny social change, but the clear impression is that change does not come easily or rapidly.

Is the automobile example a unique exception, then, to the usual course of Anabaptist social change? At least one other study

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1. The generic name for the Sectarian groups deriving from the radical wing of the Reformation (including the well-known Mennonites, Hutterites, and Amish) is Anabaptist.

suggests that in many instances Anabaptist social change can occur rapidly (Yutzy 1961). After collecting generational data on an Anabaptist community in Ohio, Yutzy (1961:82) concluded that:

> . . . the (Amish community) has changed rapidly during the last thirty years. With regard to the specific areas investigated the evidence indicates clearly that changes among these people showed a trend similar to those which have affected the surrounding (urbanized society).

Yutzy was able to document rates of change in marriage patterns, education, language, family structure, clothing, and work which were comparable to rates of change in surrounding modern populations.

Still, the idea of rapid change among Anabaptists counters intuition because Anabaptist society consistently appears to change slowly. However, this contradiction may result from the aggregate nature of social change. Social change comprises all the separate changes in social life, and it can be conceived in different ways. Yutzy (1961:17), for example, in what he calls an empirical approach defines change "as any measurable shift in behavior between 1930 and 1960." He attempted to "isolate certain change aspects" in the first Anabaptist study documenting change through time in specific behavior. For Hostetler and Huntington, social change refers to the assimilation of Anabaptist groups into modern society. When compared to Yutzy, Hostetler views social change more inclusively. Quoting Malinowski, Hostetler (1968:209) defines change as "the process by which the existing order of society, that is, its social spiritual, and material civilization is transformed from one type into another." His analysis focuses on how an isolated Anabaptist community transforms into a

type dependent on the modern, outside world. The distinction between change as modernization and as adoption of new behavior patterns implies that Anabaptist communities cannot be characterized by a single rate of change. Modernization proceeds slowly while behavioral innovations can diffuse rapidly.

If the paradox of differing change rates among Anabaptists is more than fortuitous, it should also appear among other groups. Even though Anabaptists are extreme in many respects, they do share a number of characteristics with similar conservative rural communities.

Besides living outside metropolitan areas, rural populations vary a great deal. However, most rural populations form themselves into identifiable communities (Loomis and Beegle 1957:22). By community is meant "the maximal group of persons who normally reside together in face-to-face association" (Murdock et al. 1945:29). It is usually dependent on agricultural production and associated with a definite territory. Face-to-face or primary relations predominate over contractual ones, and kinship ties form an important component of the face-to-face interaction. For people living in rural communities, the community is the principle focus of associative life outside the family and is the primary seat of social control (Murdock 1949:80-83). The focus on community and the power of communities increase with isolation and residential stability. Since most rural communities are relatively isolated (physically or sociologically) and residentially stable (community members tend to be the descendents of members); so that, community forms and social control are particularly strong in rural communities.

Isolation and residential stability produce other distinguishing features of rural communities. Under conditions of greater isolation rural communities develop a distinctive set of behavior patterns and behavioral expectations (Murdock 1949:83). When isolation is combined with residential stability, behavior patterns in rural communities become homogeneous and conservative. Ostracism from such a community is regarded as a most serious threat, and as a result the community can "maintain internal order and conformity to traditional norms of behavior, if not through judicial organs and procedures, at least through the collective application of sanctions when public opinion is aroused by serious deviation" (Murdock 1949:84). According to Smith (1961:528) in rural Japanese communities individuals are willing "to set aside personal interest in favor of the community," and he "will subordinate much of his individuality to [the community] requirements and pressures. . . ."

Peasant and folk communities are also conservative rural agriculturalists (Potter, Diaz and Foster 1967), but these designations exclude many other conservative rural communities. For example, powerlessness and resultant patron-client relationships characterize peasant communities (Foster 1967:8-9), but the definition of conservative rural communities offered above includes both autonomous and powerless rural communities. Neither are all conservative rural communities part-societies with part-cultures; Murdock (1949:82) argues that the community seems to be "the most typical social group to support the total culture." Because of the restricted and often contradictory usage

received by the terms peasant and folk, the more general concept of a conservative rural community is opted for.

Available evidence suggests that among conservative rural communities the rate of modernization and the rate of internal diffusion are often quite different. On the one hand conservative rural communities seem to modernize slowly. Hagen (1962:57) in a discussion of the "traditional" society argues, in fact, that most of them never achieve any significant and permanent departure from "traditionalism."

> In some cases the society preserved its new techniques but became traditional in their use; in many others, the society lapsed into its old ways. . . . Traditional peasant society, in short, has been a stable institution from which departures have occurred, departures that in the long run were temporary.

While few social scientists hold to this extreme position or see little value in the restricted concept of traditional peasant society offered by Hagen, most still hold to the idea that rural communities modernize slowly. Concerning peasants, Mendras (1970:33) writes:

> Thus the historian and the anthropologist[2] show us that in normal times, in a peasant society, the mechanisms of change are very slow.

Redfield (1950:4) argues that among folk people "the career of one generation repeats that of the preceding. So understood, homogeneous is equivalent to 'slow changing.'"

However, when behavioral innovations are isolated, their diffusion through conservative rural communities seems rapid. For example, Mendez D. (1968) found some Guatamalan villages in which a majority of the villagers adopted a brand name analgesic in a relatively short

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2. Here Mendras cites Redfield (1960) and Mair (1965).

period of time. Data reported by Rogers and Svenning (1969:293) indicate that the adoption of fertilizers and weed spray was occurring more rapidly in traditional villages than they were in more modern villages (Fig. 1). In the restudy of an Indian village, Epstein (1973: 79-86) shows that in the case of a number of specific parameters, Indian folk communities had changed with extreme rapidity.

Currently, the inconsistency between rates of modernization and internal diffusion are ignored, and despite evidence to the contrary internal diffusion is assumed to proceed at a rate similar to the slow modernization process. For example, when discussing the automobile adoption by the Hoog Amish, Hostetler (1968:332) feels compelled to add that the example is more dramatic than is the usual pattern in Anabaptist social change. It is at once Hostetler's only detailed example of Amish social change and at the same time, according to Hostetler, uncharacteristic of Anabaptists. In the above example drawn from Roger's study of adoption/diffusion among Colombian peasants, traditional villages are characterized as changing at a 'slower rate' than modern villages despite the fact that the data reveal a precisely opposite pattern. Rogers and Svenning present the graphical summary reproduced in Figure 1. Obviously, the rate of adoption among the traditional Colombian villages is faster than among the modern villages.

Ignoring rapid internal diffusion is symptomatic of the tendency to assume that all aspects of social change can be viewed in a similar way. Part of this view perceives conservative rural community social change as 'slow,' including the internal diffusion of

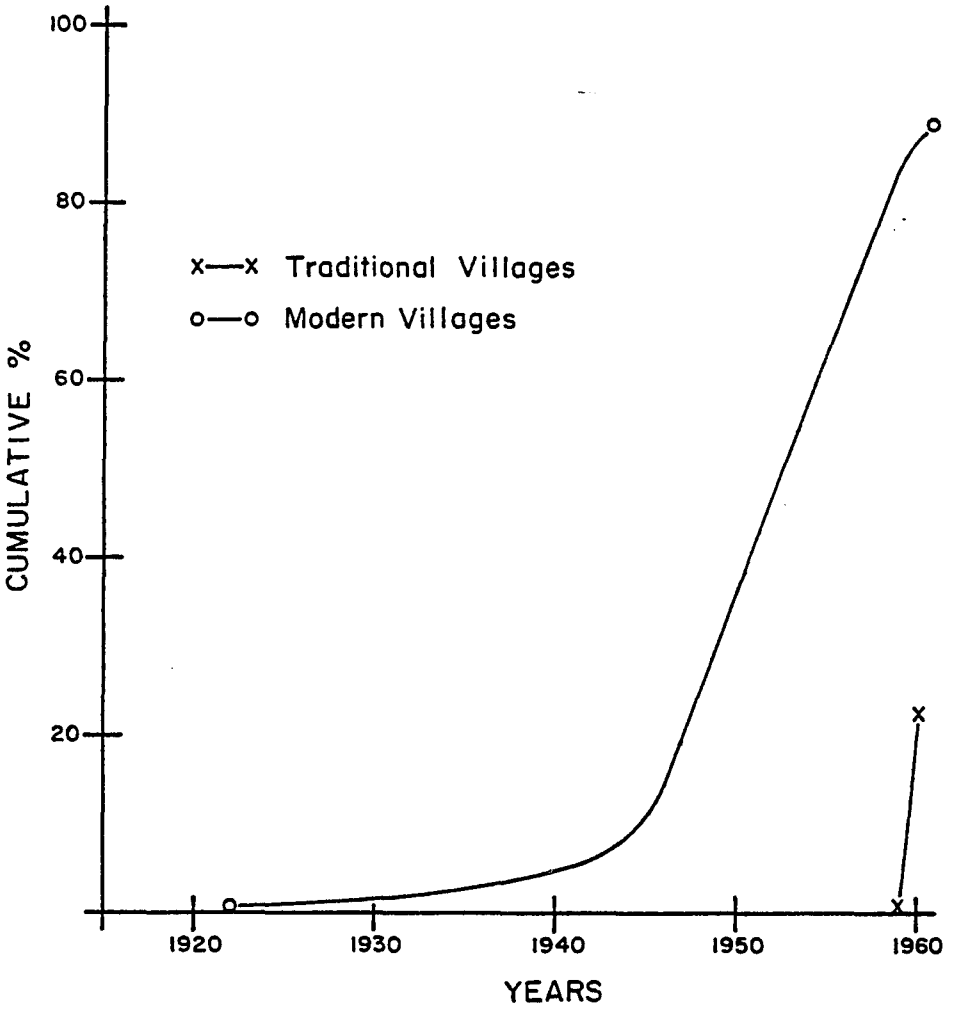

Figure 1. Adoption of fertilizer in modern and traditional Colombian villages. -- Rogers and Svenning 1969:293.

innovations. Nevertheless, evidence such as Hoog Amish automobile adoption and Colombian peasant weed spray adoption call into question fundamental assumptions about change in these communities. Available evidence suggests that the rate of internal diffusion is still an empirical question and that it is time to reevaluate the presuppositions surrounding rural community social change. To provide a structure to this reevaluation the following hypothesis needs to be tested.

> The closer a community conforms to the qualities of a conservative rural community, the slower will be the internal diffusion of innovations -- all other factors being equal.

The obvious and most efficient step in testing this hypothesis is to review the literature. Unfortunately, most attention to change in rural society has concerned the general-level modernization process. Little attention has been paid to change in specific behavior through time. As a result the few examples use here nearly exhause the quantitative (non-Western) data dealing with the adoption of specific behavioral innovations through time and illustrate the general poor quality of the existing data for testing the above hypothesis. Since so few examples of time dependent observations of behavior exist, a significant research project would be to simply determine how general is the pattern of rapid internal diffusion.

Once the generality of rapid internal diffusion has been established, a second step in reevaluating social change in conservative rural communities is offering an explanation for it. The explanation must take into account the apparent fact of relatively slow modernization. The question is how can the idea of rapid diffusion within a

conservative rural community be incorporated in a model which views the overall trajectory of that same community as slowly changing from a traditional to a modern posture? Do peasant farmers really change more slowly than urbanites? How can the different rates of change for modernization and internal diffusion be integrated? Answers to these questions are not readily available nor has the problem even been discussed in these terms; so a profitable first step would be to determine why the paradox has been able to be ignored so long.

The Anthropological Description of Social Change

Rapid internal diffusion in conservative rural communities has seldom been discussed because prevailing method in social change research has precluded a clear description of how social change in small homogeneous populations actually occurs. The heart of the problem is probably the rejection of behavioral analysis by anthropology and the paucity of diachronic studies of change.[3] In the first place, questions like rapid internal diffusion have received little attention because they focus on behavior and shifts in behavior frequency. In the usual anthropological study of change, attention focuses on abstractions about the patterns within society like marriage rules, types of exchange, and the forms of social organization. Most theoretical and methodological attention, therefore, has been on the problems of defining and detecting changes in cultural patterns and systems; almost

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3. Here a distinction must be made between general evolutionary studies in anthropology and those of short term social change. It is the latter which is being dealt with in this dissertation.

none to the problems of defining and detecting behavioral change. Further, studying rates of diffusion requires temporal observations. The difficulty in acquiring diachronic records discourages interest in questions of rate of change in social behavior. The straitjacket of synchronic analysis has in turn dictated or, at least, channeled the interests which could reasonably develop -- a preoccupation with identifying the causes for acceptance of rejection of change. It can be asserted with little hesitation that the list of causal variables is complete enough and what needs to be determined is how these variables influence behavior -- a need which requires observations of behavior through time. Consequently, it is argued that an investigation and explanation of the rapid internal diffusion in conservative rural communities must abandon the current anthropological modus operendi of social change research. The approach elected for this research will be diachronic and behavioral, following most closely the suggestions of Fredrick Barth who offers not only a means for the description of changing behavior but also a theoretical framework for explaining behavioral change.

For the 1966 Plenary address to the American Anthropological Association, Barth (1967) urges anthropologists to radically alter their approach to social change. For Barth (1967:662-663) the study of change must begin with a record of actual behavioral choices through time.

> I feel that we need rather to use concepts that enable us to depict the pattern itself as a statistical thing, as a set of frequencies of alternatives. If we, for example, look at social behavior as an allocation of time and resources, we

> can depict the pattern whereby people allocate their time and resources. Changes in the proportions of these allocations are observable, in the sense they are measurable. . . . It is only through attention to the frequencies of allocations, by describing the pattern itself as a certain set of frequencies, that it becomes possible to observe and describe such quite simple events of social change.

The proposal contains the conceptual apparatus necessary to get anthropology away from a futile concern for abstract concepts of culture to a clear behavior approach to the "actual events of change." Unfortunately, Barth's proposal, like most programmatic statements, has largely been ignored. As a matter of fact, a quantitative record of behavior is a fundamental feature of any behavioral analysis (Bogue 1952:565; Bijou, Peterson and Ault 1968:180-181), and this feature distinguishes a behavioral approach from most traditional anthropological studies of social change.

A clear behavioral perspective of social change has only recently become popular in anthropology and other social sciences (Kunkel 1970). Usually, in the anthropological study of change it is cultural "systems or patterns that are the focal points, not individual behavior" (Bee 1974:116). In these approaches, social change is considered a change in a structured set of behaviors and abstractions about behavior. Often, attempts to understand the causes of these forms and abstractions bog down in questions of the motivations of men, their values, their internal feelings and state of mind (see Barnett 1953; Hagen 1962; McClelland 1961). A glance at Kroeber's (1923), Herskovits' (1947), and Bee's (1974) discussions of social change should be sufficient to convince one that the dominant mode of analysis

in anthropology continues to use a "morphological concept of custom as the minimal element of form" (Barth 1967:662). Most evolutionary reconstructions are qualitative descriptions of social change (Childe 1951; Steward 1955). The description of the Hoog Amish adoption of the automobile which opened this dissertation is presented by Hostetler as "how a major rule is changed." Barth (1967:664-665) argues that to frame the question of social change as how one "rule," "cultural form," or "abstract pattern" changes into another, fails to identify what is really changing. Rules do not change. The number of people who conform to a rule may decline, and these people may even argue that the new frequency is because of a new rule, but the old rule still exists while it is people's behavior which has changed. Thus, Barth seems to be pointing out the obvious. It is people's behavior which changes. Through time the number of people conforming to the expectations of the new rule increase at the expense of conformance to the expectations of the first. The old rule has not, however, changed into the new rule. The Hoog Amish example, like most instances of change could be presented in a behavioral form if appropriate observations were made (see Heinrich 1964:390).

Within anthropology, archaeologists as a whole, have more consistently employed quantitative behavioral observations than any other group of anthropologists, and the use of seriation is an excellent visualization of behavioral change through time. The nature of archaeological data has lent itself naturally to diachronic behavioral records (or, at least, the products of behavior). It is not surprising

that many of the major contributions of anthropology to the study of social change come from anthropologists familiar with archaeological research and/or extensively utilizing archaeological data (Strong 1940; Kroeber 1944; Steward 1955; Eggan 1966; Adams 1966; Spicer 1961; Bennett 1969).

Obviously, quantified records of behavioral change require good diachronic observation. However, one of the major characteristics of social change research in anthropology (and possibly its major limitation) is the synchronic bias created by the normal one or two years field research session. Even though one of the consistent ideas in the much touted "processual approach" to social change is continual change (Erasmus 1968:173), little anthropological research actually records change through time. Members of the Social Science Research Council, for instance, expressed their dissatisfaction with the synchronic baseline studies undertaken by many students of acculturation (Broom et al. 1954:973). Murphy (1964:846) argues that this bias continues and results not from some theoretical reasoning but simply from a lack of data. Without diachronic data, process has come to refer to reoccurring sociocultural consequences resulting from reoccurring combinations of certain social structural, environmental, historical, and/or cultural variables. When repeated variable combinations proceed broadly similar consequences, they are classified as a process. Examples are the processes of acculturation, modernization, and urbanization. The emphasis usually rests with specifying the set of conditions contributing to a given type of consequence (e.g., Murphy and Steward 1956).

Defining processes on this basis is not inherently wrong. Indeed, the classification of causes and effects has undoubtedly led to a number of important insights. Further, the use of process to classify instances of social change has obvious advantage in analyzing field data (Beals, Spindler and Spindler 1967:6). It has an immediate appear when attempting to make sense out of the great number of acculturation studies produced from the 1940's to the 1960's. Finally, it should be kept in mind that the processual approach developed out of a genuine concern to shed the distortion of synchronic functional analysis of social systems (see Park and Burgess 1921).

Still, what is a change process without a temporal dimension? The dynamic and diachronic are not established by invoking the word process; they must be observed. Recourse to studying the types of causes and the types of results of change is a natural alternative to investigating the processes of social change when diachronic information is unavailable.

Outside archaeology there have been two notable efforts to advance a behavioral description of social change through time. One of these was by Richardson and Kroeber and the second by Hodgen. Jane Richardson coauthored with Kroeber (1940) an analysis of changes in the dimensions of fashionable clothing. This clothing study stands apart from other anthropological studies by documenting actual behavior through time and is probably the first non-archaeological description of behavioral change in anthropology. However, the first conscientious effort to promote the collection of diachronic data was by Margaret

Hodgen (1945, 1950, 1974). She has repeatedly urged that anthropologists avoid the problem by synchronic studies of social change by utilizing well documented historical records of behavior. She points out (1945), for example, that the study of acculturation can be profitably addressed through detailed observation of the adoption of glass and paper manufacture in England. In later works (1950, 1974:70-72) she feels that detailing the records of such behavioral changes as the adoption of silk weaving, establishment of Christian communities, and the construction of printing presses lead to the inescapable demonstration that a common underlying process of change may be observed and partially outlined.

It is probably not a coincidence that Richardson and Kroeber and Hodgen use non-traditional data sources (fashion plate, lithographs, paintings, and engravings on the one hand and historical documents on the other) because attempts to deal with social change in anthropology from data collected in a one to two year field session have been inadequate as sources of diachronic information. Anthropologists have frequently tried other methods to obtain diachronic records. The most notable is the restudy. However, since the restudy is essentially two synchronic descriptions and since two observation points are inadequate for documenting trends in change, the restudy usually results in only the extrapolation of social change. Attempts to reconstruct change from the recall of a native's memory are, at best, gross outlines of social change, and, at worst, distorted images of actual change.

Generational studies like Yutzy's (1961) mentioned earlier also attempt to develop information about temporal trends. However, a number of problems hinder this approach also. Problems result from lumping people born in a wide range of years into generations which may actually have overlapping birth dates. A second set of problems arise because the behavior of the first generation at the time of study may differ from that which existed at the time the generation was born and which it supposedly represents.

The longitudinal field study has real potential in overcoming the inadequacies of narrative histories and restudies. After repeatedly urging anthropologists to do diachronic descriptions of social change, Evon Vogt (1960, 1969) has begun to report the results of ten years of continuous observation of social change at Zinacantan, Chiapas, Mexico. But because of obvious time and money problems, Vogt's longitudinal approach has received few followers (among the exceptions are Wood 1975:56). As a result the change processes defined within the traditional anthropological approach continue to be by and large distorted by a synchronic bias.

Although conceptual schemes for operationalizing the direct observation and measurement of behavior have been developed (Barker 1968; Harris 1964), they have done little to relieve the problem of obtaining temporal data. It is hoped that anthropology realizes the elementary points made by Plog and Bates (1976:209) in their introductory text:

> Anthropologists cannot continue to be satisfied with simply attempting to reconstruct patterns of culture change. Instead,

> they must try to find ways of conducting studies of change that stretch over many years, yielding precise records of what has transpired over the long run.

The example of change in an Amish community brings us to a number of interesting questions about social change in conservative rural communities. From these questions, research among two Anabaptist groups in Mexico was conceived and carried out under a grant from the National Science Foundation (SOC 75-18114). This dissertation reports the results of that research and attempts to answer the questions posed by the apparent paradox of rapid internal change with communities which are slowly changing from traditional to modern types.

CHAPTER 2

CHIHUAHUA MENNONITES

As was just seen, the very few examples of how an innovation diffuses through conservative rural communities, suggest that internal diffusion in these communities occurs rapidly. An immediate problem for anthropologists is further documenting diffusion in these communities. To show that diffusion really proceeds in a different manner in conservative rural communities, it will be necessary to obtain as much control as possible over other variables which influence the rate of diffusion.

A productive approach used to achieve experimental control in studying social change is the historical/comparative method (Eggan 1950; Spicer 1961; Bennett 1969; Hodgen 1974). In controlled comparisons, two or more societies from among the world's ethnographic populations are as similar as possible while varying in the one parameter of research interest. As expected, anthropologists (Eggan 1950; Spicer 1962; Bennett 1969) have been largely interested in the impact of the culture contact situation on cultural patterns and form, but the method of using a sample of the existing social experiments to investigate the operation of a naturally manipulated independent variable has proved a promising tool for social research. The tool has been variously called a concomitant variation strategy (Naroll 1968) or a most similar system

strategy (Prezeworski and Teune 1970:32-33), but a consistent feature is trying to hold as many intervening variables as possible constant. In an attempt to obtain this type control for the study of diffusion within conservative rural communities, two groups of Mennonites living in Mexico, the Sommerfelders and the Altkolonier, were selected for investigation to see if they exhibited different diffusion patterns. As it turned out and as is the usual case in social science research, the comparison did not produce entirely clearcut results, but the method did provide results unambiguous enough to make the research well worth the effort. The present chapter attempts to place the Altkolonier and Sommerfelder in their geographical, historical, and sociolingual context, and set the stage for a comparison of their diffusion trends.

Geography of the Mennonite Settlement

Between 1922 and 1926, approximately 5300 Mennonites moved from Saskatchewan and Manitoba, Canada, to central Chihuahua, Mexico. The Mennonites were divided into three groups which bought and formed three colonies: the Manitoba Colony, the Swift Current Colony, and the Santa Clara Colony (see Fig. 2). Two of these colonies were formed by Mennonites belonging to the same church, the Old Colony Mennonites or Altkolonier. Those Altkolonier Mennonites from Saskatchewan formed the Swift Current Colony and those from Manitoba formed the Manitoba Colony. The last colony, the Santa Clara, was formed by Mennonites from Manitoba belonging to the Sommerfelder Church.

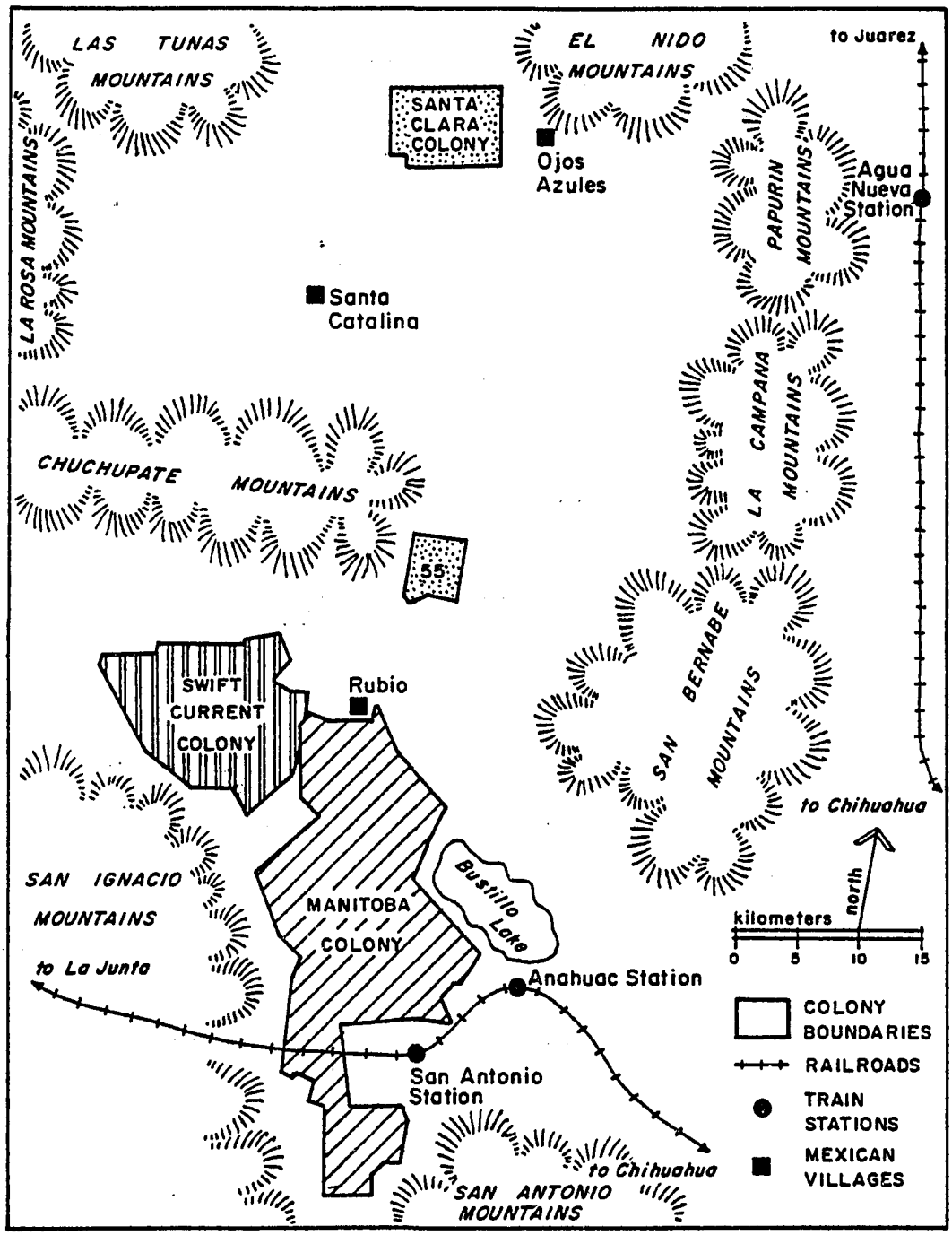

Figure 2. Canadian Mennonite settlement, Chihuahua, Mexico, 1922.

These colonies are located very close to one another and in very similar environmental surroundings.[1] Sawatzky (1971:98), a geographer, summarizes the physical environment and climate of the Chihuahua colonies as "very similarly situated." Bustillo Valley, location of the Manitoba and Swift Current colonies, and the Santa Clara Valley, location of the Santa Clara Colony, form part of the upland, basin and range province adjacent to the eastern edge of the Sierra Madre Occidental. The upland basin and range comprise a series of north-south trending mountains and high internally drained valleys. The altitude of the Bustillo Valley ranges from about 1990 meters above sea level to 2100 meters above sea level (see Fig. 3). The altitude of the Santa Clara Valley region where the Sommerfelders took up land ranges from 2000 to 2200 meters above sea level.

The relatively high altitude of the Bustillo and Santa Clara regions results in temperatures averaging between 14° and 16° centigrade. January, the coldest month, averages a little less than 6° and June and July, the warmest months average around 21°. There are about 180 to 220 frost free days a year in the two regions, but the two areas do not differ significantly from each other with respect to freezing. Local topographical differences influence frost greatly, but even with considerable local variation, the range is similar in the two regions (see Schmidt 1975:17-29).

Average annual precipitation in the study areas range between 40 and 50 centimeters, mostly occurring in July, August, and September.

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1. For an extensive discussion of the geography of the area see Sawatzky (1971:98-107) and Schmidt (1973).

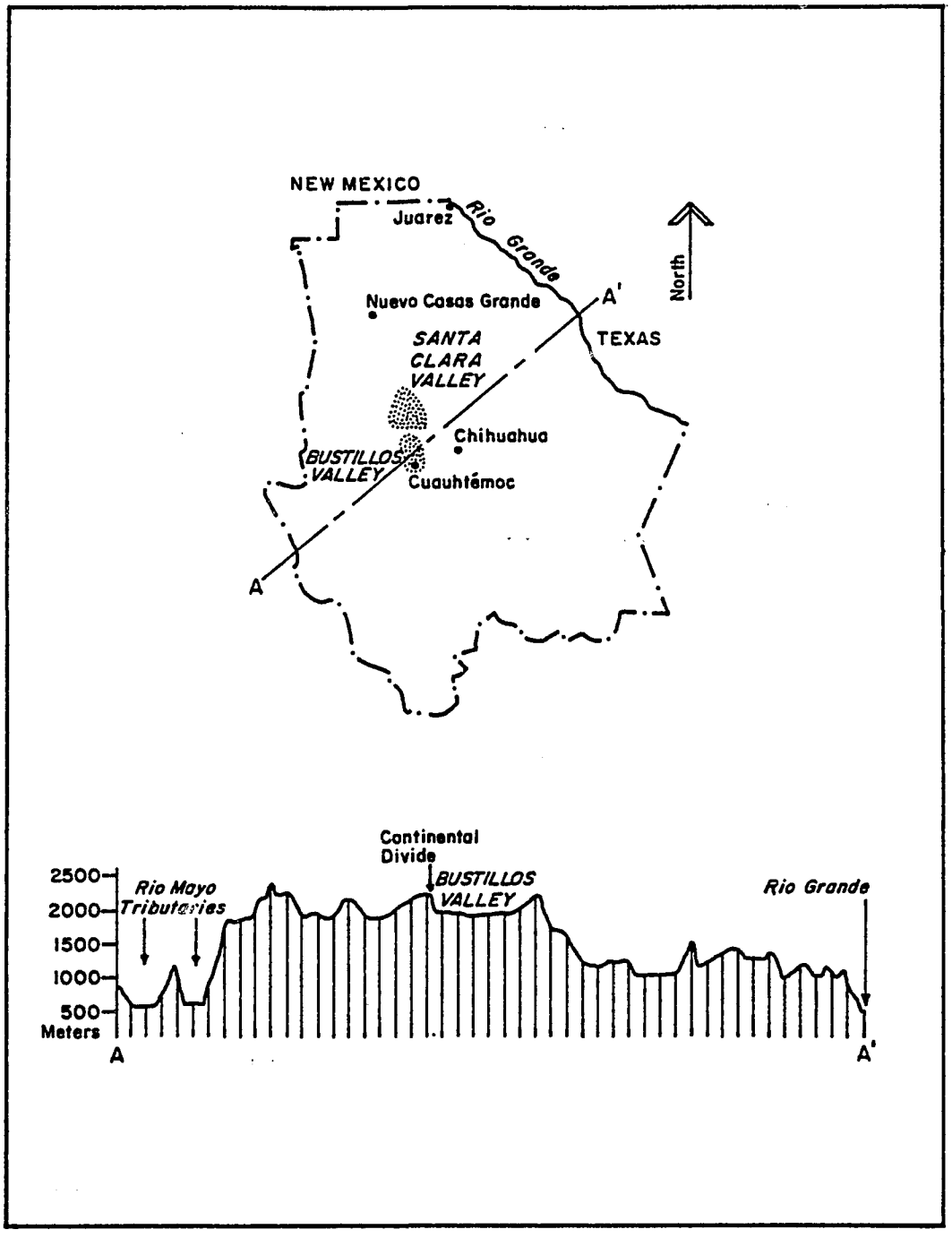

Figure 3. Elevation and location of Bustillo Valley, Chihuahua, Mexico. -- Adapted from Schmidt 1973:Figs. 3 and 4.

Again, locally and annually rainfall varies because the majority occurs in small localized cloudbursts during the summer rainy season. Sawatzky (1971:100) estimates that year-to-year precipitation at a given point may fluctuate as much as 50%, but it appears that overall precipitation in the Santa Clara region approximates that in the Bustillo Valley.

Soils of the two regions also show a marked similarity.

> Predominantly they are the water-borne, water-worked, and water laid erosion products of the country rock, mainly calcium carbonate and gypsum-bearing andesites and tuffs, of the adjacent mountains. . . . They are low in humus content. Most of the soils of the Manitoba, Swift Current . . . and those of the Santa Clara Valley are of the same type (Sawatzky 1971:104).

Castonazems, xerosols, and luvisols dominate the area (Dudal 1968). These soil types identify a thick topsoil layer with a granular structure. It is well supplied with organic matter and has an abundant supply of plant nutrients which are available, however, only during the rainy season or under irrigation.

The combination of similar location, altitude, precipitation, and soils results in a very similar biotic environment. The region lies at the upper limits of a grassland and oak savanna province (Shreve 1942; Schmidt 1973:24). Oak savannas predominate at higher elevations and on hilly terrain because as Schmidt (1973:24) indicates, above 2100 meters lack of soil development prevents grass from growing well. In portions of the Santa Clara Colony, the highest regions of the two valleys, large stands of oak had to be cut down before land could be farmed.

Notwithstanding the general environmental uniformity, the slightly higher altitude and less soil development in the Santa Clara has resulted in stoney farmland, less suitable for grain and cereal agriculture. As a result, the land chosen by the Sommerfelder of Santa Clara has slightly less agricultural potential than that of the Altkolonier in the Bustillo Valley. The difference has probably added to an average wealth differential between Mennonites of the two areas (see Chapter 3). The cropping pattern is very similar between the two regions; although, fields in Santa Clara are not laid out in as regular a fashion, being restricted by the terrain to more favorable localities.

The Development and Organization of the Chihuahua Mennonites

The Mennonite Settlement of central Chihuahua began in 1922, and took with it the conservative half of the parent colonies in Canada (Krahn 1959:41). The original Sommerfelder population permanently took up about 15,125 acres of land in Santa Clara Colony,[2] at an average density of about .026 people per acre.[3] The original Altkolonier population took up about 225,000 acres (150,000 in Manitoba Colony and 75,000 in Swift Current Colony) at .022 people per acre. These initial settlers established 37 agglomerated farmstead settlements.[4] Twenty four of these villages were by the Altkolonier in

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2. Santa Clara Colony will refer to Santa Clara Colony proper plus Campo 55 unless otherwise noted.

3. One small settlement of Sommerfelders south of Cuauhtemoc was not permanent (see Sawatzky 1971:52, 73).

4. These farm villages are referred to in Mexico as Campos and are given number designations by the Mexican government in order

Manitoba Colony, ten by the Altkolonier in Swift Current Colony, and three by the Sommerfelder in Santa Clara Colony. All totaled, about 5,309 Mennonites had permanently immigrated to Chihuahua by 1926. This figure includes approximately 3340 Altkolonier who immigrated to Manitoba Colony, 1569 Altkolonier to the Swift Current Colony, and about 400 Sommerfelders in the Santa Clara Colony.

The high population density among the Sommerfelders forced them to fill Santa Clara Colony land by about 1940 (see Fig. 4), and the Altkolonier had nearly filled its land by the early 1950's (see Fig. 5). As might well be expected, the immediate response of both groups to limited available land was areal expansion. Between 1940 and 1956, some 33,000 acres in Chihuahua were gradually bought and occupied by Sommerfelders.[5] The Altkolonier have acquired about 215,000 additional acres in Chihuahua between 1946 and 1962. It should be noted that the Altkolonier have purchased another 118,000 acres in British Honduras. In Chihuahua the expansion represents the creation of four entirely new colonies by the Altkolonier Mennonites and one new Sommerfelder Mennonite colony (see Table 1 and Fig. 6).

Despite the acquisition of additional land, population growth within the original Altkolonier and Sommerfelder settlement areas has

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to lessen confusion caused by the Mennonites' German names and by the fact that some villages have the same name.

5. This includes about 17,600 acres of Los Jaqüeyes Colony which is now predominantly Sommerfelder. Originally Campos 251-254 were going to be settled by Canadian Altkolonier Mennonites (see Sawatzky 1971:92-94). This failed and the Sommerfelders have gradually acquired the land which is now designated Colonia Mennonita de Manzanillas.

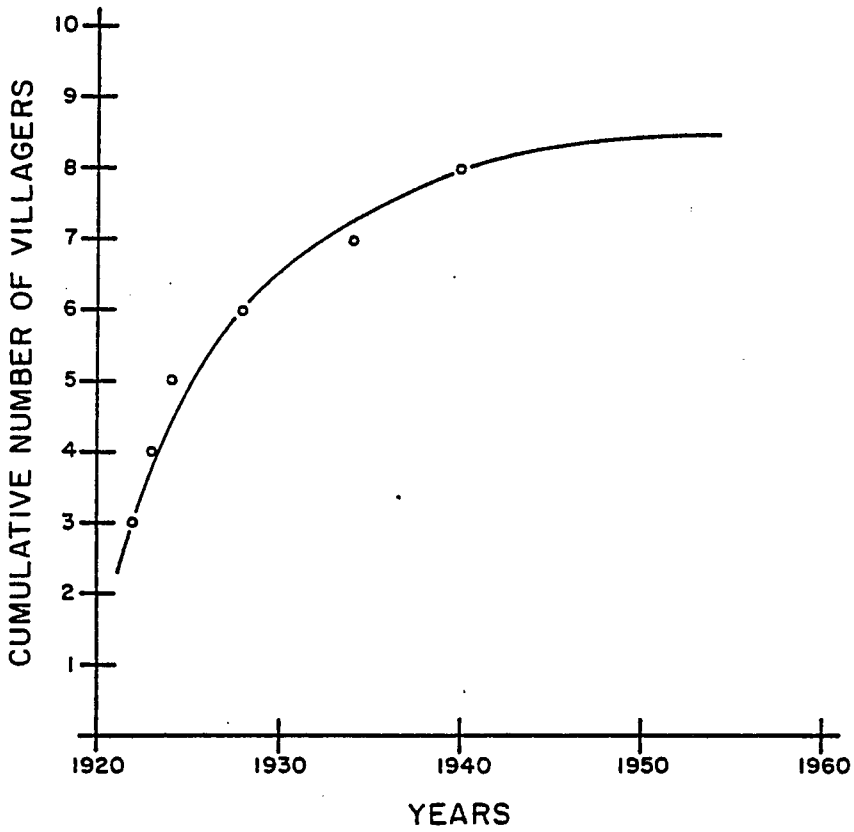

Figure 4. Cumulative Sommerfelder village growth in original land purchase.

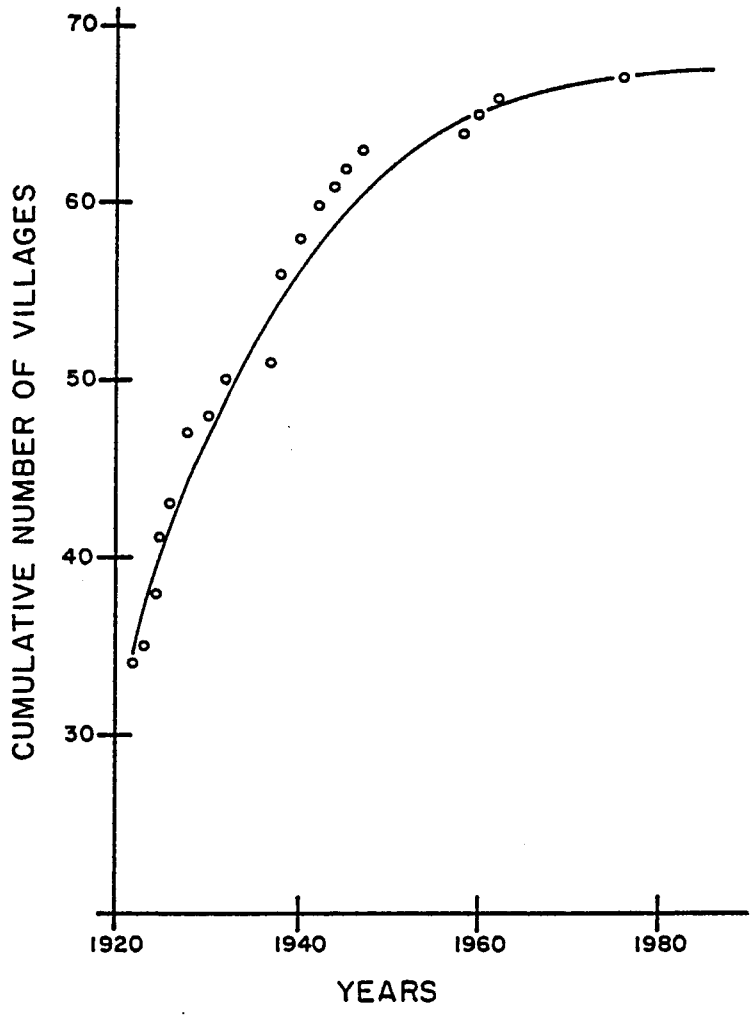

Figure 5. Cumulative Altkolonier village growth in original land purchase.

Table 1. Mennonite colony expansion in Chihuahua.

Colony	Date Founded	Church Affiliation
Swift Current	1922	Altkolonier
Manitoba	1922	Altkolonier
Santa Clara (Campo 55)	1922	Sommerfelder
Ojo de la Yegua	1946	Altkolonier
Manznillas	after 1949	Sommerfelder
Buenos Aires	1958	Altkolonier
Santa Rita	1962	Altkolonier
Capulin	1962	Altkolonier

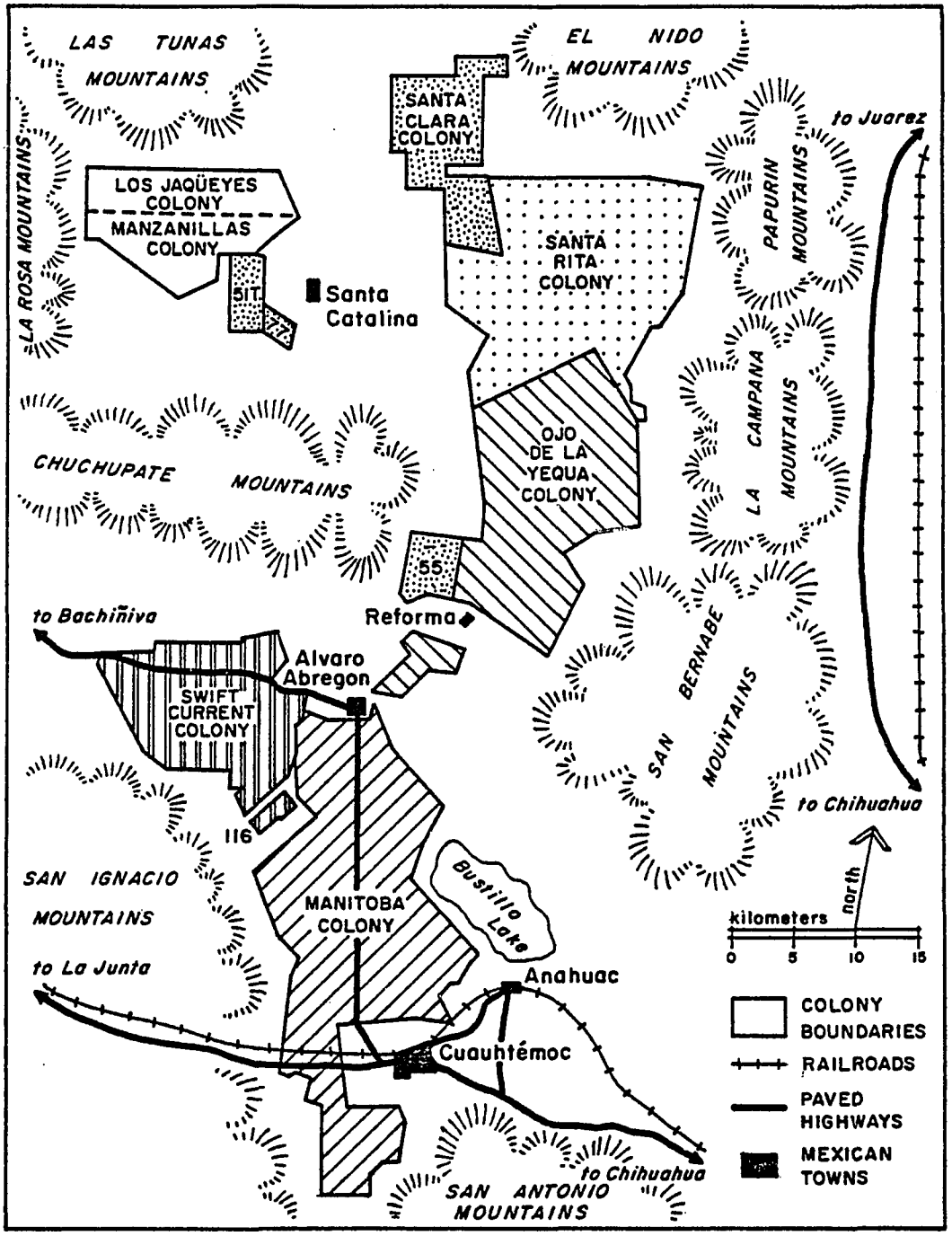

Figure 6. Mennonite settlement, Cuauhtemoc area, Chihuahua, Mexico, 1976.

continued to rise steadily (see Figs. 7 and 8, Table 2) at an average rate of 2% per year for the Altkolonier and about 2.3% per year for the Sommerfelder. As a result population density has increased from .022 people/acre to .066 people/acre in 1976 within the original Altkolonier purchases and from .026 to .072 people/acre within the original Sommerfelder purchase in 1970. With both church groups the density of their colonies has tripled in the past fifty years.

The broadly similar history of Altkolonier and Sommerfelder settlement growth masks differences. Chief among these is that within the past ten years there has been an increase in the manufacturing sector of Manitoba Colony. This shift is hard to document because the growth of a manufacturing operation is a gradual one usually from a man's personal machine shop. Just when an occasional construction or machining job stops and regular production starts is hard to determine. However, the decision to build or remodel a special building for the enterprise can be documented and can serve as a meaningful index to shifting commitment to manufacturing. Using this index, a survey of manufacturing establishments determined their founding dates in order to get an idea of the development history of this portion of Manitoba economy. Manufacturing has been significant only in the past fifteen years (Fig. 9). Although good diachronic data is unavailable for the Swift Current or Santa Clara colonies, neither the potential for nor the magnitude of the industrial development within these two colonies appears to reach that of the Manitoba Colony. The Departmente de Economia y Estadistica, Chihuahua (1975) reports show that the

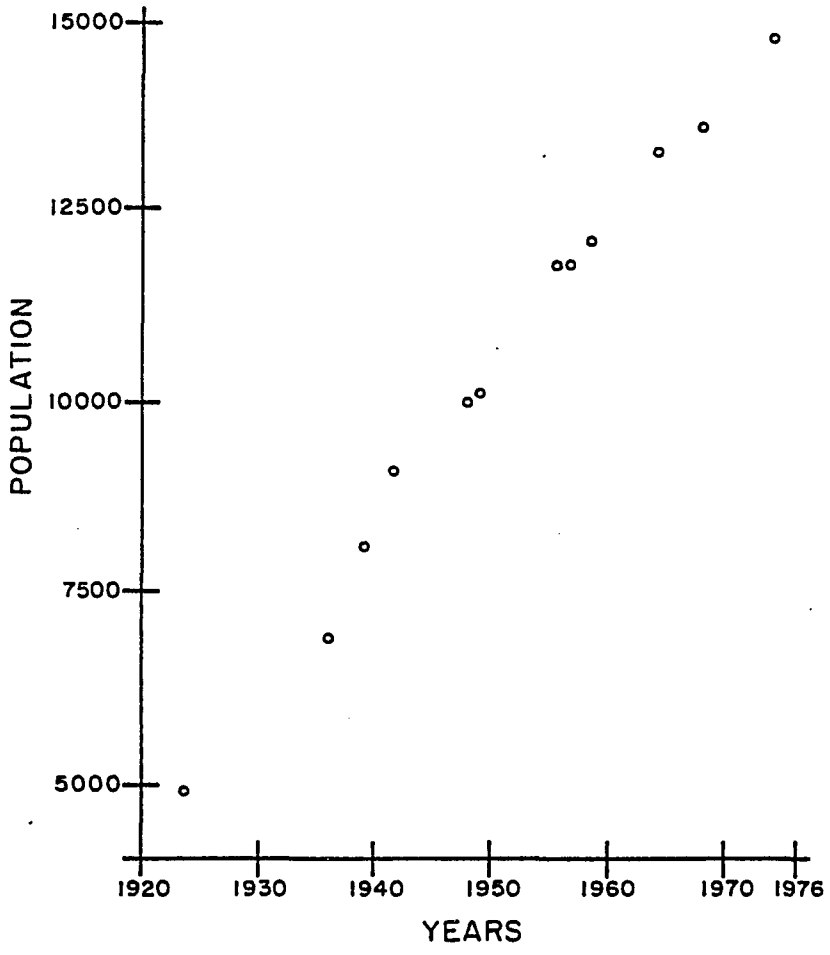

Figure 7. Population growth in original Altkolonier settlements.

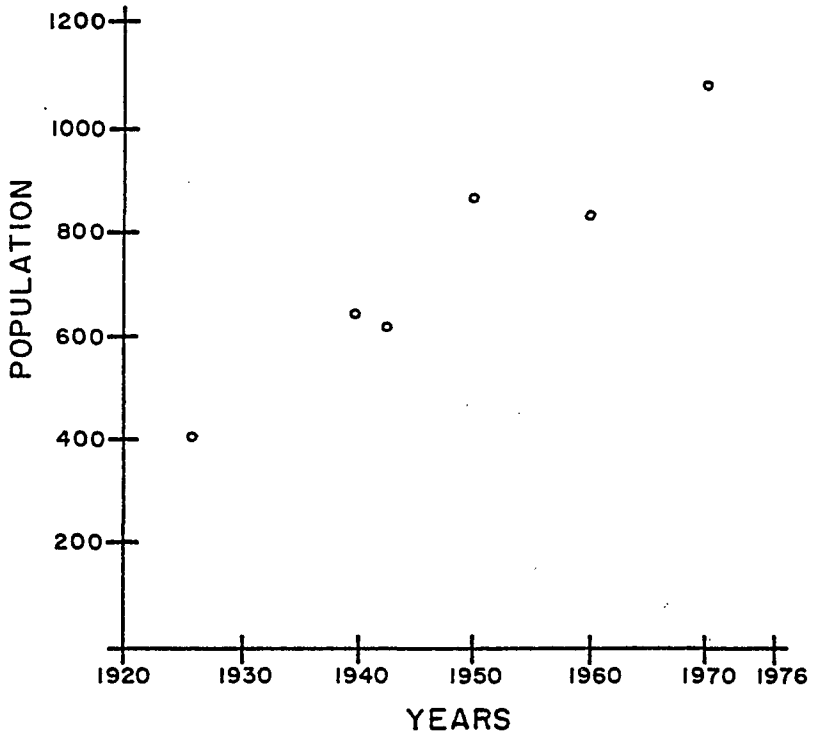

Figure 8. Population growth in original Sommerfelder settlements.

Table 2. Population estimates for Mennonites in Manitoba, Swift Current, and Santa Clara colonies for those years with reliable information.

Year	Altkolonier Mennonites in Manitoba Colony[1]	Altkolonier Mennonites in Swift Current[1]	Manitoba Campos	Swift Current Campos	Sommerfelder Mennonites in Santa Clara & Campo 55[1]	Santa Clara Colony and Campo 55
1926	3340[2]	1569[3]			400[4]	
1935		1597[3]				
1937	c5200[5]	1680[6]				
1940			6189[7]	1856[7]		640[7]
1943	7225[8]	1900[6]				c600[8]
1949	7706[3]	2232[3]				
1950			7800[9]	2310[9]		858[9]
1957	8678[3]	3059[3]				
1958	8610[3]	3087[6]				
1960			8898[10]	3249[10]		932[10]
1965		3559[3]				
1966	9627[3]	3612[6]				
1970			10041[11]	3438[11]		1089[11]
1972		3493[3]				
1975		3500[3]				
1976 (spring)	11209[12]					
1976	11503[3]	3273[3]				

Table 2--Continued

1. Figures refer to church members and their children and should not be confused with total number of people residing in the colonies. Some colony members may be excluded from church records (an increasingly important consideration after about 1960) because they have joined another church or were excommunicated by the dominant church of the colony. However, church head counts are fair representations of colony population because few (350) people belong to churches other than the Altkolonier and Sommerfelder churches.
2. Krahn (1959:41-42)
3. Altkolonier Church records. The Altkolonier announce population figures every January for the end of the preceding year. Some years this announcement is based on an actual head count and the figures included in this table are only those years available when I feel an actual head count was taken. For intervening years Altkolonier Church statistics are derived by adding births minus deaths. This does not take into account loss due to outmigration which is not insignificant. As a result, for most years Church records are overestimates. Head count years are noticeable by a significant drop in population from preceding years.
4. Estimate
5. Redekop (1969:188), Sawatzky (1971:162).
6. Estimate based on extrapolation from trends in Altkolonier Church records.
7. Almada (1940:127); based on VI Censo General de Poblacion.
8. Fretz (1945:36).
9. VII Censo General de Poblacion lists 10,110 Mennonites in Municipios Cuauhtemoc and Cusihuiriachic. This figure has been broken down into Manitoba and Swift Current populations by extrapolating from trends in Altkolonier Church records.
10. VIII Censo General de Poblacion
11. IX Censo General de Poblacion
12. Figure derived from the raw village by village results of a head count taken in March and April 1976. Church records announced at the end of the year must include births minus deaths occurring after the head count was completed.

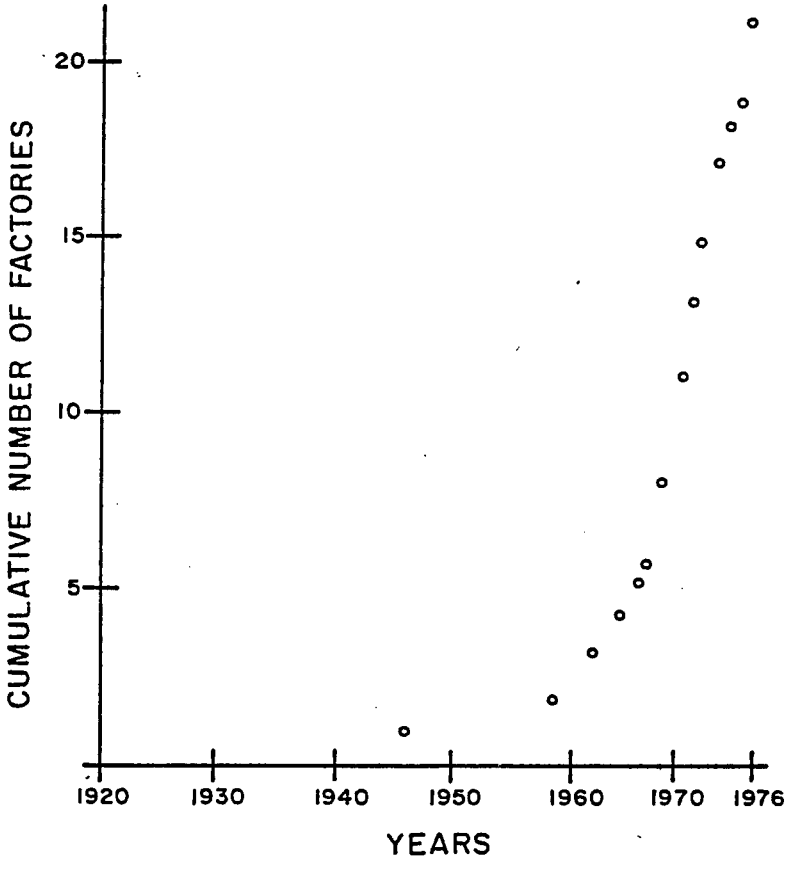

Figure 9. Cumulative number of factories, Manitoba Colony.

Manitoba Colony has the highest density of businesses of the three colonies:

Manitoba	.007 business/person
Swift Current	.005 business/person
Santa Clara	.005 business/person

At present, Mennonite business and industry serve primarily the Mennonite community, but a number of items have a wider market, particularly farm machinery.

The difference in employment opportunity may have influenced population growth within the separate Mennonite colonies. Comparing Manitoba Altkolonier and Swift Current Altkolonier population trends (Figs. 10 and 11), it appears that while the Swift Current population has grown little in the past ten years, the Manitoba Colony population continues to rise. The Manitoba Colony may attract more Altkolonier (or, at least, lose fewer) than the Swift Current Colony because of the more vigorous manufacturing sector.

The reason Sommerfelder business and manufacturing failed to develop probably lies in the historical accidents of location. Looking at Figure 6, little reason exists to expect the major service centers and the major transportation routes would eventually run through Altkolonier land and not closer to Sommerfelder. These developments made the opportunity to shift to manufacturing much more available to the Altkolonier. That this shift is associated with the location of service centers and transportation facilities can be seen by the fact that Campo 6-1/2, through which Highway 10 eventually passed, had, in 1970,

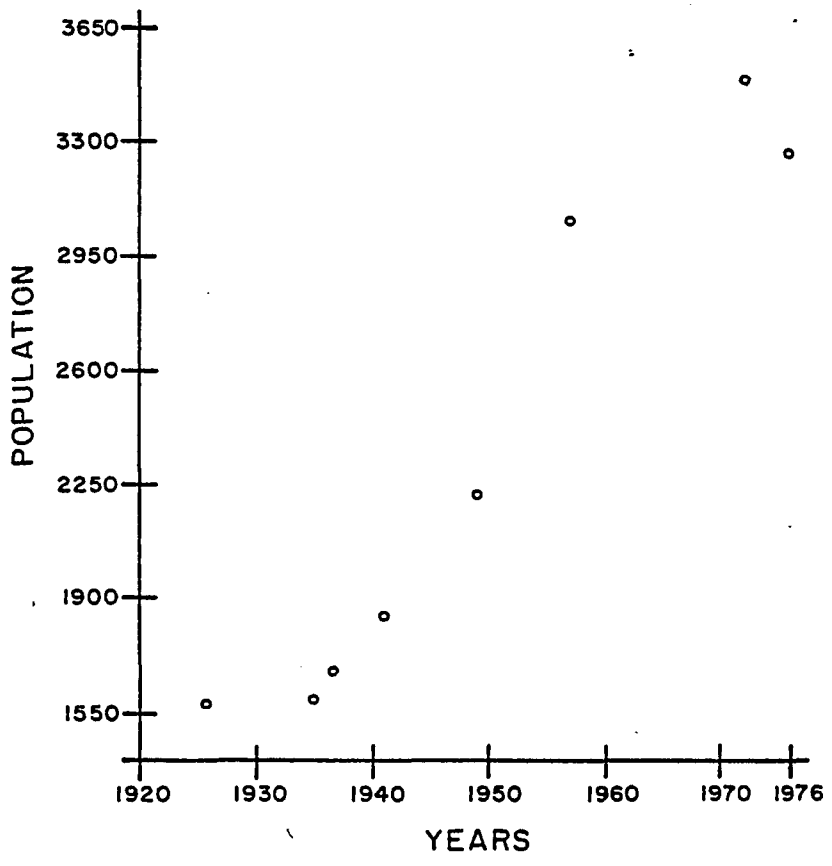

Figure 10. Swift Current Colony population growth.

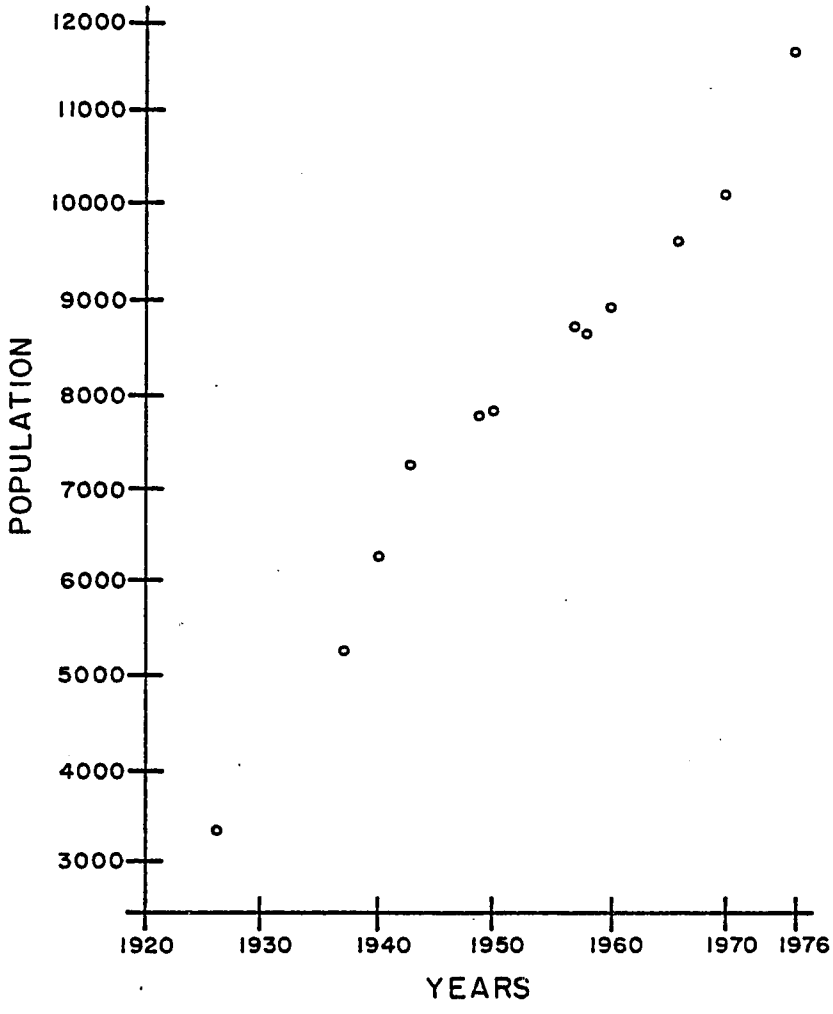

Figure 11. Manitoba Colony population growth.

48% of its income derived from manufacturing and services (Secretaria de Industria y Comercio, Mexico 1972).

Thus, not only did the Altkolonier pick land which was slightly better endowed, they also picked land that was eventually better realty. What effect this had on average Altkolonier standard of living is hard to determine because any difference will be influenced by the fact that Altkolonier land will probably produce more. Manufacturing made some individuals within the Manitoba Colony very wealthy while the Altkolonier workers in 1975 were paid around 70-80 pesos/day (5.5 to 6.5 dollars/day). In 1965, soil differences and a poorly developed dairy industry among the Sommerfelders resulted in less than one half the income/acre among the Sommerfelders as among the Altkolonier (Sawatzky 1971:244). Combined with the fact of higher population densities all through the history of their settlement in Chihuahua, there seems little question that the Sommerfelders are on the average less well off than the Altkolonier.

From the small beginning of 5309 people, the Chihuahua Mennonites have grown to approximately 27,327 (see Table 3). This includes about 856 Mennonites belonging to the Kleine Gemeinde Church, about 270 General Conference Mennonites, and about 100 Church of God in Christ Mennonites. Kleine Gemeinde Mennonites, who established Los Jacüeyes Colony, began arriving in Chihuahua in 1948. The Mexican census records show 643 Mennonites living there two years later. The General Conference, a group from the United States and Canada, has been involved in a missionary and aid effort in Chihuahua since about 1947.

Table 3. Mennonite population in Chihuahua, Mexico: 1975.

Church	Colony	Population
Altkolonier	Manitoba	11,209[1]
	Swift Current	3,500[2]
	Ojo de la Yegua	5,286[2]
	Santa Rita	1,704[2]
	Buenos Aires	2,500[3]
	Capulin	
Sommerfelder	Santa Clara	1,460[4]
	Manzanillas	414[4]
Kleine Gemeinde	Los Jagüeyes	859[4]
General Conference		270[5]
Church of God in Christ		100[3]
Total Chihuahua Mennonites		27,327 ± 300[6]

1. Figures based on head count early in 1976 taken by the Altkolonier Church.
2. Altkolonier Church records; unknown if actual head count.
3. Estimate
4. Figures based on 1970 Mexican Census. A 12% increase was added to the 1970 census figures. Twelve percent was the increase experienced by the Manitoba Colony between 1970 and 1975.
5. Average estimate of Isaak I. Dyck, Campo 18, and Rev. Epp, Pastor, General Conference Mennonite Church, Cuauhtemoc, Chihuahua.
6. I am about 80% confident that the total figure falls within this range. Sawatzky (1971:298) estimates 24,553 for Chihuahua Mennonites in 1965. However, I believe this is at least a 1,400 overestimate. This overestimate resulted from the fact that an actual head count was not taken (at least in the Manitoba and Swift Current Colonies) in 1962, as Sawatzky (1971:244) thought. Based on 1958 and 1966 Altkolonier head counts and 1960 Mexican census, Sawatzky's figures for the Manitoba Colony appear to be at least 1,400 people high.

Enough Altkolonier and Sommerfelders have converted to start their own church. Likewise, the Church of God in Christ has recently made a number of converts among the more conservative Altkolonier and Sommerfelders. The Church of God originally came to Mexico as an immigrant group from the United States (the Holdeman Mennonites; see Sawatzky 1971:29) in 1927. They settled in a small village, number 45, which was near Sommerfelder Campo 55 and was composed of Mennonites and Mexicans. After years of mild proseletyzing toward the local Mexican population, they abandoned their small village in 1974, moved to Oregon, and began missionizing the Altkolonier and Sommerfelder Mennonites. Both the Church of God and the General Conference are planning to build new churches in or near the Altkolonier colonies of Manitoba and Swift Current (in the case of the General Conference it is a matter of relocating their church from its present location in Cuauhtemoc). Today there are 138 Altkolonier and Sommerfelder villages in Chihuahua. One hundred twenty-seven of these are in the immediate area around the north of Cuauhtemoc. Manitoba Colony has 48, Swift Current Colony has 19, Ojo de la Yegua Colony has 27, Santa Rita Colony has 16, Santa Clara expanded its borders and has 13, and Manzanillas has 4. The Kleine Gemeinde live in six other villages 60 miles north-northwest of Cuauhtemoc (see Fig. 6). The Church of God and the General Conference Mennonites are scattered throughout these villages.

For some purposes it is reasonable to view the Mennonite population as a whole, particularly when considering Mennonite-Mexican relations, but in most areas the substructure of the Mennonite

population is important in understanding observed Mennonite behavior. Of particular importance is church affiliation because membership in the various church groups is associated with significant variation in the degree to which individuals participate in modern urban society. According to Cornelius Krahn (1959:463), the Altkolonier, Sommerfelder, and Kleine Gemeinde can be arranged in order of increasing liberalism.

> Thus by the turn of the century the descendants of the original Chortitza settlement in Russia had divided into the large Old Colony Mennonite Church of the West Reserve, with a less conservative Sommerfeld Church. . . . In addition to this there was the Kleine Gemeinde of Molotschna background. . . . Although conservative in comparison to the Molotschna Mennonites in their attitude toward education and other questions which confronted the Manitoba Mennonites, they could be compared with the progressive Bergthal group. . . .

J. Winfield Fretz (1957:664) compares the Altkolonier and Sommerfelders in similar terms.

> The largest Mennonite settlement in 1950, was located in the State of Chihuahua, consisting of over 12,000 Mennonites. More than 90 per cent of whom are Old Colony (Altkolonier) Mennonites. About 6 per cent are Sommerfelders, a slightly less conservative group.

Based on these opinions a subjective rank order arrangement of the Mexican Mennonites can be formed on the basis of their degree of liberalness. The Altkolonier are most conservative followed by the Sommerfelders. The Kleine Gemeinde are slightly more liberal than the Sommerfelders with the General Conference being the most liberal. The Church of God in Christ is presently so small that its membership is hard to characterize.

In terms used in this dissertation, the liberal-conservative arrangement of Mexican Mennonites produces an order identical to one

based on how closely the groups adhere to the definition of a conservative rural community. As defined in Chapter 1, a conservative rural community has: (1) a dependence on agriculture; (2) a definite territory; (3) primary, face-to-face and kinship-based interaction; (4) a strong focus on community; (5) significant power vested in the community to enforce behavioral homogeneity; (6) relative isolation; and (7) residential stability. The Altkolonier form communities which are near perfect examples of conservative rural communities. Nearly all households are supported by agriculture within a contiguous territory. Altkolonier interact on a face-to-face, primary basis and kinship relations dominate social interaction. Altkolonier communities form the major arena for social life and exert tremendous pressure on individuals to conform to community norms. The Altkolonier maintain strict physical and social isolation -- community membership is by birth and marriage is endogamous. In most of the characteristics the Sommerfelders are a little less extreme followed by the Kleine Gemeinde and, then the General Conference Mennonites. Few General Conference members are even agriculturalists and have no identifiable territory with which to identify.

Variation along the continuum can be illustrated clearly in education. At the conservative rural extreme the Altkolonier hold little regard for formal education because they see no need to support an institution which does not provide an obvious and immediate usefulness in agricultural pursuits. Sawatzky (1971:308) reports that some Altkolonier urged, at the time of the Mexico migration, the abolition

of schools altogether. Among the Altkolonier as well as the Sommerfelders, schools are established, supported, and administered by individual villages. Teachers have no formal training and are chosen on the basis of orthodoxy rather than ability, inclination, or training. They read only the Bible, speak only German, and they teach through rote memory work (often in unison). No illustrative materials are allowed. The Altkolonier and Sommerfelders prohibit schooling beyond the age of 12 for girls and 13 for boys. One instructor teaches all ages. As a result, classes have been observed where one male schoolmaster teaches as many as 75 pupils. Instruction is given by a farmer who teaches part time.

The Kleine Gemeinde approach education with more modern views. First, schools are independent of individual villages in determining educational standards and teacher preparation. Through a colony-wide program of summer workshops teachers receive periodic training and plan curriculum. Learning is not limited to memory work and the curriculum is more comprehensive, including English, Spanish, Geography, and hygiene (Sawatzky 1971:306). The school year is longer, and the number of years in education is greater. More support material is available and greater concern is taken for age and development levels.

Finally, among the General Conference Mennonites, schools are fully accredited by the Mexican Government, and the teachers are college trained -- either in North America or Mexico. The curriculum is broad, including subjects in history and social science as well as the basic subjects taught in the more conservative schools. They have

a regular school year with no prohibition on the maximum level of education. In fact, positive value is placed on higher education. Pupils are divided into classes with separate teachers for each age group. Teaching techniques are modern in every respect. Women as well as men are allowed to teach, and teaching is a full-time occupation.

The differences in educational policy among the various Anabaptist sects in Mexico represent increasing participation in urbanized society, increasing knowledge of, concern with, and influence by society outside the local community. Moving along this continuum educational policy becomes less idiomatic as it conforms more to modern "urbanized" standards. Further, the role of teacher becomes more specialized as the social structure of the conservative rural community loses its homogeneity and becomes structurally differentiated.

Hillery (1968:34) has offered his own definition of conservative rural communities. According to this definition the Anabaptist sects can again be arranged in the same relative order. Hillery defines the essential character of what he calls a Fold Community as: "a localized system of families cooperating by means of mutual aid." The Altkolonier appear as a tightly knit community of cooperating families and the Sommerfelders as slightly less so. Sawatzky (1971:52) says the following about Sommerfelder and Altkolonier cooperation.

> The Sommerfelder community was much less tightly organized than those of the Altkolonier. The latter had an ecclesiastical and a secular organization which, though separate, would support each other in exacting compliance from the individual. With regard to secular affairs, the Sommerfelder community, on the other hand, simply participated in the normal functions of municipal government. From the time the controversial education question was broached, it had been

> generally left to the individual's conscience whether or not he would accept the provisions of the Schools Act. Many Sommerfelder lived on isolated farmsteads. All in all, they may be considered to have been much more individualistic and less group oriented than the Altkolonier.

Further, the mutual aid of the Altkolonier and Sommerfelders is a type which characterizes communities with mechanical solidarity. Solutions to community problems are often solved through mutual agreement, village consensus, and primary level cooperation. The Kleine Gemeinde, on the other hand, tend to use formal organizations and legally organized means to solve problems in the public domain. Examples are their cooperative sheep venture, colony-wide responsibility for land sale, and educational organization (Sawatzky 1971:294, 200, 306).

These few examples should suffice to illustrate the differences among Anabaptist groups in Chihuahua. The typological continuum constructed above could be supported by a long list of other examples, but rather than attempt a detailed justification of the relative position of the groups, it is hoped that for the time being, the opinions of these Mennonite scholars will be accepted. Once accepted, the possibility exists of testing for differences in adoption rates among communities which vary in their degree of conformity to the model of a conservative rural community.

Summarizing, over fifty years ago Mennonites started arriving in an environmentally rather uniform region of central Chihuahua. Today the Mennonite population comprises numerous religious sects, colonies, and villages. It has been argued by several Mennonite authorities that, internally, the Mennonites vary greatly. Variation

in sect membership is associated with variation in the degree to which communities conform to the model of conservative rural communities as outlined in Chapter 1. As a result, the Chihuahuan Mennonites provide an opportunity to test whether diffusion trends are significantly different in conservative rural communities.

CHAPTER 3

COMPARISON OF ALTKOLONIER AND SOMMERFELDER MENNONITES

It would be interesting to compare social change among all these groups, but adequacy of controlled comparisons hinge on holding constant variables other than the independent variable. Answering the question of whether diffusion in conservative rural communities really proceeds at a slower rate than in modern urban communities depends, then, on the extent to which other factors that influence the rate of diffusion can be controlled. Environment, social organization, economy, and education, to name only a few examples, have all been found to influence the diffusion process. The environmental similarity of the Santa Clara and Bustillo Valleys has already been discussed, so that, it can very likely be ruled out as the cause of different diffusion rates. This chapter takes up a number of social variables to show that in most respects the Altkolonier and Sommerfelders are, indeed, very similar. Major differences are found, however, in their adherence to the definition of a conservative rural community.

Exclusion of Small Sects

In order to maintain adequate control it was found necessary to restrict the comparison to the Altkolonier and Sommerfelders. The Kleine Gemeinde, Church of God in Christ Mennonite, and the General Conference Mennonites cannot be included. In the first place, the

Kleine Gemeinde and General Conference came to Mexico much later than the Sommerfelders and Altkolonier. Secondly, the Church of God and the General Conference are essentially churches without discrete and contiguous colony land. They are not, in fact, communities in the same sense as the Altkolonier and Sommerfelders. It is felt that these reasons make the three more liberal groups so dissimilar from the other two that it would be almost impossible to know the causes of different diffusion rates if they are actually discovered. Thus, while the Sommerfelders and the Altkolonier[1] are most similar, it is felt that they may prove most useful as groups in a controlled comparison of the influence of conservative rural communities on the diffusion process in social change.

A thorough discussion of the Altkolonier can be found in Redekop (1969) and a discussion of both the Altkolonier and Sommerfelders can be found in Sawatzky (1971).[2] So the comparative discussion presented here is only a brief introduction to the general outline

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1. For the remainder of this dissertation the terms Altkolonier and Sommerfelder will refer only to those churchmembers residing in Manitoba and Santa Clara colonies (including Campo 55 and 40) unless otherwise indicated.

2. The interested reader is encouraged to read Redekop and Sawatzky for a fuller description of the details of Mennonites in Mexico. I have found these works to be immensely helpful and to be a reliable account of Chihuahuan Mennonite life. It is largely due to these ethnographies that the form of the present research was possible. With a preconception of the social situation in Mexico formed from these ethnographies, I was able to enter the field with a fair assurance that appropriate conditions existed there to test the hypothesis formed. It was thus possible to forego doing much of the preliminary ethnographic fieldwork. Most important, these ethnographies emphasized the overall similarities of Altkolonier and Sommerfelder Mennonites while suggesting that they did differ in a number of the folk qualities.

of life among the Altkolonier of Manitoba Colony and the Sommerfelder of Santa Clara Colony.

Ecological Pattern and Health of the Populations

Despite the economic sector shift to manufacturing found in the Manitoba Colony, both Sommerfelder and Altkolonier economies are overwhelmingly agricultural. According to the 1970 Mexican census, an equal percentage of Altkolonier and Sommerfelders farm for a living (Secretaria de Industria y Comercio, Mexico 1972, Vol. 1:401-402, 467-468, 473-474). Today the agricultural systems of both groups are highly mechanized, particularly when compared to the rest of Mexico. Anabaptists are popularly known for their use of horse power, but among the Mexican Mennonites only a few vestiges of this popular image remain. The Sommerfelders began replacing the horse in both agriculture and transportation while in Canada. Today the Sommerfelders depend totally on tractors for agricultural work and on automobiles, pickups, and buses for transportation. And among the Altkolonier by the mid-1930's the replacement of horses by tractors had accelerated tremendously. The percentage of agricultural work powered by tractors rose to 75% in 1954, and to almost 100% by 1964 (Sawatzky 1971:254). Among the Altkolonier even the use of horses for transportation is becoming obsolete. In 1976, about 80% of all transportation was powered by tractors.

Anabaptists are also popularly known for their avoidance of electrical energy, but again many farmsteads among Mexican Mennonites have some source of electrical energy. This source is usually a small

farm generator (Altkolonier 98%, Sommerfelder 100%); however, a few Altkolonier have hooked up to the public utility lines (presently an excommunicable offense). No Sommerfelder farm has public electricity because lines do not pass close enough for individual hookup, and community wide efforts to bring in public electricity have not materialized. As a group the Sommerfelders have been using small electric generators to produce electricity for a long time and as a result most every farm is powered by its own or a shared generating plant (see Table 6, p. 64). Many Altkolonier also have stationary generating plants while the remainder often generate electricity for special purposes like washing machines and irrigation pumps with the use of a tractor. The combined effect of Altkolonier use of tractors for farming, transportation, and electricity generation is to produce a higher density of tractors among the Altkolonier villages. I estimate that there are today on the average more than two tractors per Altkolonier farm.

The area can barely support dry land farming (Schmidt 1973: 47-48). Today the major crops are wheat, oats, beans, corn, and apples (irrigated). Canadian Wheat, Canadian Oats, and corn were the first crops attempted by the Mennonites in Mexico. But after a few initial wet years of high yield, this crop complex was replaced by 1930, with a more suitable corn, beans, and Texas Oats complex (Sawatzky 1971: 119-120). For all practical purposes wheat was abandoned for a number of years although Mennonite use of wheat flour and attempts to grow wheat never ceased. In the late 1950's, wheat made a considerable

comeback due to the introduction of varieties more suitable to central Chihuahua. The most important of these varieties are Lerma Rojo and Humantla Rojo (Philip Dyck, personal communication 1975).

Some of the continued population growth in the original settlement areas (Figs. 7 and 8) may be accounted for by efforts at intensifying the dry land farming system. Before 1965, there was no commercial fertilizing, but by 1975, about 50% of the farmers were fertilizing. More important, perhaps, in the long run are attempts to shift from the dry land farming system altogether. In about 1960, the first irrigated crops were grown. Today about 2,700 acres of wheat are under irrigation from deep wells.[3] Similarly, irrigated apple orchards were introduced around 1956, and today there are about 170,000 apple trees in Manitoba and Sommerfelder colonies. Most of these trees were planted between 1966 and 1970 (Philip Dyck, personal communication 1975). With the increased productivity of irrigated land, more families can be supported by the same amount of land.

The agricultural operations of both the Sommerfelder and the Altkolonier consist of privately owned family farms. The groups are neither communal nor egalitarian, and, in fact, considerable wealth differential exists within each group and a large percentage of both populations is landless. The Altkolonier tend to be slightly more egalitarian in the distribution of land. Sawatzky (1971:245) reported

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3. Irrigation allows the Mennonite farmer to plant two crops/year. Since rains in the Bustillo area come late in the summer, dry land farmers must wait until late July and August to plant. With irrigation the first crop can come as early as February and March.

land distribution figures for 1965 (Table 4). The Altkolonier have the greatest percentage of farmers in the 80-149 acre category while among the Sommerfelders both the extremely large farmers and the landless categories include greater percentages of families than does that for the medium size farms. As was pointed out earlier, the land shortage is more acute among the Sommerfelders not only because of the greater percentage of landless but also because it has probably existed there longer, and they have as yet not made any major move out of the agricultural sector of the economy. Although no figures exist, it seems reasonable to assume that the Sommerfelder landless (and those Altkolonier not working in factories) must provide labor to the bigger landowners (Sawatzky 1971:296).

Like most farmers, Altkolonier and Sommerfelder farms are characterized by a high degree of capital investment. Most expenditures are reinvested in maintenance and operation of the farm. Like most Anabaptists, the Altkolonier and Sommerfelders in Mexico have carried this philosophy to the extent of avoiding "unnecessary" frivolities. The Altkolonier go to the extreme of avoiding such conveniences as public electricity, radios, television, and many other modern comforts. As a result of this spending pattern, Altkolonier and Sommerfelder farms exhibit a variety of farm implements, well equipped machine shops, and large and substantial farm buildings, while house interiors contain minimal furniture, appliances and conveniences.

Farmsteads in the original Manitoba and Santa Clara colonies are agglomerated into linear villages which share in the use of a

Table 4. Comparison of Altkolonier and Sommerfelder land distribution in 1970.

Group	160 acres and more	80-159 acres	Less Than 79 acres	Landless
Altkolonier	26%	36%	9%	30%
Sommerfelders	29%	24%	8%	39%

Sawatzky 1971:245.

"communal" pasture (Fig. 12). The number of farms in each village varies, but the village plan usually allowed for 18 to 24, 160 acre farmsteads called a wirtschaft. A wirtschaft consists of a village house/barn yard lot, field lots, and rights to the communal pasture.

Technically only wirtschaft owners may live in a village. All house/barnyard lots are arranged along both sides of the village main street (this street may approach two kilometers in length) while fields are located in another section of village land. Only about 28% of Altkolonier and Sommerfelder farmsteads consist of a complete 160 acre wirtschaft. As a result of partial wirtschaften, villages usually contain more than 24 family units. Smaller farmsteads develop because originally poorer farmers bought only partial wirtschaften or because original full wirtschaften have been divided through the years. All true village farmsteads have a house lot adjacent to the main village street and land within the village perimeter. Landless families are not allowed to participate fully in village affairs but are sometimes allowed to build houses on the communal pasture with the hope of eventually obtaining a village farm. This settlement occurs at the end of a village -- typically at a right angle to the dominant village street orientation. Thus landowners in a village unite to protect the agricultural integrity of their community against the possible inroads of landlessness and the potential economic decline encouraged by high population density in agricultural communities. As a result there is a high rate of outmigration. For example, among the Altkolonier in Manitoba Colony between 1966 and 1976, population increased by only

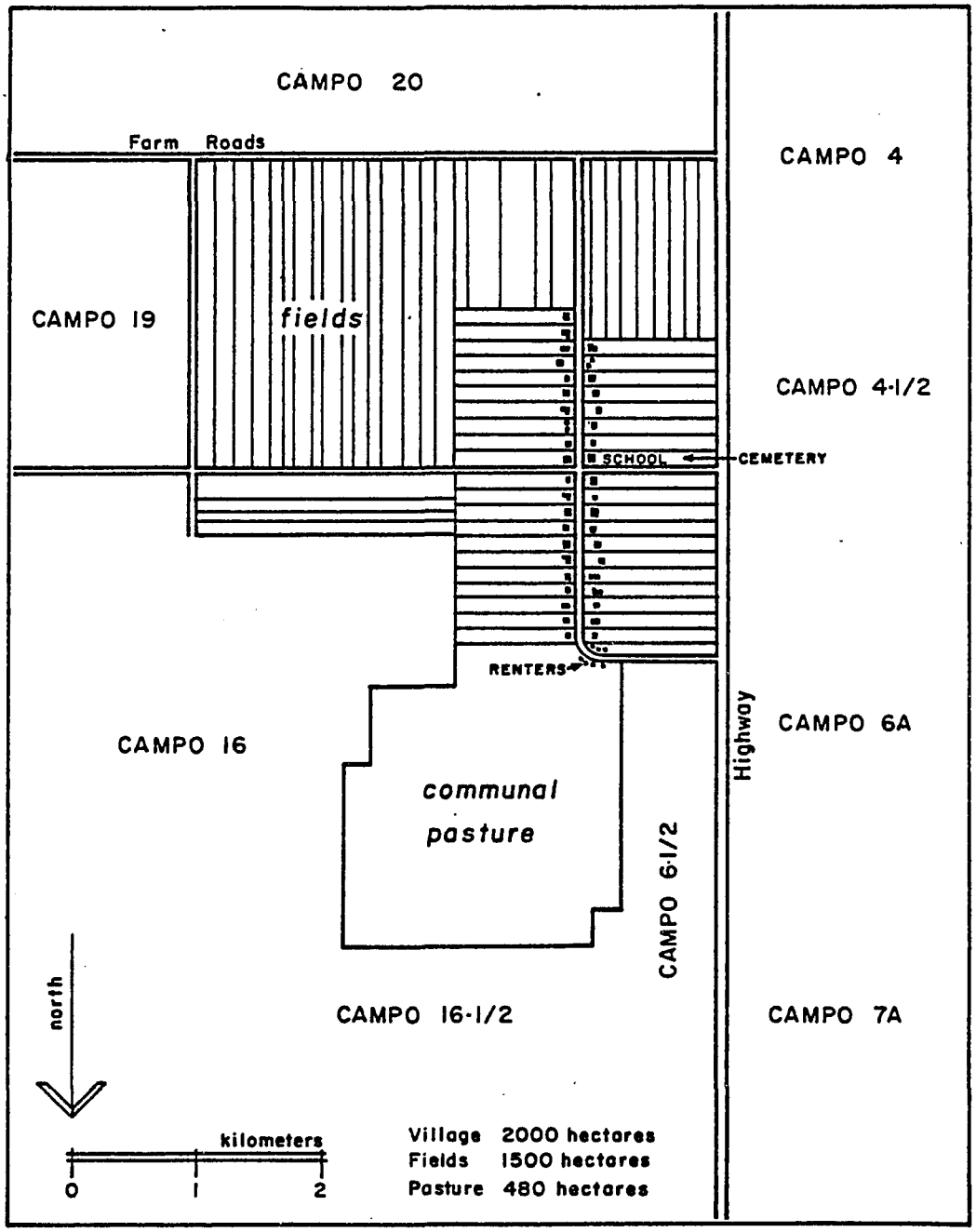

Figure 12. Schematic map of Osterwick, Campo 18, Manitoba Colony.

1876, while 4650 more births than deaths were recorded during the same period.

Sawatzky (1971:217-225) reports that the Mennonite approach to agricultural settlement gave very little attention the the problems of wind and soil erosion. In an attempt to equitably distribute soil type and quality among village land owners, fields were often laid out in the direction of slope. These fields are typically long lots, cultivated in the direction of the long axes, and, without terracing, the ingredients for serious soil loss due to sheet erosion are present. Further, because the Mennonites do not often leave their fields with a protective cover of subble after harvesting, wind and water have a greater chance of destroying the shallow topsoil of the Bustillo and Santa Clara valleys. Although Sawatzky (1971:222) indicates that the more liberal Kleine Gemeinde Mennonites are better resource managers, he seems to suggest little difference in the attitudes and practices of the Altkolonier and Sommerfelder.

Mennonite farming is integrally linked to the Mexican national economy. Although Mennonite farms and gardens supply the large portion of household and farm needs, the Mennonites must still buy many items like clothing, machinery, tools, and butane to maintain their industrial agricultural system. Large portions of their crops are grown for a cash market. Large quantities of corn, beans, and wheat are disposed of through the government operated CONASUPO (Compania Nacional de Subsistencia Populores) warehousing and distribution system. Many crops like wheat, oats, and potatoes are produced almost exclusively

by the Mennonites and these three crops make up 19.2% of the total cultivated tonnage of Chihuahua crops (Departmente de Economia y Estadistica, Chihuahua 1974:18). Apples, another major cash crop has been growing in importance among the Mennonites as in the rest of Chihuahua within the last ten years.

Overall the ecological patterns of the Altkolonier and Sommerfelders are very similar. Major differences are in transportation (the Sommerfelder own some trucks and can do more of their own hauling) and in the recent increase in Altkolonier manufacturing (see Fig. 9). In 1970, the non-agricultural sector made up about 12 and 11 percent of Altkolonier and Sommerfelder economies (Secretaria de Industria y Comercio, Mexico 1972). The percent of Manitoba industry has probably doubled in the last six years. There has been an increase in the number of establishments and probably in the number of people employed by them. Based on Departmente de Economia y Estadistica, Chihuahua (1975), 74 businesses have been reported within the Manitoba Colony in 1975.[4] This is approximately one business for every 151 people. The same report lists six businesses in the Santa Clara Colony (including Campo 55) or about one business for every 191 people. The businesses listed

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4. Here it is particularly important to keep in mind the distinction between colony and church. Government statistics refer to geographic and political entities; so that, statistics referring to the colony villages do not take into account church affiliation. Most industrial establishments in the Manitoba Colony are, in fact, operated by non-Altkolonier. These owner/operators are invariably ex-Altkolonier and employ Altkolonier. For these reasons, it is reasonable to view the advent of manufacturing not only as a colony phenomena, but also as an Altkolonier phenomena even though the ownership of it is largely non-Altkolonier. It had its impetus from Altkolonier population explosion and management and labor came from the Altkolonier population. The same is true in Santa Clara.

were broken down into three major categories and were distributed in roughly similar proportions (Table 5). The total presented in Table 5 does not correspond exactly to the totals derived from my survey of businesses conducted during the 1975-1976 fieldwork period (as reported in Fig. 9), but, in general, they are similar. For example, we located the dated ten cheese factories in Manitoba Colony before 1975 while the Chihuahuan government reports 11 (the extra factory may be because one factory is reported twice due to partnership). In another example, in the five villages of Manitoba Colony studies most thoroughly (Campos 1a, 26, 23, 18, 6½), 48 businesses were recorded and the government reports 47. There are differences in detail in the businesses but in general they correspond well. It is believed that the businesses listed by the Chihuahua government for Santa Clara are reported similarly to those for the Manitoba Colony.

The Mennonites produce most of what they eat. Their diet is plain and monotonous consisting primarily of bread, potatoes, and beans. Meat consists of pork, chicken, and very occasionally beef. Fruits and vegetables are canned and eaten fresh in season. Federal Health Officials, Mexico (1973:5) report that the diet of the Mennonites is well balanced and ample.

Most Altkolonier women and some Sommerfelder women are chronically overweight, and almost everyone has poor dental health. Nearly every Mennonite has false teeth by the time he reaches thirty. Extractions and denturing are performed by self-taught, local Mennonite technicians. Sawatzky (1971:287-288), Fretz (1945:31), and Federal

Table 5. Comparison of Altkolonier and Sommerfelder businesses in 1975.*

Type Business	Altkolonier	Sommerfelder
Stores	36	3
Automotive and Mechanic Repair and Services	10	1
Industrial	28	2

*These figures are based on data collected by the Departmente de Economia y Estadistica, Chihuahua 1975.

Health Officials, Mexico (1973:6) all agree that the Altkolonier of the Manitoba Colony maintain unhygienic households. We found this opinion to be generally true of poorer households among the Altkolonier as well as the Sommerfelders with no major difference between them.

A major part of the hygiene problem is obtaining potable water. Most Altkolonier houses have running water (see Table 6) which is gravity fed into a kitchen sink from a farmstead holding tank. These holding tanks are usually filled from wells 100 to 200 feet deep by a wind driven pump. In some villages, Campo 6½ for example, the water table is extremely shallow (10-30 feet) and has been tapped by hand dug wells. The potential danger of infection from this water is extreme considering the proximity of outhouses and stock pens. The potential of contaminated water is not so great among the Sommerfelder who must either pipe water from springs at great distances or pump water from deep wells (500-700 feet) (Sawatzky 1971:71-72, 112). Further, the 1970 Mexican census suggests that most Sommerfelder houses have improved means of sewage disposal (Table 6).

Most health problems are treated by Mennonites who have taught themselves "doctoring" -- i.e., bone setting, chiropractics, midwifery, diagnostics, and pharmacy. Prescriptions are often of the herbal variety mixed with modern drugs like aspirin, decongestants, and antacids which are administered on the bases of past experience with the remedies. Other practices like denturing have been learned from "doctor" books. Although there is a widespread distrust of

Table 6. Comparison of selected farmstead amenities between the Altkolonier and Sommerfelders in 1970.*

Item	Altkolonier	Sommerfelders
Number of Houses	1656	237
Percent Homes Owned	76	84
Percent with Water Piped Indoors	77	89
Percent with Solid Waste Disposal	8	85
Percent with Non-earth floors	99	99
Percent with Electric Wiring	15	83
Percent with Radios	4	85

*These figures are based on the IX Censo General de Poblacion for Manitoba and Santa Clara colonies. The Manitoba Colony includes a few non-Altkolonier; so, some of the figures may be a little high for the Altkolonier. For example, solid waste disposal and radios may exist primarily in the homes of non-Altkolonier. Likewise, Santa Clara includes non-Sommerfelders; however, they differ little from the Sommerfelders with respect to the use of these amenities.

inoculations,[5] both Sommerfelder and Altkolonier are relying more on non-Mennonite, professionally trained doctors. It is not uncommon in recent years for Mennonites to go to great lengths to get special medical help. The Sommerfelder are, possibly, more willing in this regard than the Altkolonier. More and more expectant mothers are having their babies born in local hospitals. The more persistent and serious the illness, the greater the chance professional health care will be sought. The immediate response is still, however, cures of the home grown variety.

Social Organization

When the Mennonites agreed to settle in Mexico, President Alvaro Obregon granted them the right, among others, to dispose of their property in any way they saw fit. The Mennonites have used this provision to restrict the selling of colony land. The land in the Manitoba Colony, being bought by members of the Altkolonier Church, can only be sold to other Altkolonier. Land in Santa Clara can only be sold to Sommerfelder Mennonites. As a matter of fact, land has passed out of Altkolonier and Sommerfelder hands when colony members are excommunicated since the church cannot take back land once sold. It has, however, remained in Mennonite hands; no Mexicans line on land within colony boundaries. So far the churches have been successful in controlling the secondary sales of excommunicated Mennonites, but tension along these lines is mounting. For example, one excommunicated

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5. I was told by one Mennonite "doctor" that inoculations were used to "experiment" on people, often killing some of the human "guinea pigs."

Altkolonier in the Manitoba colony has subdivided his property and has actually sold lots to the General Conference Mennonites to build a church in the heart of the Manitoba Colony. Manitoba officials are fighting this move on the grounds that it violates the original agreement with the Mexican government.

Two criteria determine church membership: one informal and the other formal. Informally, it is almost an unbroken rule that only the children of Altkolonier and Sommerfelder parents will become Altkolonier and Sommerfelder church members. However, this is not enough; a child must be a "good" Altkolonier or Sommerfelder before he is accepted and allowed to remain in the church. Thus, the colonies select, first racially then behaviorally, only those descendants likely to continue conforming to community expectations and who will protect community interests. A Mennonite can lose his church membership for a small offense like not wearing the proper clothes or desiring higher education. But by in large, these small offenses are only symptomatic of an individual who has very little concern for the community interest and even less for community opinion. More importantly, however, they indicate an individual who may have less concern for maintaining the agricultural integrity of "Mennonite" land. The orthodox recognize that urbanization, industrialization, commercialization, communication, and interaction with the outside will lead to the breakdown of a system which discriminates against those outside the group and will, thus dilute their own and their children's access to colony resources.

The colonies are politically and, to a great extent, socially autonomous even when two colonies like the Swift Current and Manitoba are dominated by the same church. They do not marry non-Mennonites. There is high colony endogamy and even higher church endogamy. Allen and Redekop (1967:663) estimate a .019 coefficient of inbreeding for the Altkolonier. Even at the village level considerable endogamy exists (Redekop 1969:Appendix H). Marriages between churches occurs but are preceded by one spouse changing church affiliations. The change is usually in the direction of available land or of the Sommerfelders since they have fewer behavioral proscriptions (Sawatzky 1971: 301-302).

Church membership allows full social interaction with members of a church sect but it does not guarantee full village membership. Full village membership within a colony comes with farm ownership, and the body of landowners has nearly complete authority within village confines. Landless churchmembers, at the discretion of the landowners, may be allowed to build a house on communal pasture land in hopes of eventually becoming landed, but in several villages landowners have refused the admittance of landless families -- who were in many cases their own offspring. According to Redekop (1969:104-105) and Sawatzky (1971:269) village land owners have rights over a number of individual activities within the village including the right to determine:

1. Whether a business may be established
2. Size of cattle herds
3. Levies on communal labor and taxes

4. Amount of water pumped from the ground

5. Whether existing farm units can be broken up.

Large landowners often exert considerable influence over village affairs (Sawatzky 1971:296; Redekop 1969:47, 191-192) and village officials may only be figureheads for the wealthy and influential (Redekop 1969:107).

The Altkolonier and Sommerfelder farmer is a jack-of-all trades. There is little specialization within the Mennonite community except when some men own special machinery and tools and perform jobs for other farmers like lathe work, welding, machining, and combining. There is even less specialization among women (midwifery is one exception). Every woman does her own baking, sewing, canning, and soap making. Children are usually sufficient for all labor needs and in other instances children are borrowed as farmhands or maids. Mexicans sometimes provide labor as field hands. Families are large averaging 7.6 children per completed family in 1965 in Manitoba Colony (Redekop 1969:189). In many instances landlessness has created extended families where an older son is forced to reside on the family place until the retirement of the senior generation (Redekop 1969:192).

Social interaction revolves around the family. According to Redekop (1969:73) among the Altkolonier;

> The only real relaxation, recreation, or social activity in which the Old Colony member engages is visiting with friends and relatives, sometimes in other villages. . . . The typical conversations focus on relatives, friends, migration, unusual experiences, weather, and farming.

Data gathered in 1976 indicates that the importance of the family is similar among the Sommerfelder (Table 7). Contact with Mexicans is occasional and for business purposes only. Friendship exists mostly between families in the same village and the family remains the most important social institution. Redekop (1969:121) claims that the greatest source of communication is the visitation within a village. He believes that among the Altkolonier a typical farmer makes at least one daily trip to the village store and visits one or two neighbors during the day.

To give an idea of the relative importance of various types of interaction several Sommerfelder and several Altkolonier males were asked to estimate for their village the amount of contact with other Mennonites as compared with non-Mennonites. The results, summarized in Table 7, indicate that if anything the Sommerfelder have less daily contact outside their own villages. Finally, this pattern of interaction within the village itself is not entirely random. Sawatzky (1971:302) suggests that notably less visiting exists between the landed class and the landless. Redekop (1969:44-45) relates that landowners discourage their children from marrying the children of landless parents. In the two largest villages, Campo 10 and 22 in the Manitoba Colony, two schools have been erected per village -- one serves primarily the families of the landed and the other serves primarily the children of the landless.

The chances of coming into contact with non-Mennonite people and ideas is further reduced by the language and communication barrier

Table 7. Comparison of Altkolonier and Sommerfelder inter-village interaction.*

Source	Altkolonier frequency	Sommerfelder frequency
Husband goes to one of the Mexican towns	every 4 days	every week
Family goes to one of the Mexican towns.	every 6 months	every month
Husband visits another Mennonite campo	every 2 days	every week
Family visits another Mennonite campo	every 2 weeks	every month

*Estimates for the Altkolonier are based on interviews with four male informants and for the Sommerfelder with three male informants.

which exists with the Mennonite groups. Table 8 indicates the Sommerfelders have a slightly greater chance of coming into contact with outside views and opinions.

Internal social control is maintained largely through the threat of public censure and social ostracism.[6] The colonies do not maintain any institutional use of force, and when deviants become too obnoxious, they are simply excommunicated from the church and denied full and relaxed interaction with church members. Excommunication and the "ban" are only effective if the individual still wants to remain in good standing with his neighbors and the church. For most, this denunciation is a real threat. For others who have more outside friends, a larger frame of reference or who have more to gain (usually financially), excommunication is worth the price.

Cultural Values

The Altkolonier and Sommerfelders display a similar set of cultural values, and, as can be expected from the preceding discussion, they revolve around the Mennonite group identity, farming and the family.

Sawatzky (1971:3) argues that Mennonite group consciousness probably originated around the turn of the 19th century in Russia as the government began dealing with those German speaking Dutch people

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6. Federal troops have been stationed in or near the colonies since 1929, in an attempt to control the assaults on Mennonite life and property by surrounding Mexicans (Sawatzky 1971:147). The Mexican government also has the power to apprehend Mennonite lawbreakers and to collect delinquent bills (Redekop 1969:101).

Table 8. Comparison of Altkolonier and Sommerfelder inter-ethnic communication.*

Source	Percent of Altkolonier	Percent of Sommerfelders
Men with good Spanish	8-10	10
Men with fair Spanish	25	90
Women with fair Spanish	1	0
Women with poor Spanish	10	10
Men with good English	0	0
Men with fair English	2	5
Women with good English	0	0
Women with fair English	<1	<1
Men ever work in Canada	15	5
Men ever work outside colonies in Mexico	<1	0
Family ever visit Canada	10	5
Family visited Canada in past five years	3	2
Family ever visited other parts of Mexico (non-colony)	0	0
Percent friends in same campo	80	90
Non-Mennonite friends	<1	5

*Estimates for the Altkolonier are based on interviews with four male informants and for the Sommerfelders with three male informants.

living in Russia who professed the Mennonite religion as a group and granting the Mennonites as a group various privileges. These privileges included the right to work certain lands and freedom from certain government programs and regulations like compulsory education and military service. Since language and religious differences created an effective barrier to outsiders, the church membership gradually became endogamous and took on the character of a self-conscious ethnic group.

Whereas originally Mennonitism was a radical denomination of the Reformation movement, in Mexico the Mennonites can be viewed more as an ethnic and racial group, the members of which all profess some variety of Mennonite religious doctrine. In fact, in Mexico the Altkoloniers and Sommerfelder Mennonites are not active in their respective churches. I estimate that possibly 10% of the people regularly attend church services. This fact has been disparagingly described by other Mennonites as ". . . spiritual dormancy, moral laxity and intellectual atrophy" (Fretz 1945:25).

The decline in church worship has not paralleled a general decline in ethnic identity. Mennonites still actively advocate Mennonitism and carefully define the boundary between themselves and the outside world. The Mennonites have strong group loyalty (Sawatzky 1971:3), and feel especially elected by God for salvation (Redekop 1969:110). As a result they feel no loyalty to any group larger than their own ethnic group. This manifests itself in a willingness to move from one country to the next when it suits them. Chihuahuan Mennonites have lived in Mexico for fifty years but many have not

taken Mexican citizenship and ". . . they do not identify in a patriotic sense with Mexico. . . ." (Sawatzky 1971:326). By registering their children as Canadian citizens born abroad, a large portion have actually retained Canadian citizenship in case they may decide to return to Canada (Redekop 1969:165). Sawatzky (1971:321-322) describes how the Mennonites move back and forth from Canada and Mexico taking advantage of Canadian social services while returning to Mexico with their taxable income where they enjoy the special privileges granted by Obregon in 1922.

Mennonite ethnic identity manifests itself in a self-conscious attempt to eliminate all but the most orthodox descendants. They feel, in the first place, only those raised as Mennonites could "take up the yoke" of Christian discipline and no attempt is made to convert racially non-Mennonites to their religious doctrine. In the second place, strict control over behavior is used to maintain a clear distinction between themselves and non-Mennonites. Barth (1969) argues that the strong conformity is useful in maintaining a group boundary (Barth 1969:29). Redekop (1969:39) makes the same point with reference to the Altkolonier. He quotes an Altkolonier as saying that ". . . the reason there is such a strong regulation in dress is that when an Old Colony member is tempted to stray, he will feel conspicuous and thereby refrain." He adds, "as soon as there is too much deviance, Old Colony solidarity begins to suffer." It is on this point that Altkolonier and Sommerfelder values vary most. The Sommerfelders, as later evidence will show, feel that a greater degree of behavioral

variation is possible without sacrificing group identity. The ethnic boundary is strictly maintained in both groups through ostracism, excommunication, and the ban; the only difference is the degree of latitude in behavioral variation.

The mennonites value hard work and believe they work harder than Mexicans. Mennonites and many Mexicans (Acosta 1975:88-93) explain the difference between the level of Mexican and Mennonite agricultural production by reference to hard work. The Mennonites do tend to put in long hours, but, as Redekop (1969:74) points out, they work at a leisurely pace. The Mennonites value the agrarian lifestyle. Thus, farming is the preferred occupation; although, occupations stemming from farming skills and supporting an agrarian community are also allowed, if they do not require behavior patterns which overstep the bounds of acceptable behavior.

As the owner/operators of family farms the Mennonites are strong advocates of free enterprise. In 1975, they felt the difference between the level of United States agricultural productivity and that of Mexico resulted from Mexico's failure to allow market principles to operate freely. Further, they believed the government of Mexico was communist. A combination of the work ethic and the free enterprise belief serves to explain the internal wealth differential within Mennonite society. Poor Mennonites are accused of being lazy, worthless, drunks who deserve their fate because they did not work hard enough.

Finally, the Chihuahuan Mennonites place strong value on the family. Large families are considered a Christian duty and most

families contain five or more children. Since the family provides the major socializing medium, Mennonites feel strong obligations to maintain family ties. The families are strongly patriarchal and respect and deference is accorded old age.

Behavioral Differences

Even though the Altkolonier and Sommerfelders are in ecologically similar conditions, arguments presented in Chapter 2 indicates they vary in terms of adherences to the definition of a conservative rural community. The problem becomes one of trying to show how and to what degree the two groups differ. As far as can be gathered from current literature, no disagreement exists over the rank order of the Altkolonier and Sommerfelders, but, at the same time, no quantitative evidence has been published for establishing just how much more closely the Altkolonier adhere to the conservative rural community definition than do the Sommerfelders. The very definition of conservative rural community has such a subjective quality about it that any attempt to quantitatively evaluate a community in terms of the definition can be only partially successful. Still, a more precise description of the rank order would be useful. This description will revolve around two of the elements used in distinguishing a conservative rural community: its distinctiveness and homogeneity (Murdock 1949:80-83). These variables were chosen primarily because easily quantified indices to them are available.

Distinctiveness

Murdock (1949:83) argued that isolation resulted in communities with distinctive sets of behavior and behavioral expectations. Behaviorally the Altkolonier are more distinct than the Sommerfelders. By distinctive is meant that typical Altkolonier behavior is less similar to the surrounding "urbanized" society of Mexico and North America. Greater Altkolonier distinctiveness results from their attempt to isolate themselves from what they consider the evil influences of the world. Dress styles are more peculiar, modes of transportation more unusual, and architecture and window dressing more idiomatic.[7]

Dress Styles. Typically, the Altkolonier women dress in homemade garments, unique in style and color. The style is so uniform that it can be considered a truly "Chihuahua Mennonite style." Local stores in urban areas sell dolls dressed in the well known Mennonite attire. The dress is collarless, long sleeved and hemmed just below the calf.

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7. The following comparison was based on the observation of 53 Altkolonier and 39 Sommerfelder adolescent and adult females and 52 Altkolonier and 34 Sommerfelder adolescent and adult males. The distinction between adolescent and adults was made on a purely subjective basis. Males and females considered to be between the ages of about 14 and 22 were considered adolescent. There were 10 adolescent Altkolonier males, 10 adolescent Sommerfelder males, 21 Altkolonier adolescent females, and 12 Sommerfelder adolescent females. The nonrandom sample was taken from among the Mennonites who came outside to watch during the architectural survey. The comparison of houses and windows is based on an analysis of 169 Altkolonier houses and 119 Sommerfelder houses. The houses used in this section came from the following villages:

Altkolonier	Sommerfelders
Klefeld (Campo 1a)	Halstadt (Campo 55)
Silberfeld (Campo 26)	Bergthal (Campo 40)
Waldheim (Campo 23)	Neuanlage (Campo 53a)
Osterwick (Campo 18)	Wedenfeld (Campo 51)

The dress has no buttons or zippers. It is a one piece dress with overlapping front pieces which are closed with hooks and ties. The skirt is pleated and dominated by dark colored prints (dark blue, green, black, brown). Dresses are usually covered by a large cobbler apron.

All women wear large "Mennonite" scarfs. This style scarf is larger than those normally worn by Mexican and North American women being nearly as large as a shawl. It typically has a small area of flowered design in the corners and short fringe all around the edge. The scarf is pulled tightly around the head by wrapping the ends of the scarf around the neck so that the outline of the head is clearly visible. Unmarried girls always wear white and married women always wear black. In Mexico, 86% of the Altkolonier women can be seen wearing a wide brimmed straw hat or sun bonnet. It is held on the head by a brightly colored ribbon and a trim bow is attached to one side.

Most Altkolonier women wear thigh-high stockings or hose. Among the adolescents there is a distinct preference for white stockings or flesh colored hose. Adult women prefer darker colors. Shoe color is predominantly black with some brown. Most shoes are plain slip-on pumps. Sandals, low heeled dress shoes, oxfords, and buckled shoes can be seen occasionally.

Comparing Altkolonier and Sommerfelder adolescents (Figs. 13-16), the distinctiveness of Altkolonier female dress is obvious. Almost everything about the Altkolonier women's dress is unique and easily identifiable as "Mennonite." The Sommerfelder styles are plain

Figure 13. Adolescent Altkolonier.

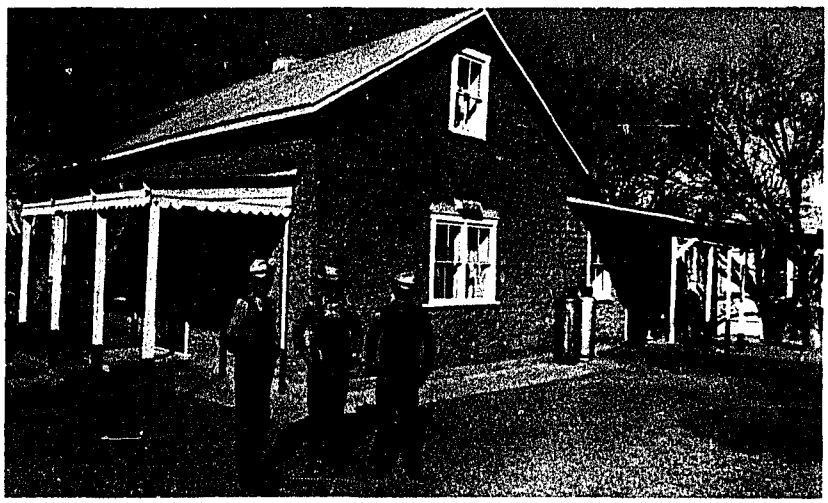

Figure 14. Adolescent Altkolonier boys.

Figure 15. Adolescent Sommerfelders.

Figure 16. Sommerfelder man.

but similar to those worn by girls in rural areas of Mexico and the United States. The Sommerfelder female dress, like the Altkolonier, is distinctive in that it does not include pants or slacks, but Sommerfelder dress styles are much less outstanding than those of the Altkolonier (see Tables 9 and 10).

All the adult Sommerfelder women wear simple, one piece cotton dresses. In contrast, adolescents usually wear a skirt and blouse combination. Dresses or blouses open in the front or back with buttons or zippers. The hem line lies just below the knee. Apron use and styles among the Sommerfelders are less distinctive. For example, among the adolescents who were observed wearing aprons, 22% were wearing the cobbler style while 56% were wearing the style which covers only the skirt.

Scarfs, when worn, are small head scarfs almost always of a solid color. Color is less strongly associated with marital status. Twenty percent of the adolescents wear white while 56% of the adult women wear black, and the colors worn by the remaining women are quite varied. None of the adolescents had hats and 15% of the adults wore them and most of these lacked the ribbons so characteristic of Altkolonier female hats.

None of the adolescent girls wore thigh high stockings and only a quarter of the adult women were observed with them. Most females wear anklets or knee socks. Several (31%) adults wear flesh colored hose.

Table 9. Distinctive features of Altkolonier and Sommerfelder clothing (percent use).

	Altkolonier		Sommerfelders	
	Adolescents	Adults	Adolescents	Adults
Women	N = 21	N = 32	N = 12	N = 27
"Chihuahua Mennonite Dress"	100	100	0	0
Dark Colored Dress	80	86	17	56
Cobbler Apron	100	84	22	69
"Mennonite Scarf"	100	100	0	0
"Mennonite Hat"	86	86	0	15
Thigh High Stockings	86	83	0	25
Plain Slipon Pumps (including 1" heel) and Oxfords	73	83	70	71
Black Shoes	92	87	36	73
Men	N = 10	N = 42	N = 10	N = 24
Overalls	90	71	20	25
Green Shirts	45	38	30	17
"German Boots"	0	19	0	5
"Russian Cap"	0	3	0	4
Suspenders (when not wearing overalls)	0	66	0	10

Table 10. Non-distinctive features of Altkolonier and Sommerfelder clothing (percent use).

	Altkolonier		Sommerfelders	
	Adolescents	Adults	Adolescents	Adults
Women	N = 21	N = 32	N = 12	N = 27
Skirt and Blouse	0	0	87	0
Color Combinations	0	0	13	100
Skirt Apron	0	16	56	22
No Apron	6	0	22	6
Buttons	0	0	30	88
Zippers	0	0	70	12
Small Head Scarfs	0	0	67	94
Anklets	0	0	67	19
Tennis Shoes	0	0	0	12
Men	N = 10	N = 42	N = 10	N = 24
Jeans and Work Pants	10	29	70	62
Knit Pullover Shirts	0	0	20	9
Cowboy Boots	15	18	25	30

Shoe styles are very similar to the Altkolonier except that 12% of the adult women were observed wearing tennis shoes. Shoe colors are less seldom black and brown and more like what is seen among the general rural population of Mexico and the United States.

Turning to male clothing we find that, while less distinctive than female clothing, a similar pattern exists where the Altkolonier are more unique than the Sommerfelders (Figs. 14 and 16). This uniqueness shows up mainly in the Altkolonier habit of wearing overalls. No Mexicans in rural areas wear overalls; so that, an Altkolonier man can be easily picked out on this basis. Generally, the adult males who wear work pants or dress pants are older retired gentlemen with two thirds of them using suspenders to hold up the pants and the remaining third using plain belts.

Altkolonier shirts are distinctive primarily by the dominance of green. Shirts are long sleeved, made of cotton, buttoning or snapping down the front, and often store bought (no accurate observations made). Most shirts have a plaid or print design. There is a notable absence of knit, pull-over type shirts which are common among Mexican males.

Shoe styles among the Altkolonier are distinctive by the lack of cowboy boots, the most common style in rural northern Mexico. The most popular style among the Altkolonier is a low cut oxford. Nineteen percent of the adults wear a very distinctive short dress boot known locally as a "German boot." It has a pointed toe and three small metal buttons on one side. It is a style going back to Russia and Carried on today mostly among the older adults.

All Altkolonier males wear hats, but they are, for the most part, unremarkable because the large majority are straw cowboy hats similar to those worn by the surrounding Mexican population. Although difficult to quantify, Altkolonier cowboy hats as well as those of the Sommerfelders have less flair; they are plainer and more conservative. The remaining Altkolonier adolescents wear bill caps which are less common in Mexico. The most distinctive cap is locally known as a "Russian cap," which can be seen on a few older males. The Russian cap is reminiscent of the old Russian peasant cap.

Compared to the Altkolonier, the Sommerfelder males blend in much better with the surrounding Mexican population. Overalls, suspenders, and German boots are less common. Pant styles are more like those common among northern Mexican males. Less than a quarter of the Sommerfelder males wear overalls. Half the adolescents and a quarter of the adults wear some sort of ordinary work pant common in North America or they wear jeans. All adolescents use regular belts to support their pants while most adults use a cowboy style belt. Ten percent of the (older) males use suspenders.

Twenty-two percent of the adolescent shirts and about 10% of the adult shirts are of one of the various pull-over knit varieties. The remainder are of the long sleeve, button or snap, cotton styles common in the region.

Over a quarter of the males wear cowboy boots. Due to the use of tennis shoes, shoe color is not restricted to black and brown. Among the Summerfelders more caps than cowboy hats were apparent but

whether this makes them less distinctive cannot be said with certainty because accurate observation of rural Mexican hat/cap use have not been made. Four percent still wear the Russian style cap.

In summary, clothing worn by both Altkolonier females and males reveals a behavior pattern which distinguish them markedly from the Sommerfelders and from their Mexican neighbors. This distinctiveness is not only a product of their isolation from other people but also to some extent a means of maintaining the isolation. The Sommerfelders appear less distinctive. Both women and men wear styles less idiomatic and slightly less conspicuous in the context of both rural northern Mexico and the rest of North America.

Transportation. The transportation of the Altkolonier stands out boldly from the behavior patterns of northern Mexico. The Altkolonier rely on tractors and horses for most of their transportation needs. On weekdays, 80% of their transportation is powered by tractors. Sometimes men will simply ride the tractors but when a family or group of people is traveling, the tractor pulls some sort of wagon.[8] The wagon may be a plain farm wagon or a large wooden box equipped with seats may be set on the wagon or a specially made closed-in coach with doors, windows, and seats may be used. Any of these wagons can, of course, be pulled by a team of horses. Approximately 15% of weekday transportation needs are filled by horses which often pull a distinctly styled buggy. The remaining 5% of weekday

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8. See Sawatzky (1971:248) for a discussion of the unusual suspension system of these wagons which features old automobile frames.

transportation is by bus. On Sunday and other religious holidays the transportation pattern changes somewhat but is no less distinctive. On these days the Altkolonier rely less on tractors and buses. Possibly 80% of the holiday traveling, which is done primarily for visiting, is done by horse and buggy. Altkolonier can be seen occassionally riding in automobiles, but they do not own them themselves.

The Sommerfelder, on the other hand, own and operate cars and trucks, using them for possibly 90% of their transportation needs. They use the buses more (10%) than the Altkolonier especially since they live further from major towns than the Altkolonier, but due to their relatively greater wealth, they ride buses less than the local Mexican population. When compared to Mexicans in similar economic circumstances, the Sommerfelder's transportation behavior is very similar to the surrounding Mexican behavior while that of the Altkolonier is remarkably distinct.

Architecture. The study of Mennonite architecture undertaken in this research was not a stylistic one. That is, field observations were not structured around the classification of houses into types. During the fieldwork definite types emerged, and it became obvious that Sommerfelder houses were typologically more similar than the Altkolonier to surrounding Mexican and North American architecture. To convey this impression a typological analysis of part of the Mennonite architecture data was undertaken in order to determine the frequency of various house styles in both groups. The classification was based

primarily on roof styles.[9] The comparison of Altkolonier and Sommerfelder housing distinctiveness was based on the following house styles.

Type A (Figs. 17 and 18). This can be called the "Chihuahuan Mennonite Style." Roofs are high pitched (>29°), gabled, and derived from styles existing in Russia and Canada (see below). Roof material is usually corrugated sheet metal, although early roofs (before 1939) were sometimes finished with wood shingles (9%) and usually covered a one and a half to two story house. Later houses of Type A were usually only one story with an attic or storage area above. Although this storage area often has an outside window and gives the house the appearance of a second story, the area is seldom high enough to live in and usually no stairway exists for easy access.

Type B (Fig. 19). Gradually the roof pitch has declined in Mennonite architecture so that from Type A has "evolved" what can be considered a second type. It is a low pitched (>27°>7°), gabled roof. The roof is covered with corrugated sheet metal. Due to its low pitch, the area in the attic is virtually non-existent, and the outside wall contains no second story windows.

Type C (Fig. 20). From the very first years the Mennonites constructed roofs with earth covering rather than corrugated sheet metal or wood shingles because the superior insulating qualities and less cost involved became obvious. This third type differs from the earth roofed houses of the Mexicans primarily by the continued use of

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9. For a full description of stylistic change see Chapter 4.

Figure 17. Type A house, wooden.

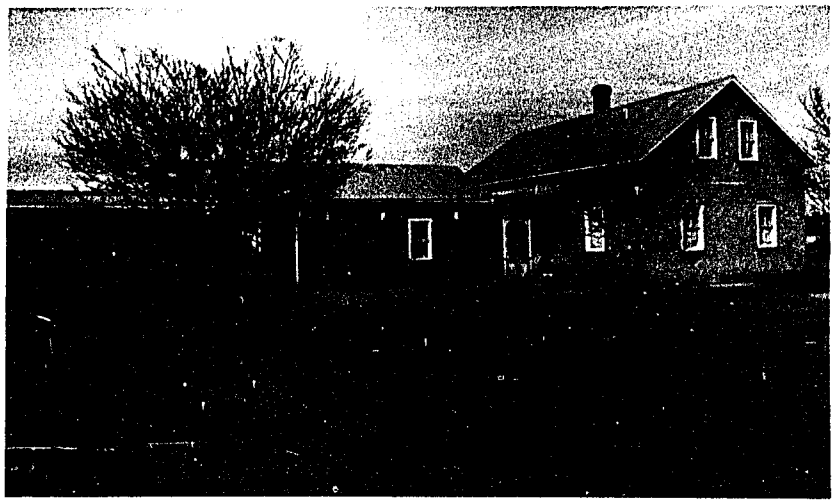

Figure 18. Type A house, adobe.

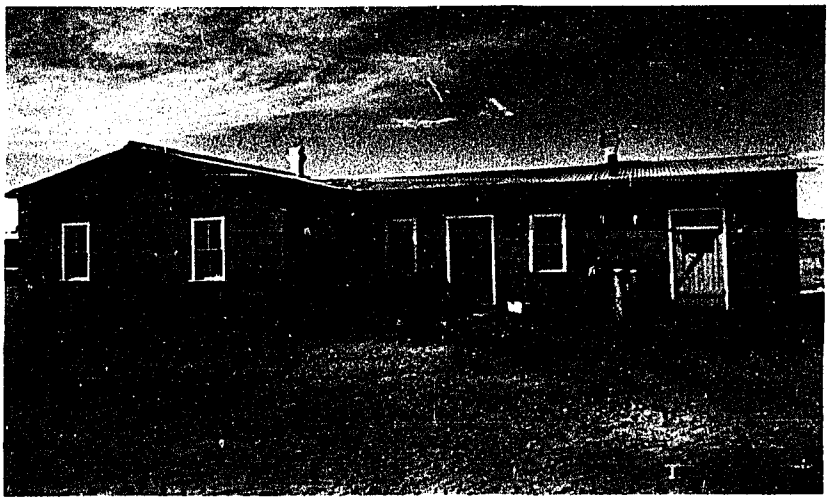

Figure 19. Type B house, concrete block.

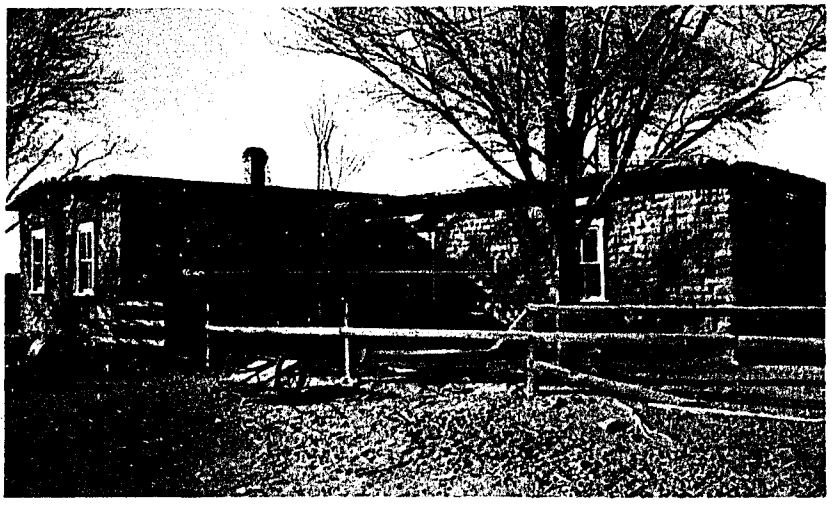

Figure 20. Type C house.

the gabled construction.[10] Often these roofs have later been covered with corrugated sheet metal to help repel water while still insulating well. Compare this type with Type E earth-roofed "Mexican style houses." Type C houses are always one story affairs.

Type D (Fig. 21). This style is also a low pitched earth covered roof, but it is not gabled. The roof has only one gently sloping face. It can be thought of as either a modification of Type C or a modification of Type E since most Type E roofs are also slanted rather than gabled.

Type E (Fig. 22). This type is a house which closely resembles the architecture of rural northern Mexico. It is usually a smaller house with a slanting, earth roof. The roof is sunken below the tops of walls and drained with canales, the tube style guttering common in Mexico.

Type F (Figs. 23 and 24). Type F has the greatest variety in appearance. The one unifying feature is that these houses all resemble housing styles common in rural North America. The identifying features are hipped roof ends and/or dormers in the second story or attic.

The style of Altkolonier houses is a very distinctive feature in the architectural landscape of northern Mexico. In a country where steep gabled roofs are uncommon, nearly 25% of the Altkolonier houses have gabled roofs with a pitch equal to or greater than 29° and another

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10. Some of these roofs actually have a gentle arch to them rather than a gabled roof with flat faces. One each occurred in this analysis among the Sommerfelders and Altkolonier.

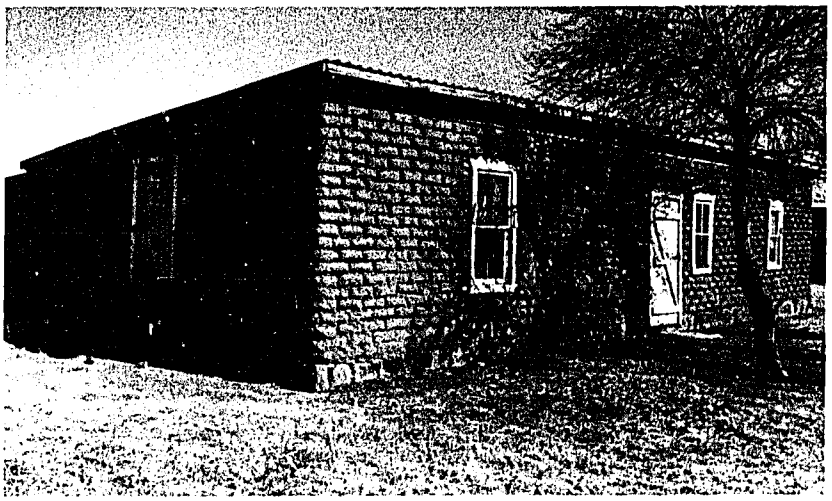

Figure 21. Type D house.

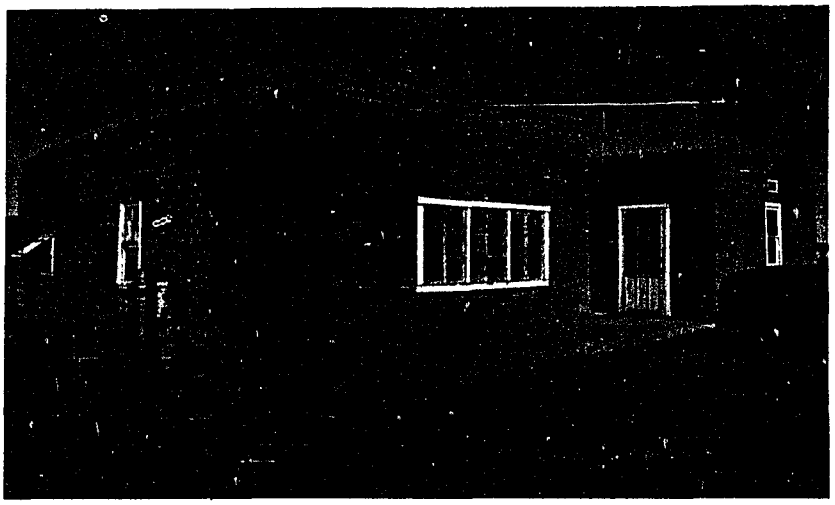

Figure 22. Type E house.

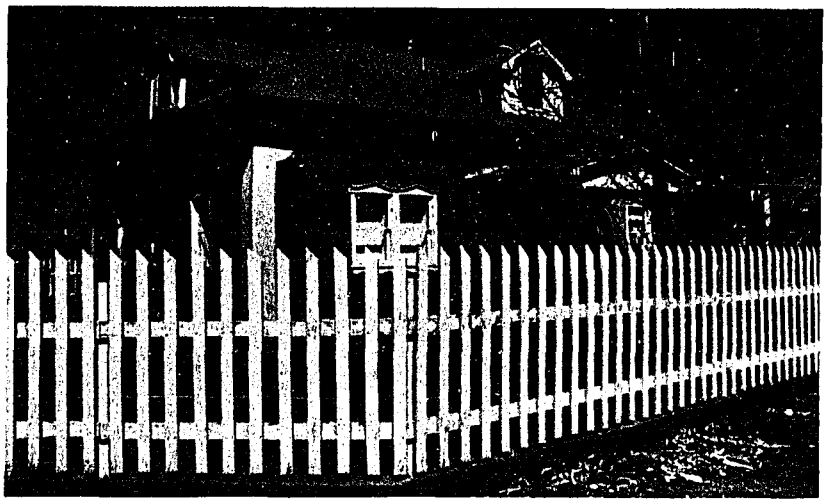

Figure 23. Type F house, dormers.

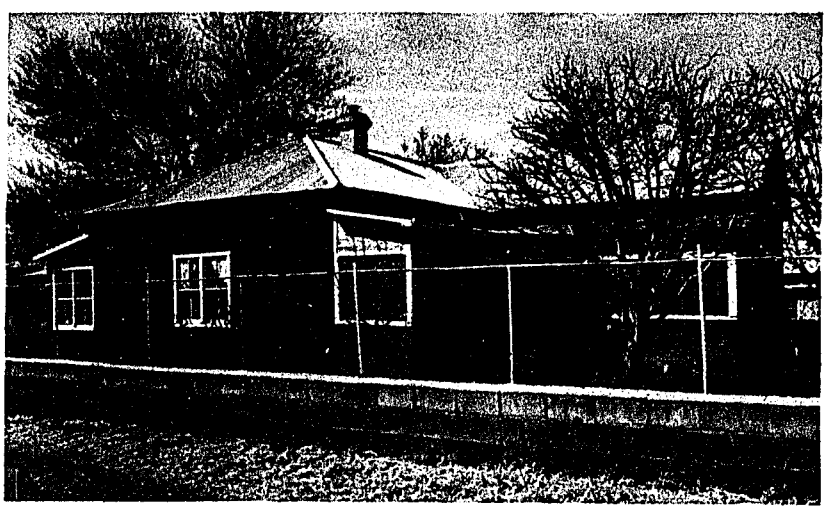

Figure 24. Type F house, hipped.

29% have gabled roofs with a pitch between 7° and 27°.[11] All these roofs are covered with corrugated sheet metal or carton in an area where earth is by far the most common roofing material.[12] Only 1% of the buildings can be characterized as stylistically similar to surrounding Mexican architecture. Although dormers were used in Russia and Canada, very few (1%) show up among the Mexican Altkolonier houses. Ninety-six percent of the Altkolonier roofs are simple gabled structures.

The dominance of the gabled roof would, to some degree, be outstanding even in North America because most farm house roofs contain either a hipped end (in ranch style houses) or a dormer (in older multistoried houses) -- something breaking up the roof plane besides angles in the house plan. But hipped roofs are almost never found among the Altkolonier.[13] This is in sharp contrast to the Sommerfelders where 18% of the total roofs have hipped ends and/or dormers; so that, many of the Sommerfelder houses are stylistically similar to those found in rural North America. Further, another 26% of the houses appear nearly identical to those of their Mexican neighbors, i.e., roofs are nearly flat, sunken below the tops of adobe walls and drained by the familiar

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11. Roof pitch among the Mexican Mennonites is never 45% or greater as has been reported for Canadian Mennonite architecture (Sawatzky 1971:274). The steepest roofs have a 42° pitch (<1%).

12. Carton is a sheet of corrugated, pressed, heavy fiberboard saturated with tar for water resistance. It is a cheaper and less durable substitute for sheet metal.

13. Dormers have been observed in the roofs of excommunicated Altkolonier homes and in 1 of 241 Altkolonier houses.

tube spouts commonly found in Mexico's adobe architecture. Fifty-two percent are in the simple gabled roof tradition so characteristic of the Altkolonier (i.e., Type A, B, and C). However, only 8% are of the extremely high pitch of Type A. Clearly the Sommerfelder appear less uniquely Mennonite in their architectural behavior, with nearly half their houses conforming stylistically to architecture found in rural parts of North America and Mexico (Table 11).

The Altkolonier appear more distinct than the Sommerfelders in house plan as well as construction style. In Sawatzky's (1971:272-279) brief overview of Mennonite architecture, he notes that a dominant house plan among the Altkolonier is what is called the wohnstallhaus or dwelling-stable-building, a structure which contains the barn and house under one roof. The plan is a product of Northwestern Europe and maintained through Canada because of its functional utility in cold climes. Originally the style was for the entire structure to be built along one long axis with a steep gabled roof and the whole structure set perpendicular to the main road. Although while in Canada variations of the arrangement of barn and house (i.e., variation from one long axis) occurred (Warkentin 1960:109-128, 229-239), the Altkolonier carried the varieties of the wohnstallhaus plan to Mexico and reconstructed them (with further modification) in many of the villages there. Today about 37% of the Altkolonier houses are attached to barns. This contrasts sharply with the Sommerfelders who built only 17% of this type plan and today only half (8%) of these are still in existence. As a result, the architecture of the Altkolonier is much more distinct than the Sommerfelders in plan as well as style.

Table 11. Summary of Altkolonier and Sommerfelder architectural styles.

Styles	Percent used by Altkolonier	Percent used by Sommerfelders
	N = 169	N = 119
Type A	25	8
Type B	29	33
Type C	42	11
Type D	1	3
Type E	1	26
Type F	1	18

For a description of house styles (Types A through F) see page 88.

Window Dress. One final example of Altkolonier distinctiveness comes from the way windows are trimmed.[14] Among the local Mexican population, curtains and/or venetian blinds are the common window trimming. However, a great number (58%) of the Altkolonier windows which face the main road are trimmed in one of the varieties of what can be called the green plastic/white cloth style (Fig. 25). The most common variety (42% of all windows) of this style has green plastic covering the upper half of the window and a white cloth in the lower half. Most often the white cloth will be folded back diagonally to let in sunlight. Other varieties of this basic style are all-green plastic trim (9%) and one where the white lower half is replaced by a white print material. Only 1% of the windows facing the road have curtains. Nine percent have no trim and 16% have an all white cloth and another 16% have a multicolored covering.

The Sommerfelders are less idiomatic with regard to window trim. Like their Mexican neighbors, 78% have multicolored curtains trimmed windows which face the road. Fourteen percent of the windows have Venetian blinds.[15] There is none of the green plastic/white cloth style so characteristic of Altkolonier villages. Thirteen percent have plain white clothes and 6% have no trim.

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14. Observations were made on all windows. Windows hidden from public view showed more behavioral variation in trim and the difference between "public" and "private" behavior among Mexican Mennonites is an interesting topic, but one which cannot be treated here. The following data refer to only public windows or those windows facing the main road.

15. Thirteen percent of the curtain windows also have venetian blinds with only 1% of the windows containing venetian blinds alone.

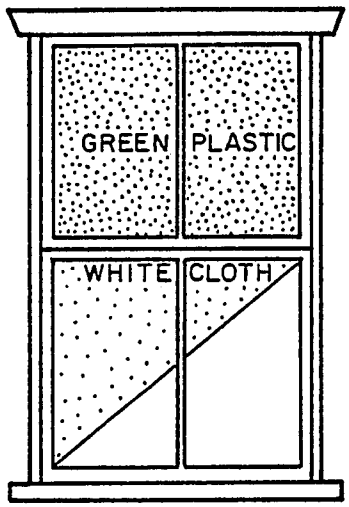

Figure 25. Diagram of the Altkolonier green plastic/ white cloth window trim style.

Homogeneity

Not only are the Altkolonier more distinctive than the Sommerfelder, they are behaviorally more homogeneous. Hillery (1968:225-229) in an extended discussion of the concept of homogeneity among small communities, identifies the most important aspect of community homogeneity with Durkheim's mechanical solidarity. A completely homogeneous community is one where every family unit is the same largely because their economic pursuits are identical (primary production) with no division of labor within the community. In this regard the Sommerfelders and Altkolonier are basically very similar. Economically, both groups are primarily farmers with a similar land distribution. The Sommerfelders appear slightly more homogeneous in economic activity (Table 12). Their Index to Qualitative Homogeneity is 79 as compared to 74 for the Altkolonier.[16] The Altkolonier are slightly more homogeneous in the distribution of land (see Table 4). The Sommerfelders have a greater percentage of large farmers and, at the other extreme a greater percentage of landless poor. Overall, the homogeneity of land distribution of both these groups is similar.

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16. The Index to Qualitative Homogeneity (IQH) gives an indication of the relative degree of homogeneity for a given set of observations. The index was derived by IQH = 100-IQV. IQV or the Index to Qualitative Variability was derived according to Mueller, Schuessler and Costner (1970:174-179).

$$IQV = \frac{n_i n_j}{\frac{k(k-1)}{2}\left(\frac{n}{k}\right)^2}$$

Where: $i = j$
k = number of categories
n = total frequency

Complete homogeneity would be equal to an index value of 100 and total lack of homogeneity would equal 0.

Table 12. Summary of Altkolonier and Sommerfelder economic sector distribution.*

Group	Percent in Agriculture	Percent in Services	Percent in Industry
Altkolonier	88	4	5
Sommerfelders	89	3	4

*These figures are based on the Noveno Censo General de Poblacion (Secretaria de Industria y Comercio, Mexico 1972) for Manitoba and Santa Clara colonies. Three and four percent of the populations are not accounted for in the census. This may reflect economically inactive units. Data collected for this dissertation (see Fig. 9) suggest that the industrial sector is increasing more among the Altkolonier in recent years.

According to Hillery (1968:227) there are other indications of community homogeneity, and again the Altkolonier and Sommerfelders appear very similar. For both groups family affiliation is a universal of group membership, agriculture is still clearly dominant, and in each village the majority of residents were born in the village or in the immediate vicinity.

Since this research was predicated on the idea of a controlled comparison, it is not surprising to see similarities like these because, to maintain adequate control, two very similar groups had to be compared. In other behavioral aspects resulting from the influence of common traits, objectives, and experiences (Hillery 1968:226) the Altkolonier appear more homogeneous than the Sommerfelders (Table 13). Under circumstances of complete homogeneity all behavior of all members of like age and sex would be similar, but this circumstance is uncommon. In dress and architecture the Altkolonier are consistently more homogeneous than the Sommerfelders. This homogeneity results from the fact that Altkolonier members, generally, use fewer behavioral alternatives in greater frequencies. To visualize the difference refer to Figures 26, 27, and 28 where representative examples are presented. In the case of women's choice of dress color, the Altkolonier only use six colors; three of these, black, green and blue, make up 83% of the dress color observed. On the other hand the Sommerfelders choose dresses with 17 colors or combinations of colors (Interestingly enough, they were homogeneous in avoiding black). Mennonite men exhibit the same pattern. Altkolonier are strikingly homogeneous in using overalls while the

Table 13. Comparison of Altkolonier and Sommerfelder indices to qualitative homogeneity (IQH).[a]

Item	Altkolonier IQH	Sommerfelder IQH
Clothing		
Dress color	24	11
Dress type	100	81
Scarf type and color	46	16
Hat, female[b]	52	65
Hose and Stocking type	55	16
Hose and stocking color	29	16
Shoe type, female	33	12
Shoe color, female	76	7
Pant type	46	11
Pant color	59	8
Shirt color	14	6
Shirt style	28	31
Shoe type, male	8	8
Hat type, male	60	38
House		
House type	21	10
"Front" window trim[c]	30	37

a. For the number of people and houses used refer to Tables 10 and 11.

b. The comparison of hats is not quite fair. The Sommerfelder women appear more homogeneous simply because they do not wear hats. For the same reason the Sommerfelders would appear more homogeneous in hat ribbons.

c. The Sommerfelders are more homogeneous in window styles because they conform strongly to current "urban" styles, i.e., curtains and Venetian blinds.

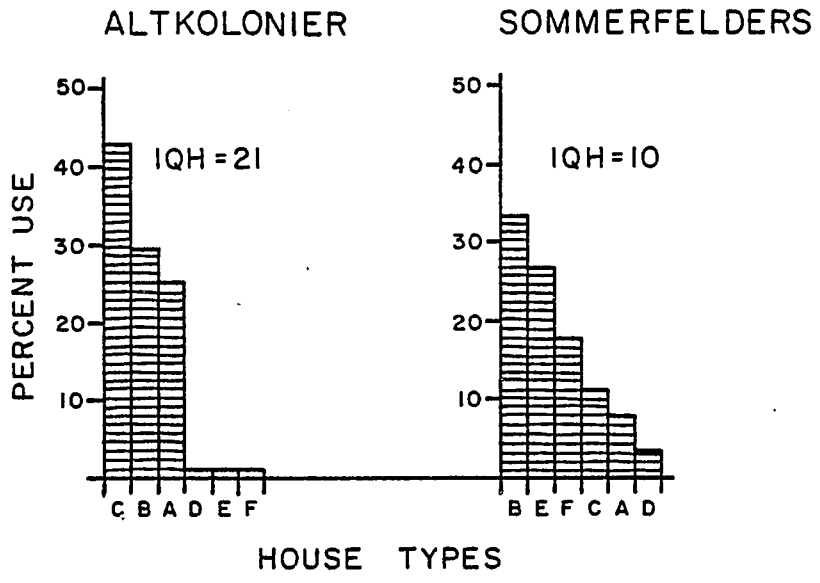

Figure 26. Comparison of Altkolonier and Sommerfelder housing styles. -- Altkolonier N = 169; Sommerfelder N = 119. Letters A through F indicate house styles (see p. 88).

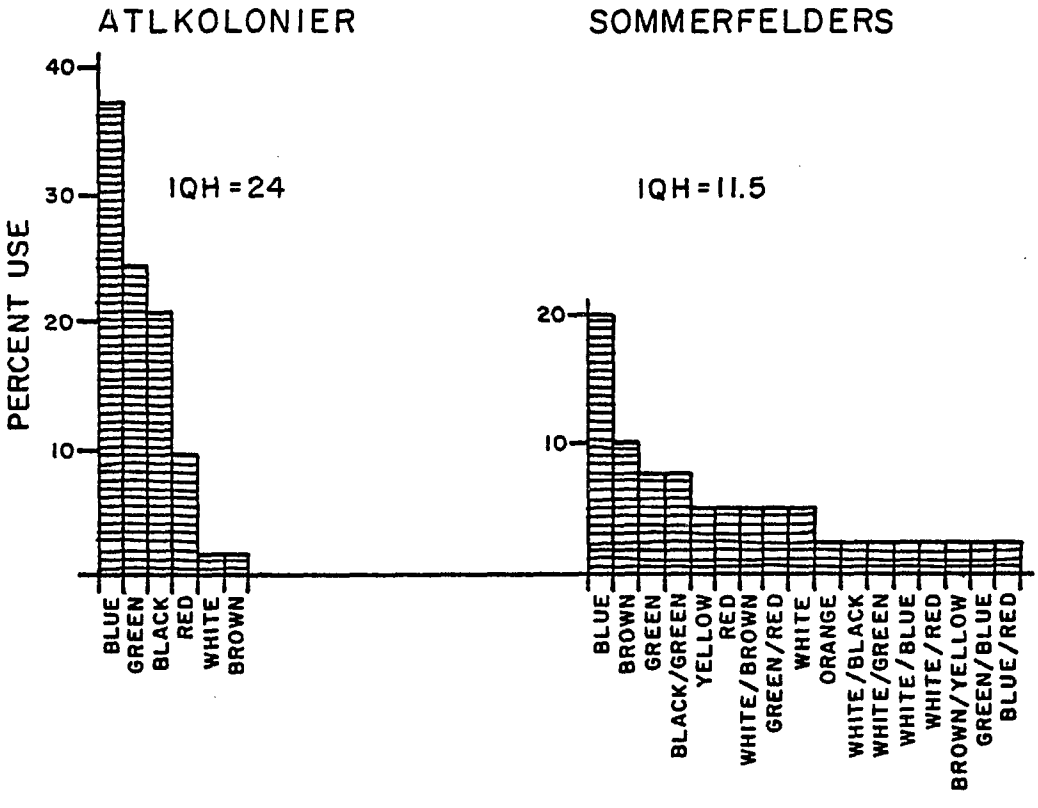

Figure 27. Comparison of Altkolonier and Sommerfelder dress colors. -- Altkolonier N = 53; Sommerfelder N = 39.

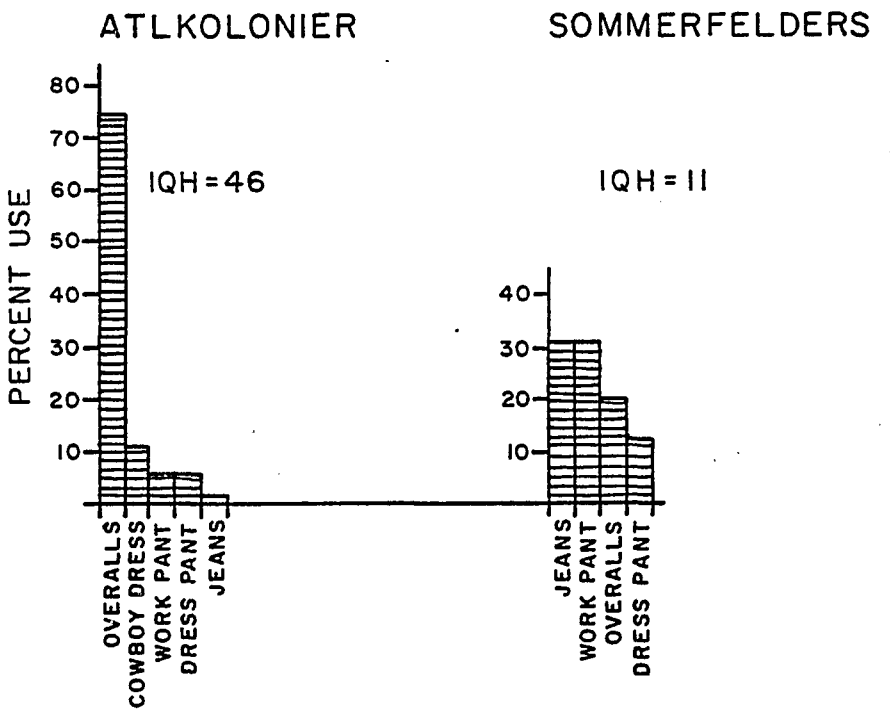

Figure 28. Comparison of Altkolonier and Sommerfelder pant types. -- Altkolonier N = 52; Sommerfelder N = 34.

Sommerfelders wear a greater variety of pant types. Similarly, the housing styles of the Altkolonier are restricted almost exclusively to the gabled roof types while the Sommerfelders use these types plus types deriving from Mexicans and North Americans.

Of the 16 items observed, the Altkolonier appeared behaviorally more homogeneous in 13 and less homogeneous in only one. One item is not a serious contrary case due to the negative category used and in one example the groups appear similar in degree of homogeneity.

Summary

Although the Altkolonier and Sommerfelders are similar in terms of historical background, farming practices, land distribution, mechanization, village form and structure, diet, health, patterns of social interaction, ethnic boundary maintenance, and the importance of kinship relations, they manifest important differences. The Altkolonier are more distinctive and homogeneous in behavior patterns. These features are well illustrated in clothing patterns, architectural styles, transportation, and window dress. The extent of Altkolonier distinctiveness and behavioral homogeneity identify them as an extremely conservative rural community. The relatively less distinctive and homogeneous Sommerfelders suggest that they have drifted somewhat from the strictly conservative rural community. The question becomes, however, whether and how such differences in the rural communities affects the direction process.

CHAPTER 4

COMPARATIVE MENNONITE ARCHITECTURAL CHANGE

With an idea of the social conditions of Altkolonier and Sommerfelder Mennonites, it is possible to return to the question of social change in conservative rural communities. How does conservative rural community social structure influence the diffusion process? According to current thought, it would be expected that the social structure of the more conservative Altkolonier slows the rate of internal diffusion. In conservative rural communities where face-to-face relations dominate the community inhibits behavioral variation as individuals conform to community expectations. Available but scanty evidence suggests, however, that the community may not be able to inhibit the rate of internal diffusion. In this chapter evidence from Mennonite architectural change adds further support to this observation and, in fact, suggests the opposite -- namely, that social change in conservative rural communities occurs at a faster rate than more modern communities. This leads to the interesting idea that conservative rural communities may actually accelerate the rate of internal diffusion.

Mexican Mennonite architecture has been changing continually over the last fifty years. Despite the fact that conservative Anabaptist groups resist change and appear "behind the times" the architecture of Mexican Mennonites has experienced continual alteration and innovation in form. Sawatzky (1971:272-279) mentions numerous recent

changes. Among these changes are a decline in the wohnstallhaus house plan, increase in adobe walls and earth roofs, and a reduction in roof pitch. But in general he gave little indication of how the adoption of architectural innovations among the Altkolonier compared with the Sommerfelders.

In order to prepare a comparative picture of Mennonite architectural change, the time between 1922 and 1976 was stratified into nine time periods and nine housing samples per group created (refer to Appendix A for more discussion of the methodology employed). The samples were opportunistic rather than randomly selected, but it is felt that the sizes of the samples (approximately 12% to 42% per time period per group)[1] are large enough to avoid any major sampling errors since the populations did not exhibit great variability (Mueller, Schuessler and Castner 1970:372). The period samples were created as we went through selected Mennonite villages making observations on all available houses in the village. When certain time periods became under-represented, we selected a village established just prior to these periods for inclusion in the survey. This intensive survey comprised 98% of the houses in the Altkolonier villages of Klefeld (Campo 1A), Silberfeld (Campo 26), Waldheim (Campo 23), Osterwick (Campo 18), and Lowefarm (Campos 6½A and 6½B) and the Sommerfelder villages of Halbstadt (Campo 55), Bergthal (Campo 40), Neuanlage (Campo 53A), and Schoenthal (Campo 51). By doing all houses within a particular village

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1. These estimates are based on a reconstruction of the history of housing growth derived from dating a 10% random sample of all Altkolonier houses.

we were able to avoid some of the suspicion which would have been created by the random selection of a fraction of all houses.

Strictly speaking, the unit of observation was a farmstead. A farmstead was defined as a complex of farm buildings from which a single farming operation was directed. This complex may include more than one house and household. A discrete farmstead was indicated by the existence of a driveway and gate opening to the main street. Observations were made on barns as well as houses. An attempt was made to date houses, barns, and all major modifications. When two or more houses existed on a farmstead the earliest house available was chosen for treatment. A total of 236 houses and 201 barns were observed for the Altkolonier and 118 houses and 95 barns for the Sommerfelders (Table 14). Barns were not always present nor as easily dated since many of the early barns had been rebuilt; so, the sample of barn architecture is less adequate. One Sommerfelder time period for barns is omitted altogether because only one barn was recorded. Due to an uneven distribution of houses through time, the period lengths were varied from four to six years in an attempt to more evenly distribute houses and barns through the periods.

Three hundred sixty-six architectural observations could be made on houses and 15 on barns. A number of these were observations of the same type variable taken several times for each farmstead. For example, it was possible to observe different types of window variables for twenty different windows. The number of different variable types per house was actually seventy-one and fourteen for barns (Appendix A

Table 14. Size of house and barn samples by time period.

Time Periods		Altkolonier		Sommerfelders	
		Houses	Barns	Houses	Barns
First Period	1922-1926	42	19	10	7
Second Period	1927-1932	19	15	9	5
Third Period	1933-1939	27	24	10	1
Fourth Period	1940-1945	28	28	18	10
Fifth Period	1946-1951	18	13	15	10
Sixth Period	1952-1958	18	22	13	13
Seventh Period	1959-1964	22	22	14	16
Eighth Period	1965-1970	26	26	17	13
Ninth Period	1971-1976	36	32	12	20
Total		236	201	118	95

lists variable types). In the analysis each period sample is treated separately, and the results reported for each period refer to the products of behavior actually performed during that period. Observations on later additions and modifications were avoided so that period observations refer to period behavior.

The period observations of the most informative variables are presented in tabulated form in Appendix B. These results show considerable period to period variability. This variability is probably a result of sample size, dating error, and actual behavioral variability resulting from fluctuating short term influences. Since we are interested in longer term trends, short term variations have been suppressed by transforming the period observations into three-period moving averages (Appendix A explains the procedure used). This transformation helped express the longer term change trends.

Some of the variables turned out unreliable as temporal information because of an inability to maintain detailed dating control. For example, doors cannot be assumed to date to the house construction because they are so easily changed. Porches are often added later. House and trim color can be easily changed as well as such items as shutters and screens. As a result, these observations should have been dated separately to provide good diachronic information.

Several of the reliably dated variables showed no significant change over the last fifty years. House shape, chimney position, raking and eave trim material, door and window frame material and barn roof shape showed no major changes. House perimeter shape (without

later additions) were mostly rectangular, chimneys almost always passed through the roof ridge at a point interior to the walls. Raking trim, eave trim, door frame, and window frame material were nearly always wood (metal has very recently been used as frame material). Other variables change in one group and not in the other, like dormers and Mexican style roofs among the Sommerfelders.

In other cases observations reveal erratic and dissimilar records in the adoption of architectural innovations. The orientation of Altkolonier houses became increasingly perpendicular to the main street through 1958, while Sommerfelders were tending to build their houses parallel. The trend in both groups reversed after 1958. Average window width, floor area, wall area and house volume show numerous trend reversals during the history of their use. The irregularity and numerous trend reversals make it difficult to compare change rates between the Altkolonier and Sommerfelders. Their histories are included in Appendix B, but they have been excluded from further analysis.

Comparable change trends were found for twenty-one innovations. The chronological record of their adoption can be found in Appendix B, and the three period running average of these trends are summarized in Tables 15 through 18.

Many of these trends were initiated by the availability of new materials -- notably concrete and sheet metal. Through the years commercial roofing materials (sheet metal, carton, tar based shingles) have replaced wood shingles and earth as the usual roof covering. Concrete has made a major surge as a wall material and door sill material

Table 15. Three period running averages of Altkolonier housing variables.

	Period	% House Type C	% Roofs with Commercial Material	% Wall Vents	% Concrete Door Sills	% Modern Type Windows	Non-earth Roof Pitch (degrees)	% Concrete and Brick Walls	% Trimmed Eaves	% Metal Chimneys	% Molded & Shaped Window and Door Heads	% Concrete Foundations	% "Ornate" Chimneys	% Oriented East or West
1	(1922-26)	48	38	73	6	0	36	0	32	20	72	6	0	44
2	(1927-32)	56	32	77	10	0	35	0	31	19	68	11	0	41
3	(1933-39)	62	30	77	10	0	34	0	24	19	71	20	0	45
4	(1940-45)	61	34	79	10	0	34	0	23	26	62	40	14	46
5	(1946-51)	48	44	79	8	0	31	2	24	30	73	52	14	53
6	(1952-58)	35	63	83	25	0	28	4	32	39	82	68	24	51
7	(1959-64)	24	79	74	42	4	24	19	42	53	85	77	26	56
8	(1965-70)	17	94	59	62	17	19	44	49	73	80	91	47	56
9	(1971-76)	14	96	47	62	26	17	64	56	86	74	92	56	64

Table 16. Three period running averages of Sommerfelder housing variables.

	Period	% House Type C	% Roofs with Commercial Material	% Wall Vents	% Concrete Door Sills	% Modern Type Windows	Non-earth Roof Pitch (degrees)	% Concrete and Brick Walls	% Trimmed Eaves	% Metal Chimneys	% Molded & Shaped Window and Door Heads	% Concrete Foundations	% "Ornate" Chimneys	% Oriented East or West
1	(1922-26)	44	38	76	12	6	26	0	42	16	52	6	0	67
2	(1927-32)	36	35	80	8	4	26	0	50	19	51	7	17	68
3	(1933-39)	29	32	81	8	12	25	0	54	27	49	12	39	67
4	(1940-45)	16	35	77	17	8	25	2	61	38	52	22	56	71
5	(1946-51)	12	43	68	33	13	23	5	68	39	66	46	72	69
6	(1952-58)	5	57	63	42	12	23	4	86	39	75	70	67	75
7	(1959-64)	3	70	66	38	21	21	5	95	40	85	87	74	78
8	(1965-70)	3	77	58	38	21	21	13	97	48	88	93	46	88
9	(1971-76)	4	78	56	45	22	19	20	96	52	90	97	44	90

Table 17. Three period running averages of Altkolonier barn variables.

	Period	% Sheet Metal and Carton Roof Material	% Concrete and Metal Walls	Total Floor Area (M^2)	% Barns Attached to Houses	% Two-story Barns	Barns to House Distance (M)	% Metal Doors	% Concrete Foundations
1	(1922-26)	16	0	107	32	9	12.1	4	6
2	(1927-32)	17	0	107	37	7	11.7	7	9
3	(1933-39)	26	0	113	50	9	8.7	11	15
4	(1940-45)	49	0	128	45	13	10.1	21	32
5	(1946-51)	70	0	133	35	23	10.9	30	40
6	(1952-58)	87	0	130	24	28	14.1	33	60
7	(1959-64)	91	16	109	22	22	15.2	41	72
8	(1965-70)	97	38	89	19	14	18.7	46	90
9	(1971-76)	97	57	74	16	8	19.6	58	90

Table 18. Three period running averages of Sommerfelder barn variables.

Period	% Sheet Metal and Carton Roof Material	% Concrete and Metal Walls	Total Floor Area (M^2)	% Barns Attached to Houses	% Two-story Barns	Barns to House Distance (M)	% Metal Doors	% Concrete Foundations
1 (1922-26)	34	0	102	17	20	17.6	0	12
2 (1927-32)	-	-	-	-	-	-	-	-
3 (1933-39)	50	0	101	15	15	16.6	0	34
4 (1940-45)	-	-	-	-	-	-	-	-
5 (1946-51)	64	0	88	9	10	25.5	14	46
6 (1952-58)	81	4	80	6	8	30.1	16	58
7 (1959-64)	92	8	79	3	5	29.4	36	67
8 (1965-70)	100	18	81	2	2	30.2	48	90
9 (1971-76)	100	22	79	2	0	29.4	62	96

replacing wood and adobe (see Figs. 29 and 30). Brick house walls and sheet metal barn walls have also made minor inroads on traditional wall materials. Concrete has also replaced stone as a foundation material and metal has been increasingly adopted for building chimneys and barn doors. Wall vents have been declining in popularity as adobe falls out of use although vents are still placed in concrete walls.

Other changes have been more decorative or stylistic in nature. Modern windows refer to a series of window types which diverge from the traditional eight pane, two sash, double hung window. This series resembles picture windows in that the panes and the bay area itself are much larger (Figs. 31 and 32). These modern windows are often placed facing the road. These type windows occur much earlier among the Sommerfelders at which time they were wooden framed; however, more recently these windows tend to be framed with metal. There has been a dramatic decline in the pitch of roofs. For earth roofs there was little alternative, but for non-earth roofs where it is technically possible to maintain the traditional high pitch, a marked decline in pitch has also occurred. Among the Sommerfelders a steady increase in decorated window and door heads has occurred. This decoration is minimal, usually consisting of cutting the head at an angle (as in Fig. 32) and, more rarely, the application of molding. The trend toward decorated window and door heads is less obvious among the Altkolonier. Similarly, a higher proportion of the Sommerfelders trim house eaves today than do the Altkolonier. Eave trimming is not fancy, usually consisting of a board tacked along the eave ends or a fully boxed-in

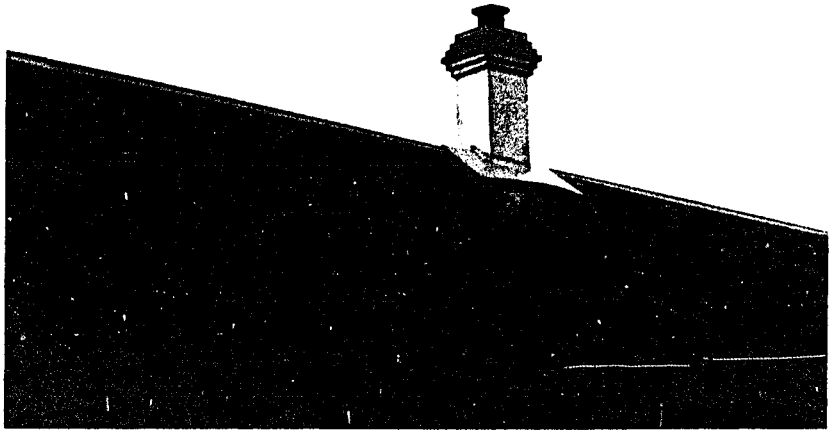

Figure 29. "Ornate" chimney, metal.

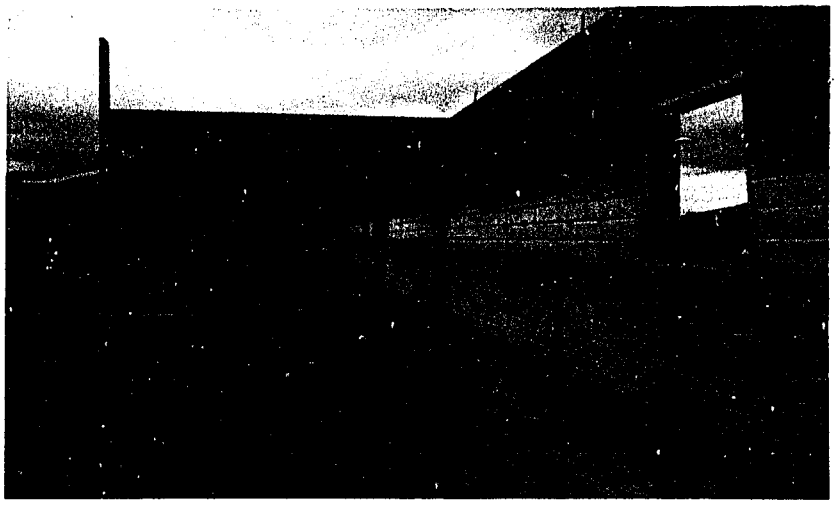

Figure 30. Poured concrete wall. -- Forms are often made to resemble a brick finish.

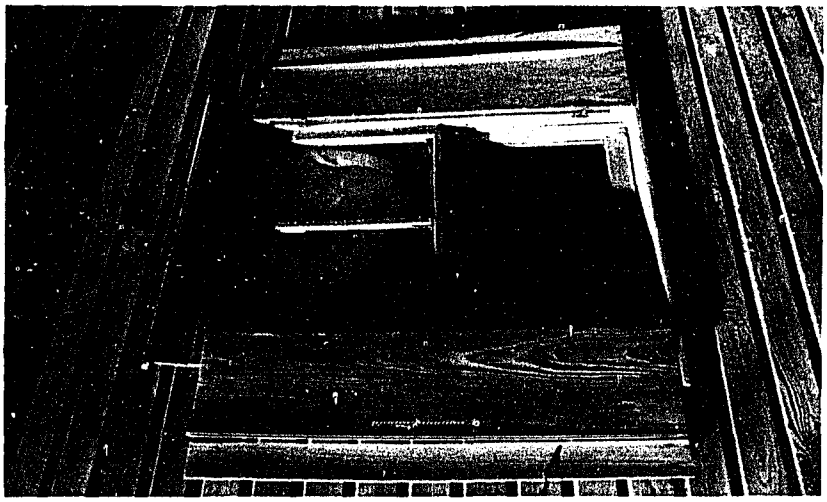

Figure 31. Traditional window style.

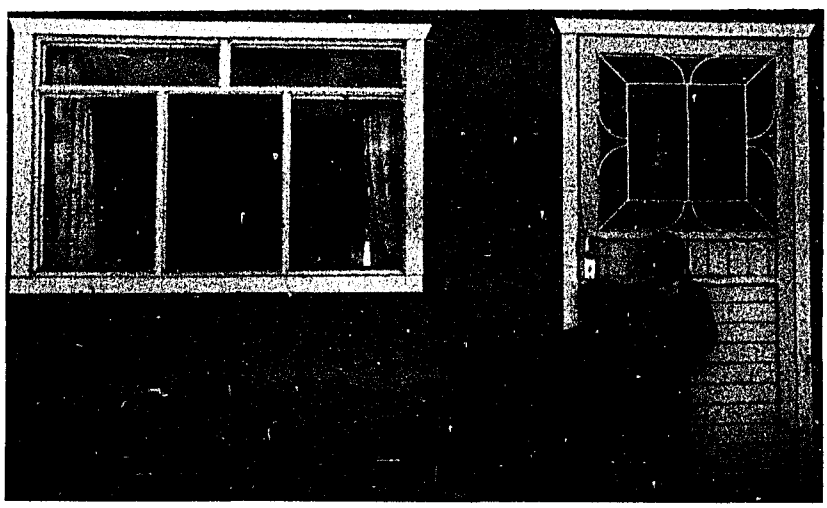

Figure 32. Modern window style.

eave. By the same token, "ornate" chimneys should not be taken to mean fancy chimneys. The term is used to distinguish plain chimneys from chimneys which have something added to the bare chimney flues. This includes brick arches, brick oversail work, metal coverings, and metal oversail work. Oversail is a course of material added near the rim of a chimney making it have a bulging appearance (Fig. 29). The proportion of ornate chimneys have tended to increase through time. The Mennonites have tended to increasingly orient the entrance of their houses to the east or west.

An important series of changes reflect functional changes related to farming practices. Among the Sommerfelders, who never used horses a great deal in Mexico, barns were seldom ever attached to houses, and the tendency in more recent times has been to decrease even further this type construction. The Altkolonier have also decreased barn attachments, and in both groups barns have been placed further and further from the house. There has been a decline in barn size in terms of floor area and number of stories. Changing barn placement and size possibly indicate the decreasing importance of barns as stables for horses. Barns presently being attached to houses appear to function more as "garages" than as traditional barns for milking, feed storage, and stabling.

Social versus Chronological Time

In order to further clarify the comparison of Altkolonier/Sommerfelder architectural change, a distinction has been made between chronological time and social time. The information in Appendix B is

presented in a simple, chronological fashion. From these tables it appears that an Altkolonier change trend may not start at the same time as it does among the Sommerfelder. For example, the decline in gabled earth roofs or Type C houses (Figs. A-2, A-3, pp. 167-8) began prior to the 1922-1926 period for the Sommerfelders but did not begin until 1933-1939 for the Altkolonier. Since we are interested in comparing the Altkolonier rate of social change with that of the Sommerfelders, it will be helpful to compare these trends from the same point in social time, i.e., the point at which the change begins. In Figure 33 the chronological beginning of the decline in gabled earth roofs among the Altkolonier has been moved back, so to speak, to coincide with the beginning of Sommerfelder decline. By so doing the relative rates of decline are more obvious. Figures 34 through 53 present graphically, the trends of the twenty remaining variables in terms of social time. The points defined as the beginning and ending of trends are listed in Tables 19 and 20.

An interesting pattern is revealed in the conversion from chronological to social time. The Sommerfelders almost always start the adoption of an innovation years before the Altkolonier. In thirteen cases the Altkolonier appear to begin their internal diffusion trend later than the Sommerfelders, in six cases the groups begin at the same time, while in only one instance do the Altkolonier adopt an innovation before the Sommerfelders.

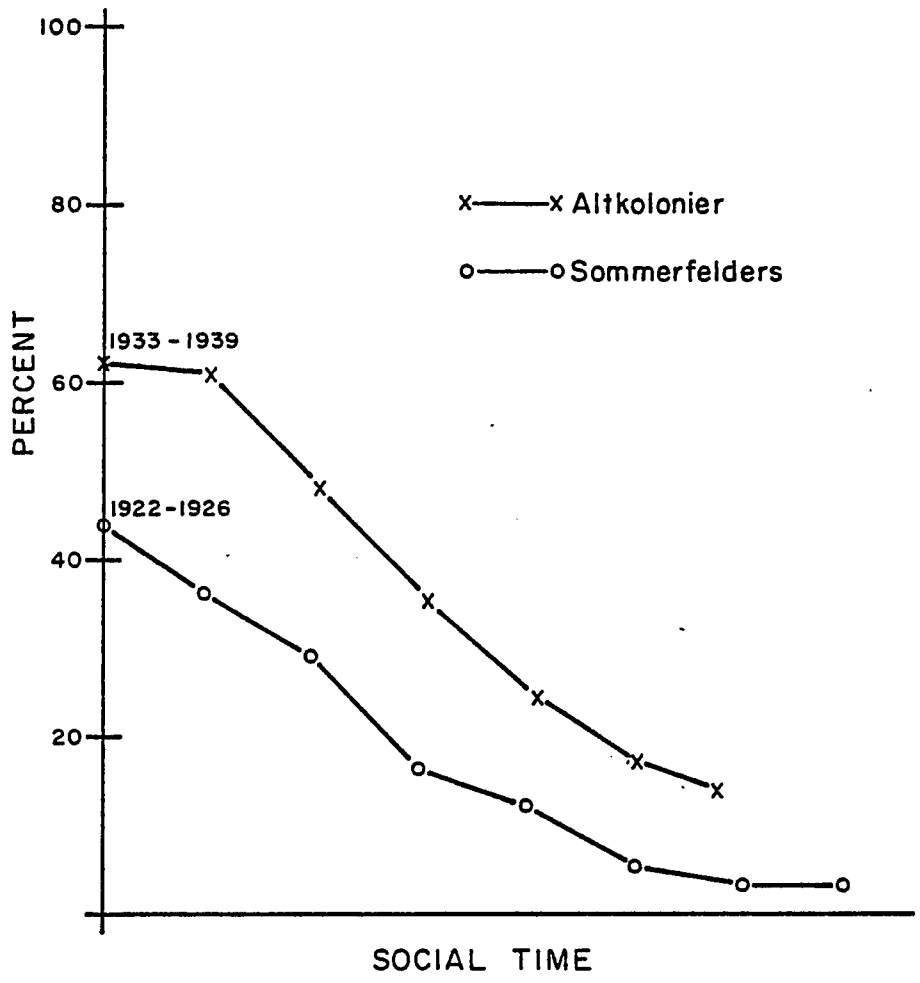

Figure 33. Decline of gabled earth roofs (House Type C).

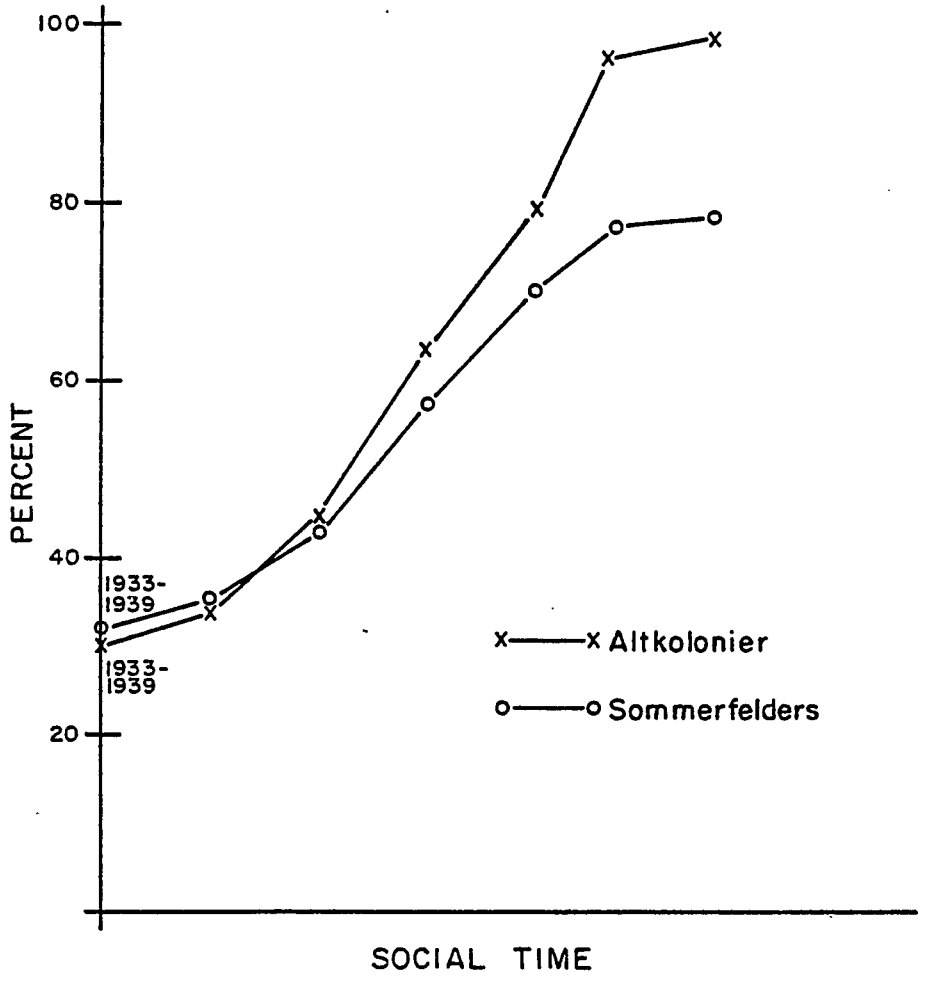

Figure 34. Growth of commercial materials used for house roofing.

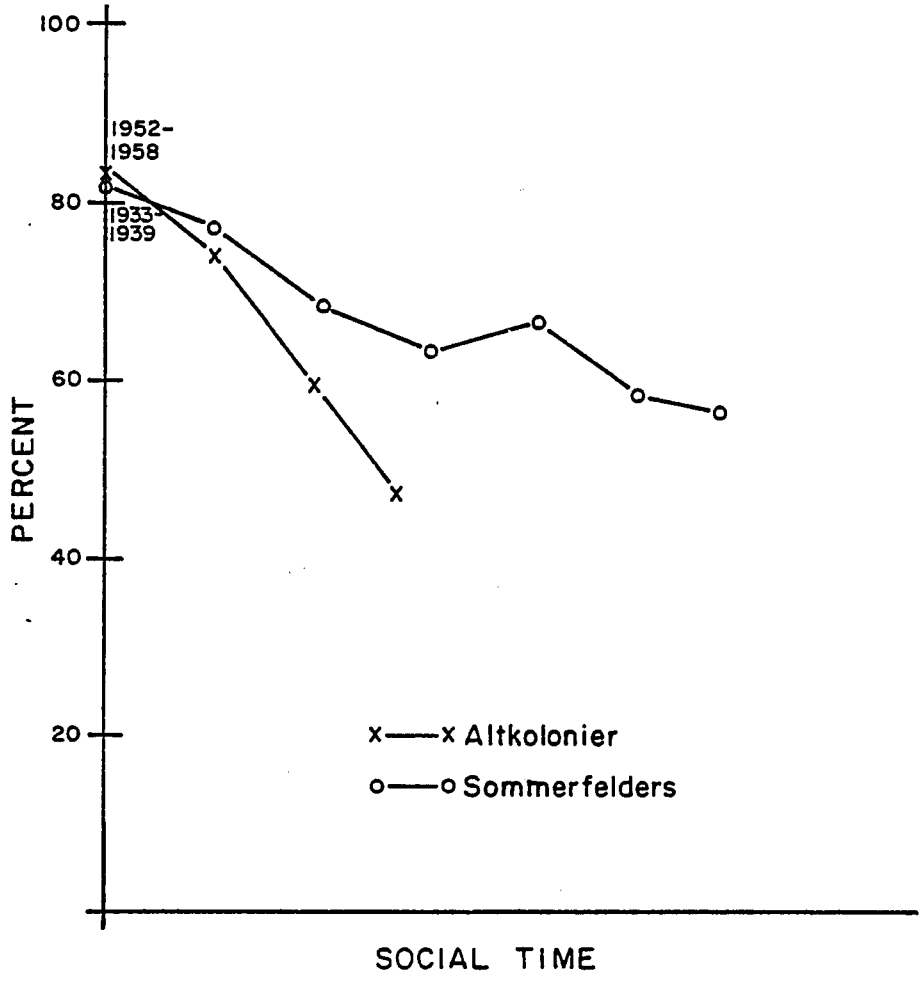

Figure 35. Decline in wall vents.

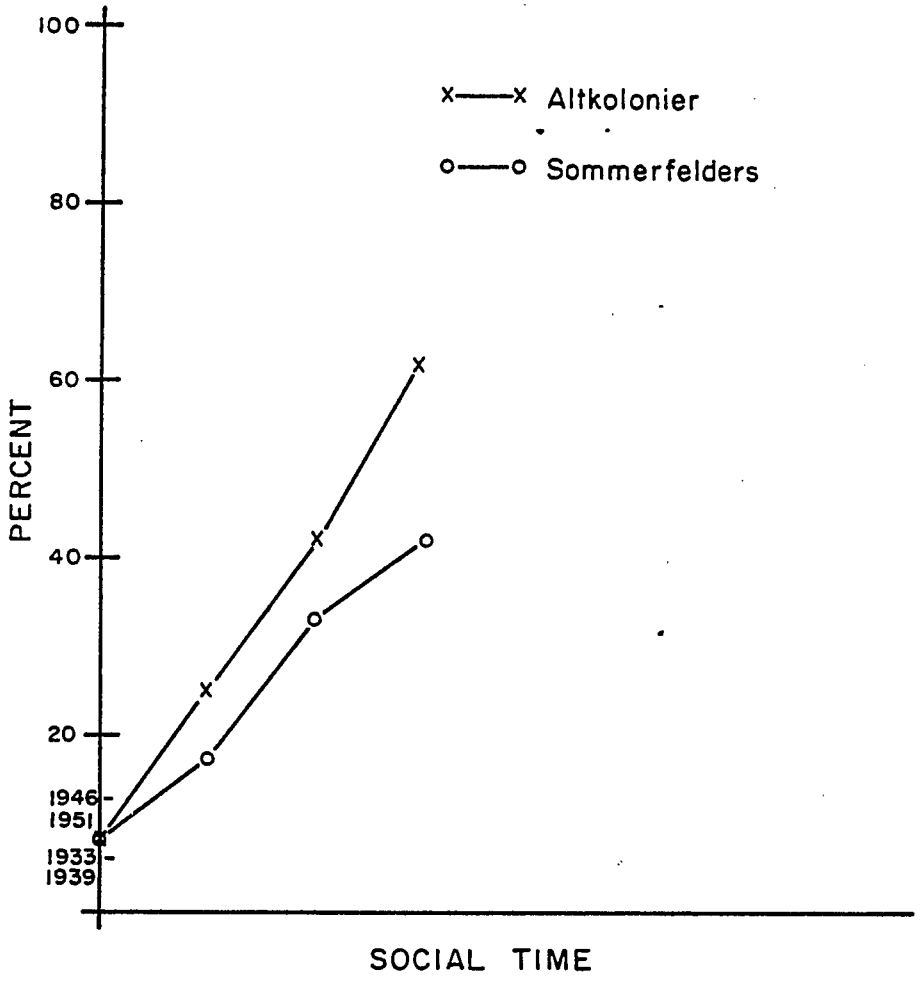

Figure 36. Growth of concrete door sills.

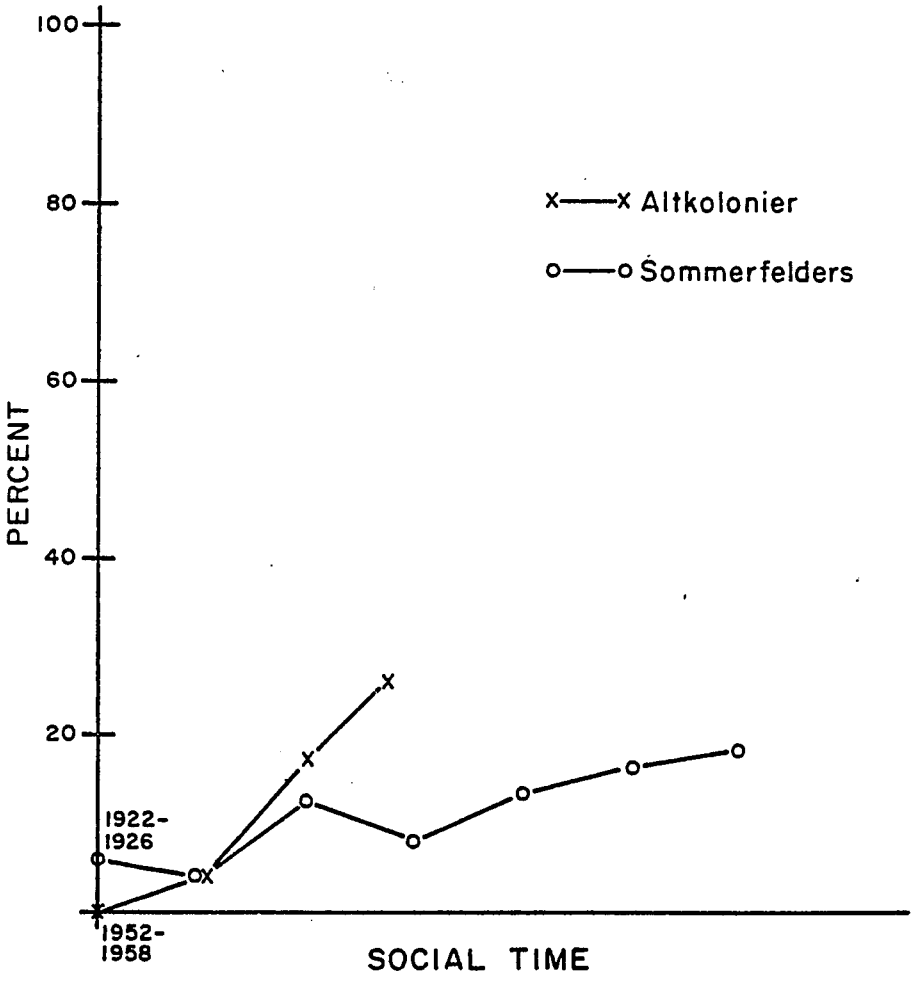

Figure 37. Growth in modern type windows.

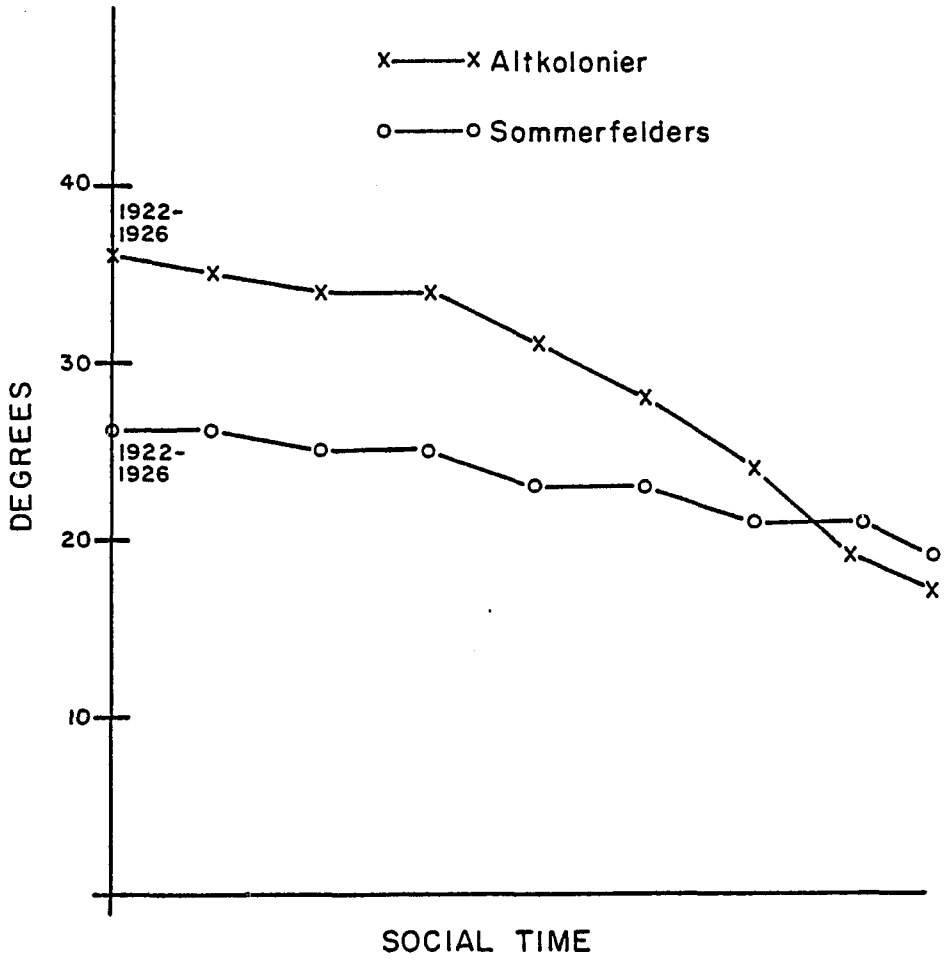

Figure 38. Decline in pitch of non-earth roofs.

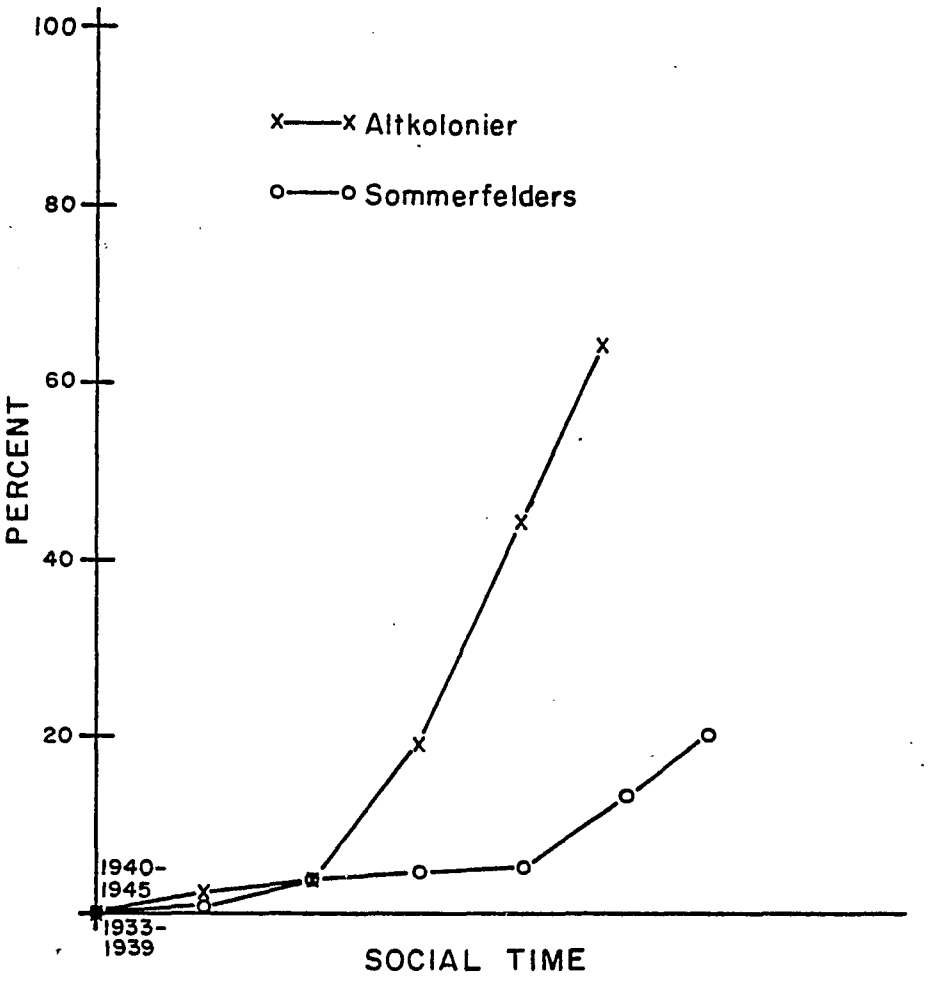

Figure 39. Growth in concrete and brick wall construction.

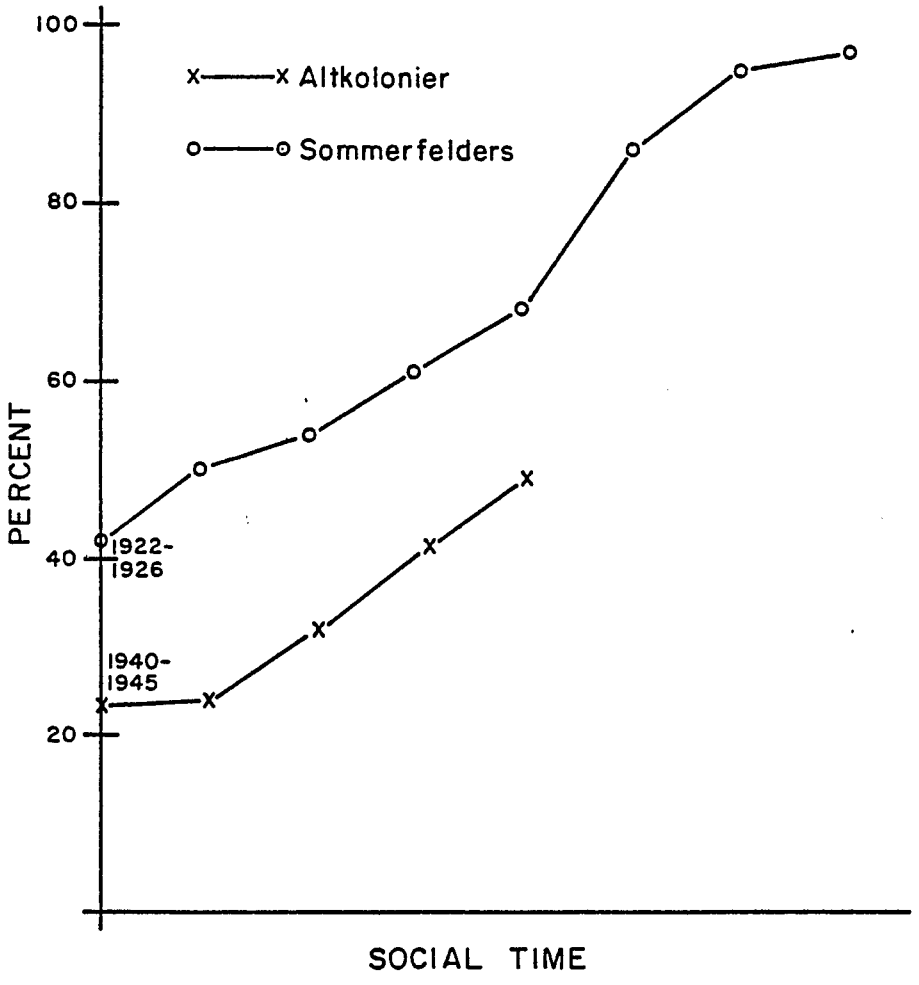

Figure 40. Growth in eave trimming.

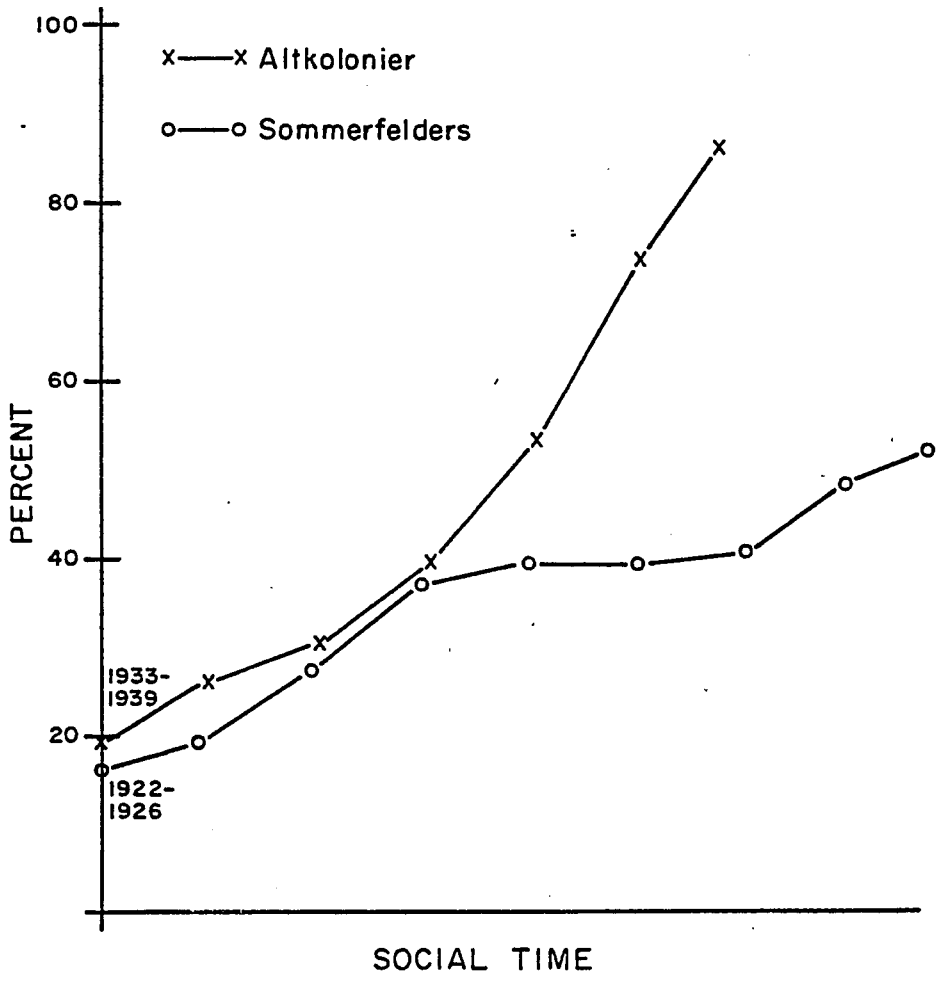

Figure 41. Growth in metal chimneys.

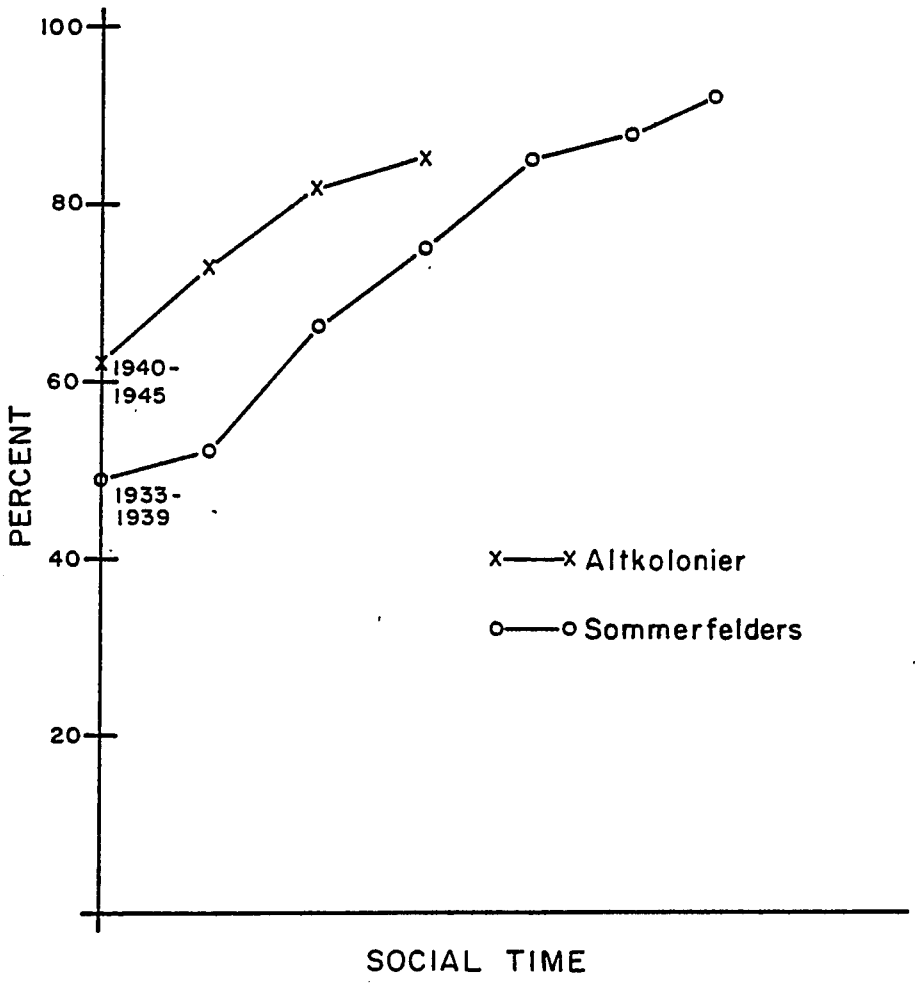

Figure 42. Growth in shaped and molded window and door heads.

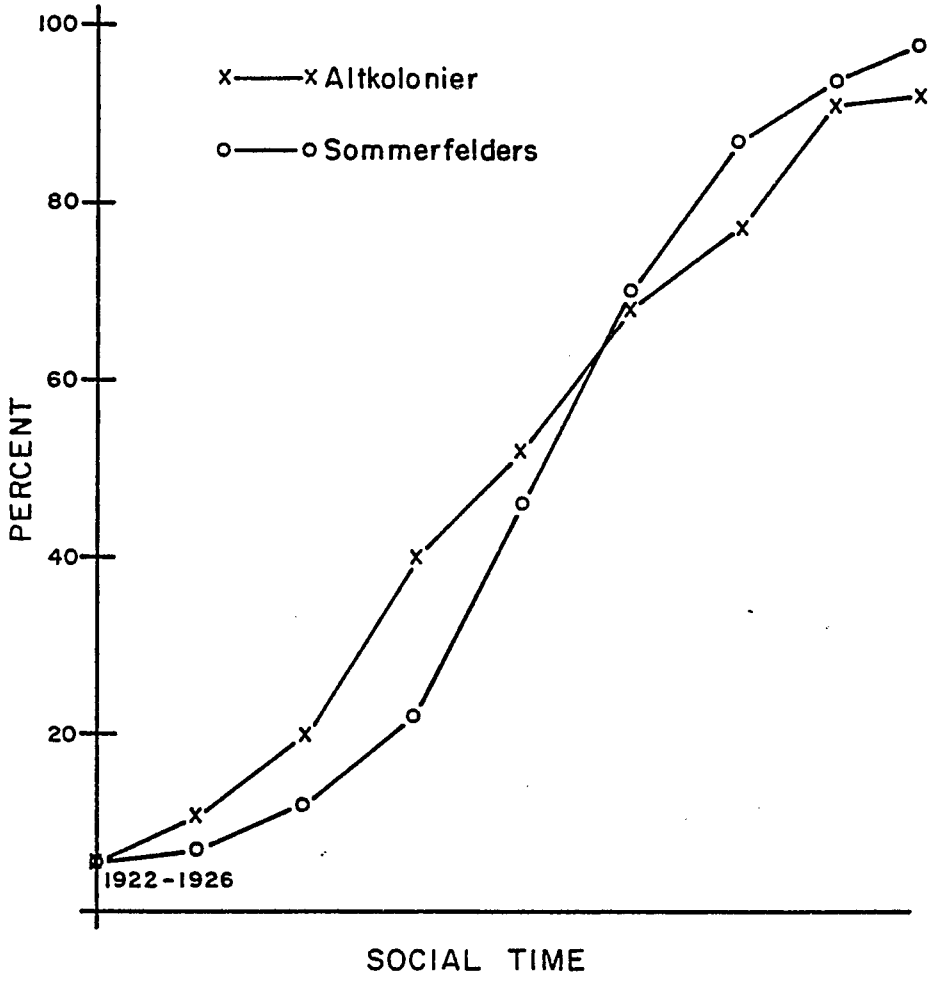

Figure 43. Growth in concrete foundations.

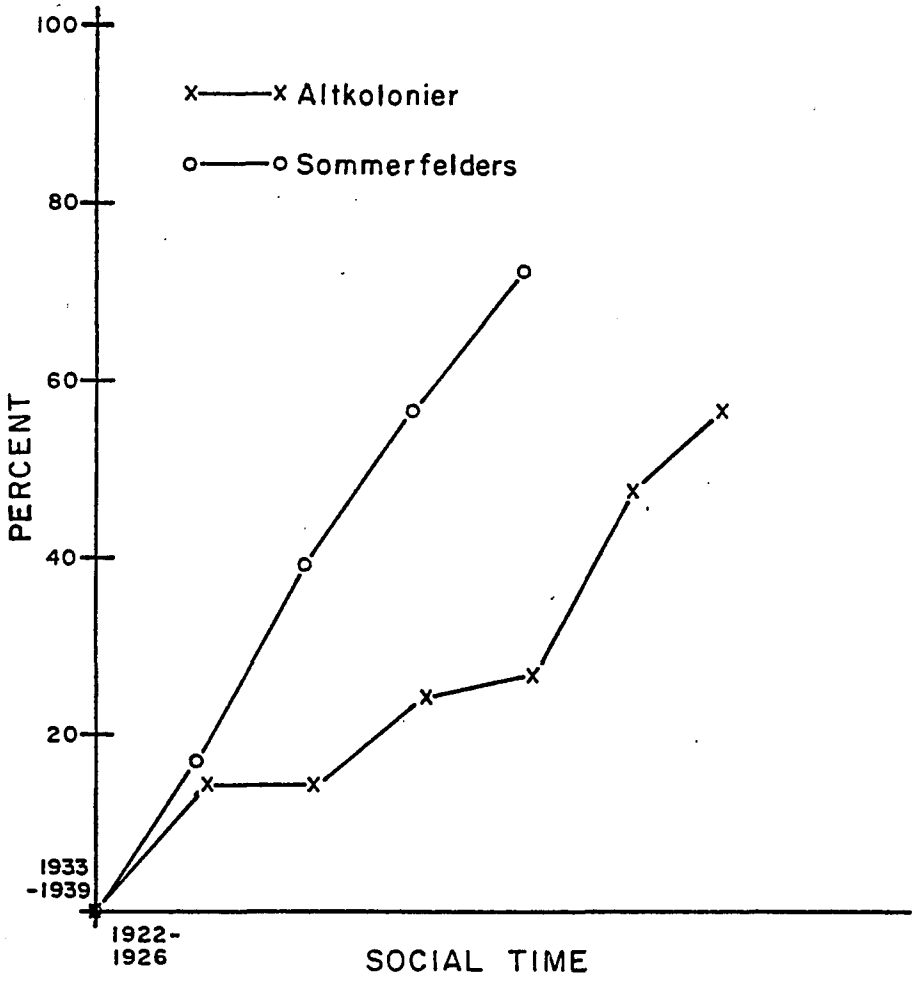

Figure 44. Growth in "ornate" chimneys.

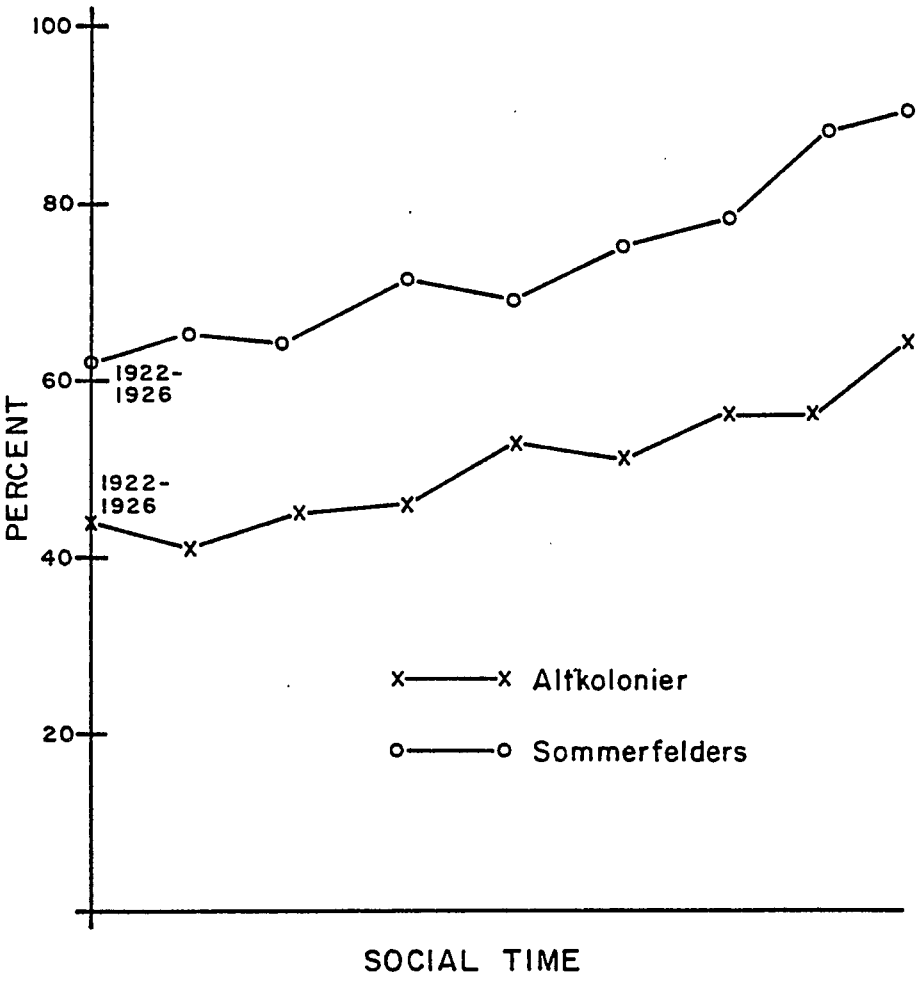

Figure 45. Growth in houses oriented to the east or west.

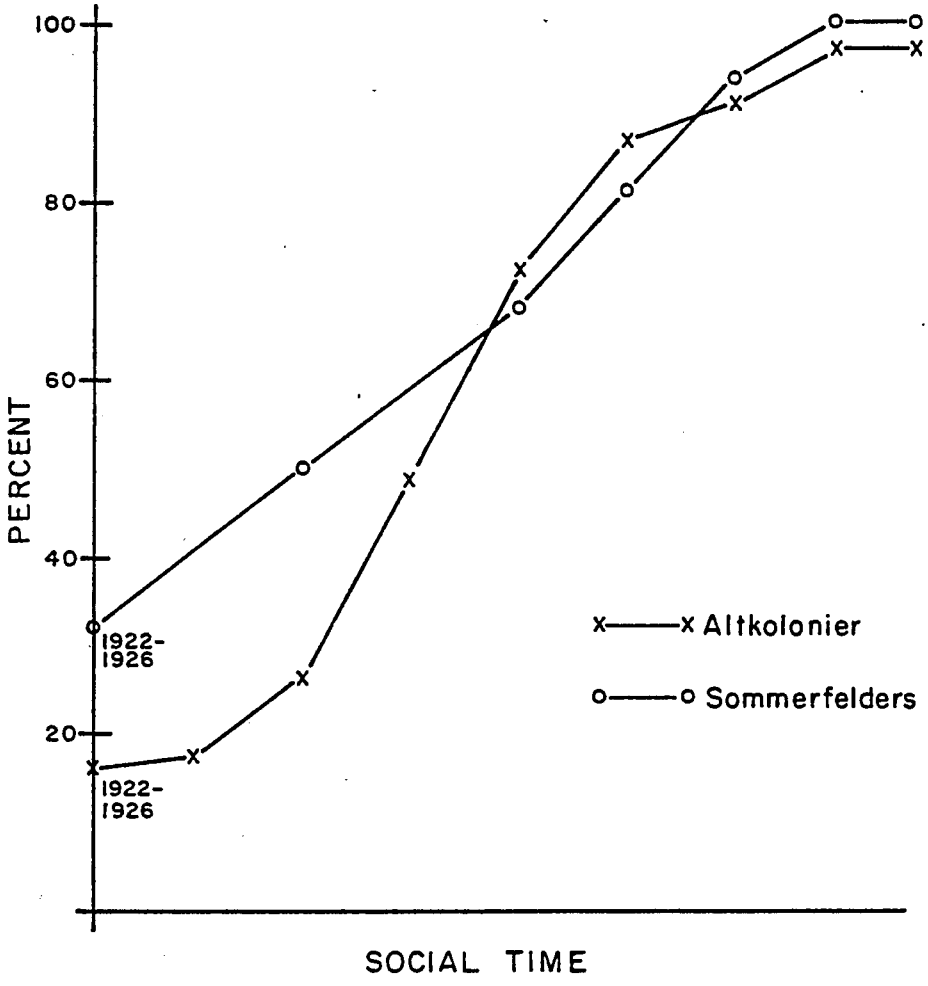

Figure 46. Growth in sheet metal and carton barn roofs.

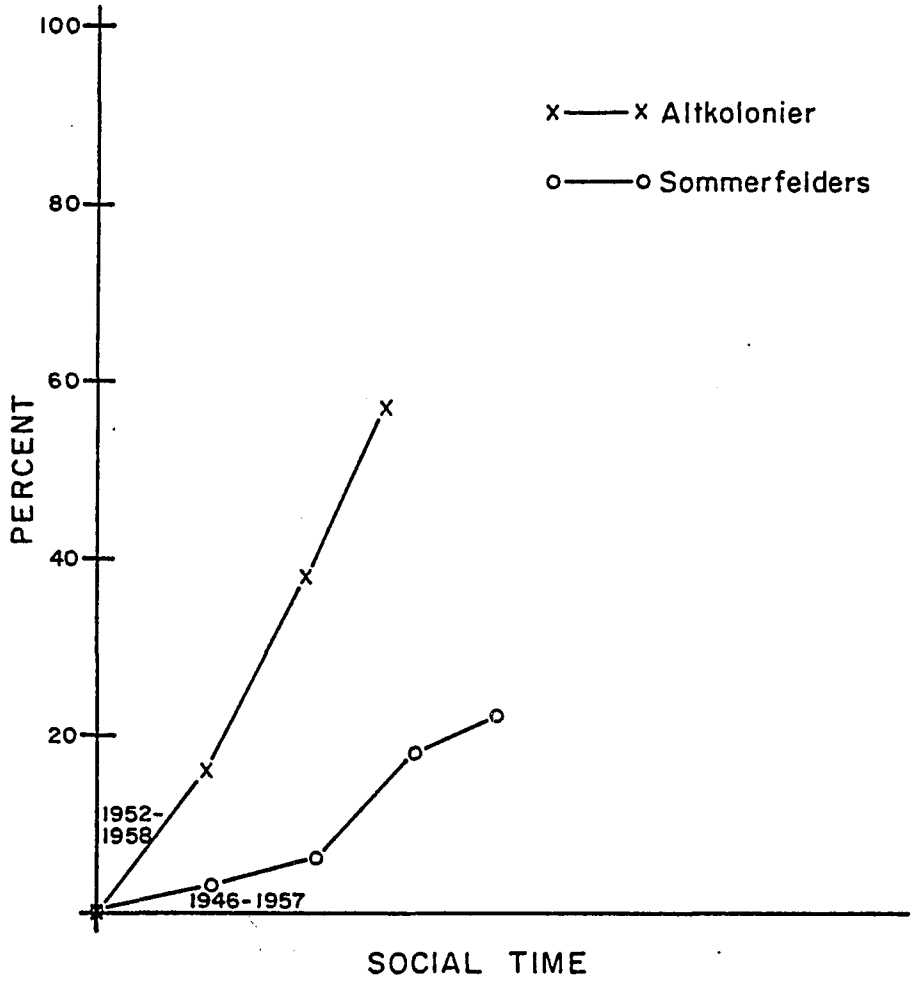

Figure 47. Growth in concrete and metal barn walls.

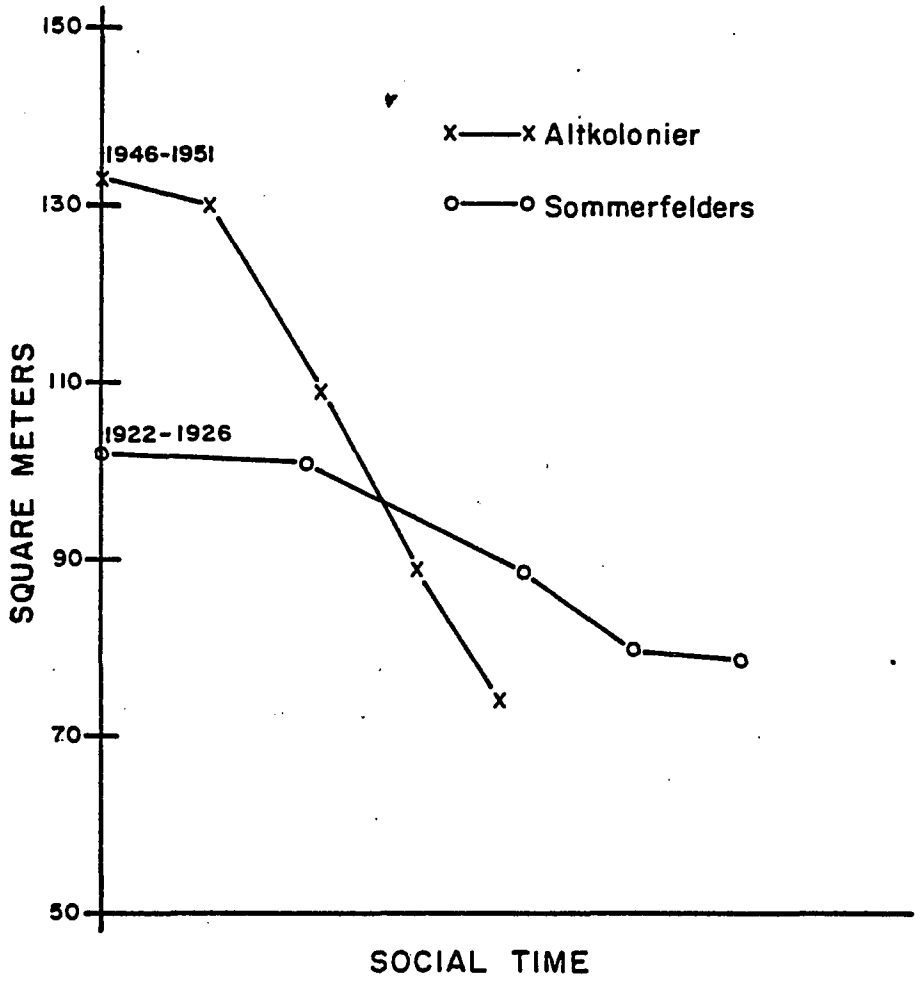

Figure 48. Decline in total barn floor area.

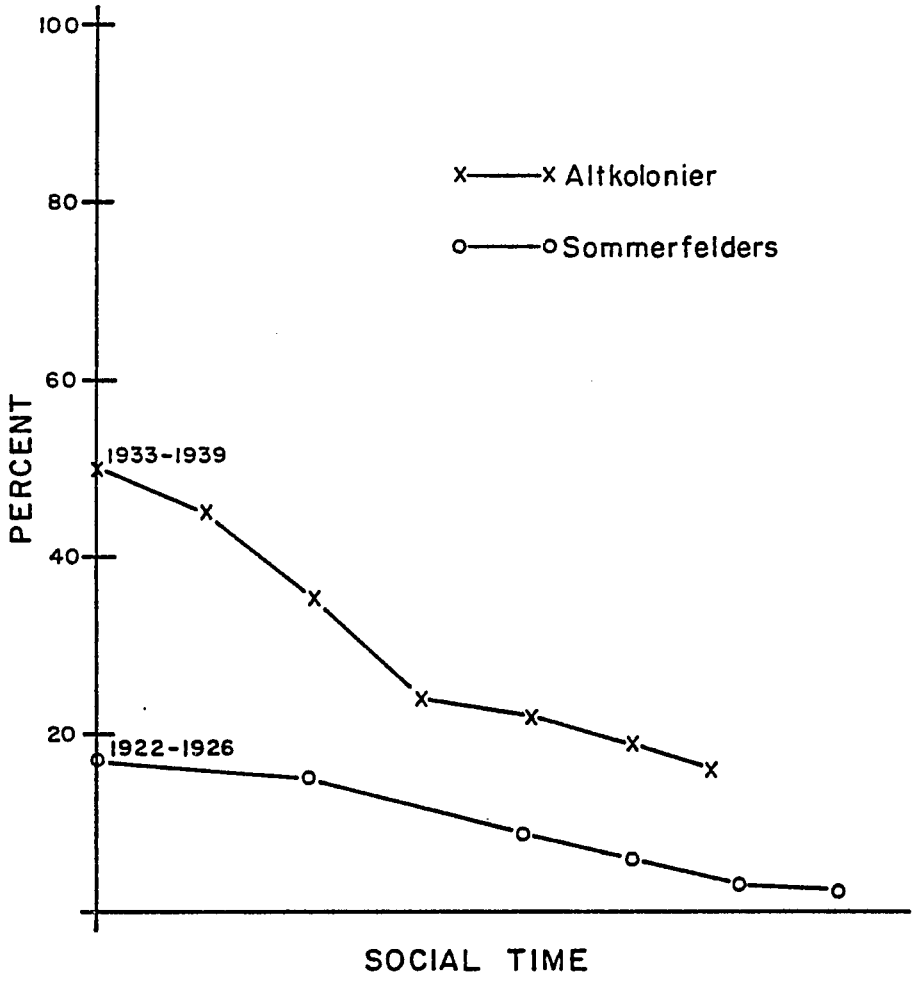

Figure 49. Decline in barns attached to houses.

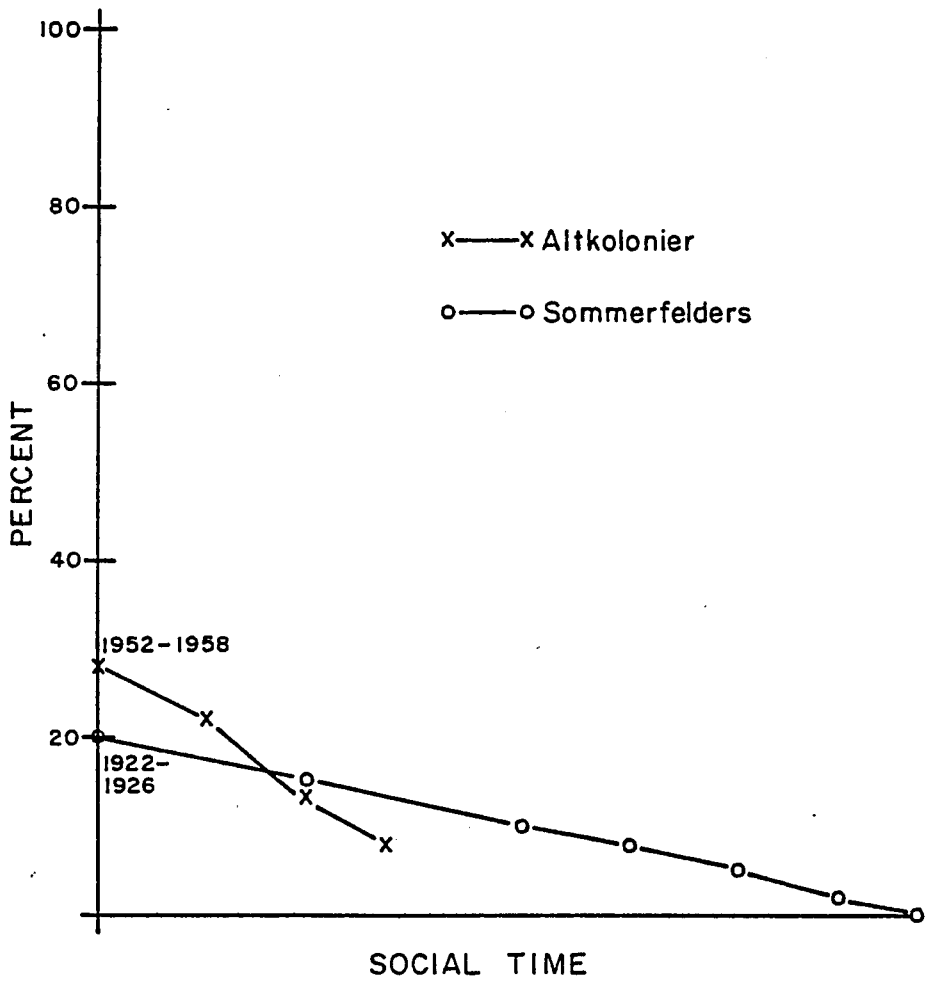

Figure 50. Decline in two-story barns.

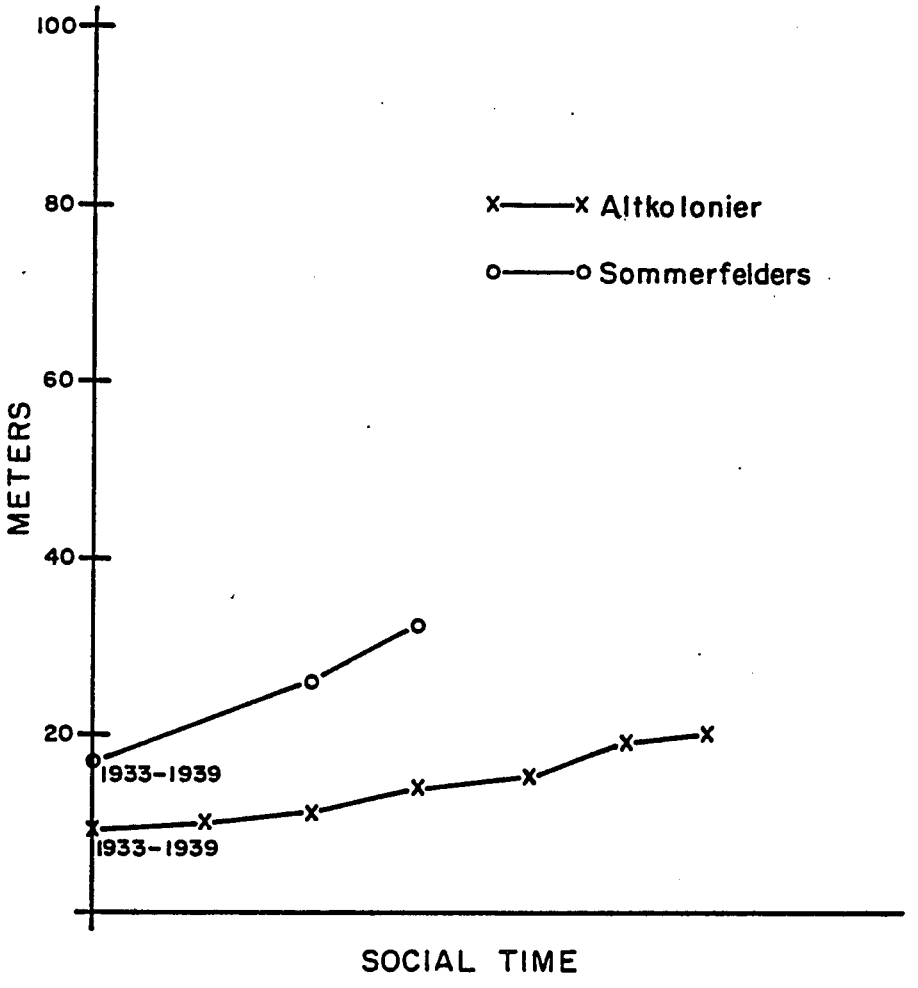

Figure 51. Increase in the barn to house distance.

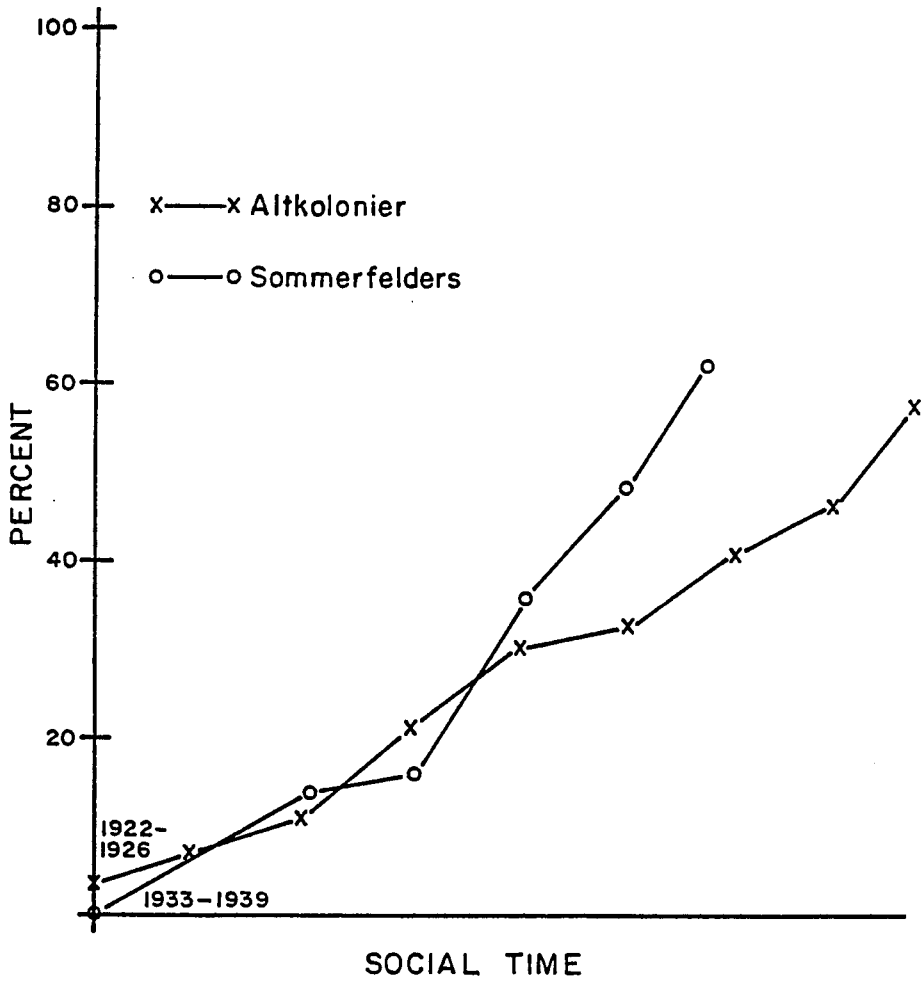

Figure 52. Growth in metal barn doors.

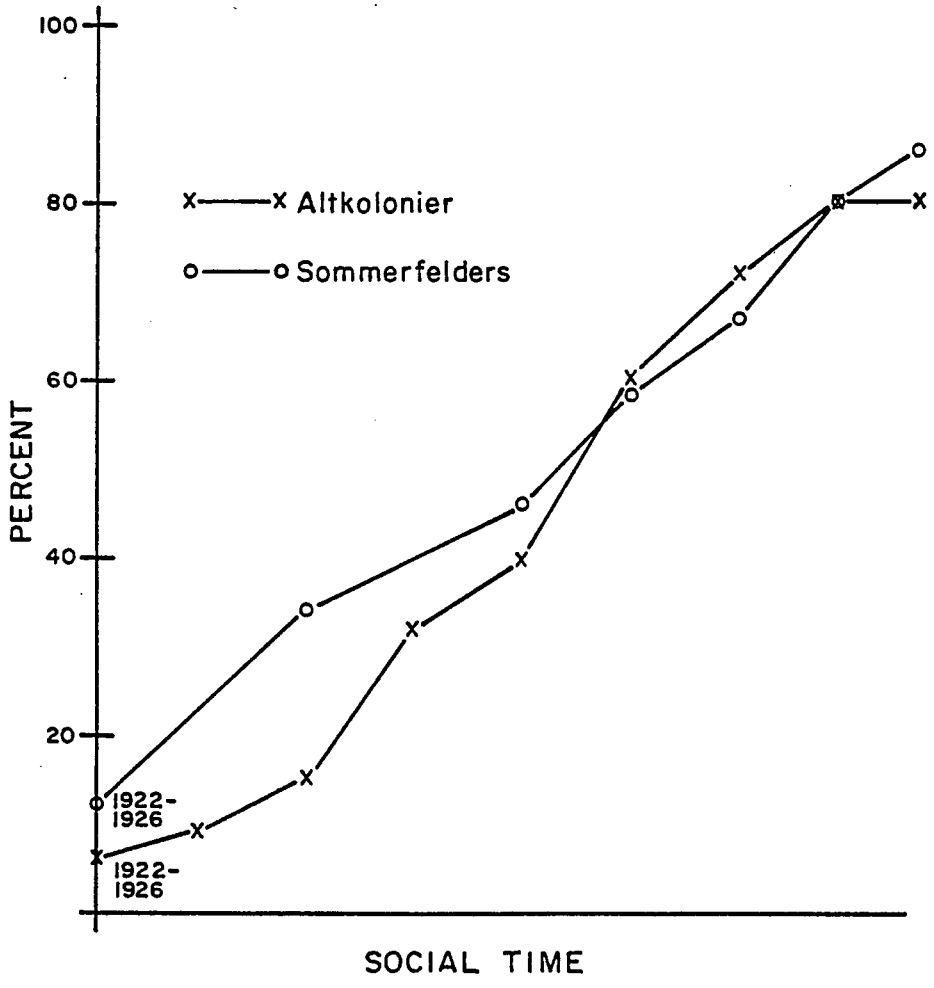

Figure 53. Growth in concrete barn foundations.

Table 19. Architectural change trends (houses): beginning and ending periods.

Variable	Altkolonier		Sommerfelder	
	Period Trend Begins	Period Trend Ends	Period Trend Begins	Period Trend Ends
House Type C	3	9+	1	7
Commercial roof material	3	9+	3	9+
Wall vents	6	9+	3	9+
Concrete door sills	5	8	3	6
Modern type windows	6	9+	1	9+
Non-earth roof pitch	1	9+	1	9+
Concrete and brick walls	4	9+	3	9+
Trimmed eaves	4	9+	1	8
Metal chimneys	3	9+	1	9+
Molded and shaped heads	4	7	3	9+
Concrete foundations	1	9+	1	9+
"Ornate" chimneys	3	9+	1	7
East or west orientation	1	9+	1	9+

Table 20. Architectural change trends (barns): beginning and ending periods.

Variable	Altkolonier		Sommerfelder	
	Period Trend Begins	Period Trend Ends	Period Trend Begins	Period Trend Ends
Metal and carton roofs	1	8	1	8
Concrete and metal walls	6	9+	6	9+
Total floor area	5	9+	1	7
Barns attached to house	3	9+	1	8
Two-stories	6	9+	1	9
Barn-house distance	3	9+	3	6
Metal doors	1	9+	3	9+
Concrete foundations	1	8	1	9+

Quantitative Comparison of Change Trends

A linear regression model was used to convert the social change trends into quantitative indices to average rates of change for each of the twenty-one useful cases. Although a linear model may not be appropriate for describing adoption of innovation under ideal conditions (Hamblin, Jacobson and Miller 1973), it is a means of comparing the relative rates of social change under less than ideal circumstances (see Appendix A for a more detailed discussion of the methodology). The more the slope of the regression analysis deviates from zero, the greater is the rate of change (Table 21). Often the rate of change between the two groups is similar, but it should be remembered that the two Mennonite groups are themselves similar so that any significant difference in rates of change is remarkable.

In only six cases is there any indication that the Sommerfelders change at a faster rate than the Altkolonier (Table 21), and in only one of these instances, barn to house distance, has the change occurred at a statistically significant faster rate. On the other hand, fifteen cases indicate that the Altkolonier change at an average faster rate than the Sommerfelders with the difference being statistically significant in seven of these cases. The data, then, lend very little support to the hypothesis that change occurs more slowly in folk-like communities than in more urban-like communities. In only one case did the more folk-like Altkolonier change at a statistically significant slower rate. The Altkolonier change trends start later but proceeded more rapidly.

Table 21. Comparison of average rates of architectural change.*

Variable	Altkolonier	Sommerfelders	Satisfied Significance of Difference in Slope
Roofing material			
House	2.01	1.42	.001
Barn	2.16	1.59	
Wall material			
House	2.10	.48	.20
Barn	3.13	.94	.10
Chimney material	1.81	.69	.10
Foundation material			
House	1.94	2.19	
Barn	1.99	1.68	
Barn door material	1.08	1.67	
Door sill material	2.33	1.87	
Modern windows	1.47	.36	.025
Wall vents	-2.00	- .65	
Non-earth roof pitch	.40	- .14	
Molded and shaped heads	1.22	1.22	
Trimmed eaves	1.14	1.35	
"Ornate" chimneys	1.40	2.01	
Orientation	.40	.57	
Barn size			
Total floor area	-2.54	- .70	.05
Two stories	-1.10	- .40	.05
Barn and house			
Attached	- .95	- .38	.10
Distance	.31	.71	.025
House Type C	-1.46	-1.14	

*All are in percentages except barn floor area and barn-house distance which are in square meters and meters.

Summary

In this chapter the data for Altkolonier and Sommerfelder Mennonite architecture change was compared. This comparison was simplified by fitting linear regressions to 21 sustained change trends and by plotting the trends in social as opposed to chronological time. This methodology allowed the differences in rates of change between the two groups to be expressed more clearly. It is important when talking about rates of social change to identify the beginning of a change in social time. It is common practice, however, to assume that the chronological date of an innovation is introduced in an urban or modern community to be the reference date for evaluating the progress of social change in neighboring conservative rural communities. Since the adoption process usually begins chronologically later in conservative rural communities, it is concluded that social change occurs slowly in these communities. However, the present method of analysis suggests that it is crucial, when studying social change rates, to distinguish between the dates of introduction for each community. The rate of social change, while essentially a diachronic phenomenon, should be considered in social rather than chronological time.

CHAPTER 5

AN EXPLANATION AND DISCUSSION OF RAPID INTERNAL DIFFUSION IN CONSERVATIVE RURAL COMMUNITIES

Mennonite architectural change trends add further evidence contradicting the notion that conservative rural communities can be characterized as slow changing. The paradox of change in these societies becomes more glaring. How can the diffusion process be rapid when the communities always appear "behind-the-times" and to modernize slowly? Would it not make more sense if the diffusion process, too, were slow? On the surface it seems so obvious that conservative rural communities should have slow diffusion rates that current assumptions have become deeply entrenched. At a deeper level, however, slower diffusion rates do not make more sense, and, in fact, the nature of conservative rural community social structure provides a highly reasonable explanation for rapid internal diffusion and for the lag of conservative rural communities behind more modern ones. The explanation leads to a model of social change in conservative rural communities which resolves the paradox of rapid internal diffusion and the slow modernizing transition.

An Explanation

Two factors are crucial in explaining how innovations can diffuse more rapidly through Altkolonier society. One of these factors is a higher level of behavioral conformity. Behavioral conformity in

an extreme form would result in a behaviorally homogeneous community. Homogeneity is one of the characteristics used to define conservative rural communities, but complete homogeneity is a condition unknown even in the most conservative communities (Hillery 1968:229). The other factor is what Erasmus (1961:22) calls "indirect experience." Indirect experience with an innovation refers to the fact that by watching what happens to others an individual can learn vicariously about a situation. The advantage, of course, to learning vicariously is that it is a means of acquiring information about the utility of an innovation prior to committing oneself to it.

Behavioral Conformity

The extreme conformity of folk communities is probably the most important factor in creating rapid internal diffusion. Conformity, itself, is a prerequisite to membership in any group (Homans 1961:114-119), but in conservative rural communities conformity is carried to an extreme. Several of the characteristics of these communities combine to produce extreme conformity. The results of small group research suggest that stable group membership, isolation, homogeneity, distinctiveness, and the dominance of primary relations can influence conformity in the following ways (Berelson and Steiner 1964:327-339):

1. Stability--Highly stable and cohesive groups exert more influence in setting standards of group behavior.
2. Isolation--When group activity is determined from within rather than imposed from outside, group norms are more likely to take on the character of ideal goals.
3. Homogeneity--When group standards are clear, the group exercises more control over individual behavior.

4. Distinctiveness--When the attraction of external groups is minimal, the group goals become more important.
5. Primary Relationships--Immediate relatives and the small, intimate group are more likely to influence the individual's behavior than are remote relatives and large, less personal associations.

All five of these features channel behavior in the same direction toward more conformity. Although an explanation for the narrow range of behavior that individuals in conservative rural communities accept as socially desirable is, as yet, an unexplored area, once set, it has been shown (Sherif and Sherif 1974) that the stringency of norms and resistance to their change varies directly with its perceived importance for the group. To conservative rural communities almost all areas of behavior are judged important in determining group affiliation. Hostetler (1968:15) describes the Amish of the United States in these terms:

> The Amish community is homogeneous in the totality of its culture and psychology. Ways of thinking and behaving are much alike for all persons in corresponding positions of age and sex. . . . Homogeneity is manifest in socially approved means of exploiting nature, in physical type, and in the sharing of practical knowledge.

George Foster (1962:91) says of peasant and folk communities:

> In examining peasant and folk communities, one is impressed by the way in which people hold to an ideal of how they ought to behave toward their fellows. This ideal is reflected in a strong sense of mutual obligation within the framework of family and friendship, a general preference for small-group identification and a willingness to criticize anyone who deviates greatly from these customary norms.

The desire for group acceptance and lack of easy alternatives for group affiliation invest conservative rural communities with substantial power over an individual's behavior. These communities often mobilize this power when innovations are involved.

Innovations not adherent to local norms undergo maximum resistance due to extreme social pressure for conformity (Burt 1973:126). As a result of the community's attempt to arrive at a consensus concerning the new practice, the adoption of innovations is often postponed. Lin (1971) has shown that the time before introduction can be prolonged in social systems which are tightly integrated because potential adopters engage in more communication to find out prevailing normative practices concerning the innovation.

Based on these findings, extremely conservative rural communities like the Altkolonier should postpone adoption longer than less conservative rural communities such as the Sommerfelders because, as was argued in Chapter 2, the Altkolonier are more homogeneous and distinctive than the Sommerfelders. Behavioral homogeneity and distinctiveness relate in a number of ways to the conservative rural community characteristics listed above (stability, isolation, homogeneity, distinctiveness, and primary relationships) which produce more conformity. Since conformity apparently tends to retard the introduction of innovations, it is not surprising to find that of the twenty-one architectural innovations considered in this dissertation, thirteen were adopted later by the Altkolonier.

Indirect Experience

With a delayed date of introduction the second factor, indirect experience, explaining rapid internal diffusion becomes significant. Conservative social systems in taking more time to introduce innovations accumulate more information regarding the innovation. By watching and

learning about what happens with the introduction of the innovation among more adventuresome groups, conservative groups can base their decision to adopt on a broader range of information. They accumulate more indirect or vicarious experience with the innovation (Erasmus 1961:22). Results reported by Ryan and Gross (1950:681) for Iowa farmers exemplify this phenomenon. They concluded that late adopters gained information from the experience of early adopters. "In a sense the early adopters provided a community laboratory from which neighbors could gain some vicarious experience with the new seed over a period of years."

Going one step further, it can be argued that with more (vicarious) experience conservative systems can adopt innovations with more assurance. In an interesting set of observations concerning the adoption of hybrid seed corn, Rogers (1962:115) shows that those individuals who adopt an innovation relatively late tend to adopt wholeheartedly and with much more assurance than those who adopt relatively early (Fig. 54). He broke the adoption process down into two periods: the awareness-to-trial period and the trial-to-adoption period and measured the length of time involved in each. Rogers observed that the length of the trial-to-adoption period decreased regularly and significantly from early adopters to laggards. Rogers (1962:115) also observed that early adopters try innovations on a smaller scale than later adopters. He suggests that the laggards use less time in switching to the new behavior because they were surer of the utility of the innovation. Rogers' data on individual adoption illustrate what

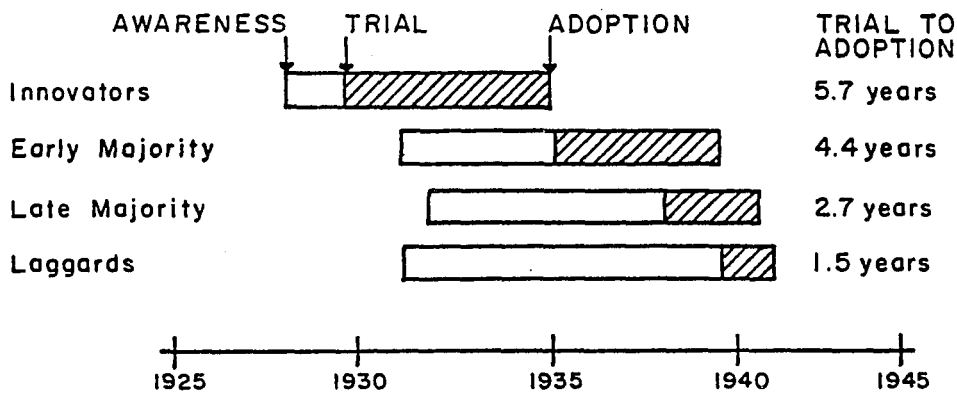

Figure 54. Length of trial-to-adoption periods for hybrid seed corn by adoptor categories.

appears to occur at the community level. Retarding innovations introduction may allow communities to accumulate more information about an innovation which in turn permits the innovation once accepted to be adopted with more assurance by community members.

The relationship between a strict normative structure and social change is now clearer. Normative constraint contributes to rapid internal diffusion in two ways. First, with greater assurance that an innovation will be useful, individual group members will adopt immediately creating a very rapid rate of internal diffusion. Secondly, it must not be forgotten that even though an innovation has been introduced, the stringent normative structure remains. The same normative structure which retarded introduction will tend to speed diffusion once an innovation is adopted because conformity is important regardless of the specific norm. Kurt Lewin (1953:298) shows that the production level of groups of sewing machine operators changed dramatically after the group decided to change production. Lewin concludes that when a highly integrated, relatively autonomous group decides to change its standards, movement to that new standard is very direct precisely because of the importance of group pressure.

Discussion and Conclusion

The preceding argument suggests a step model for the diffusion process in conservative rural communities (Fig. 55) as opposed to a less dramatic, more gradual process in modern communities. Whereas in modern communities innovators begin experimenting with innovations at an early time period and diffusion of the innovation proceeds at a

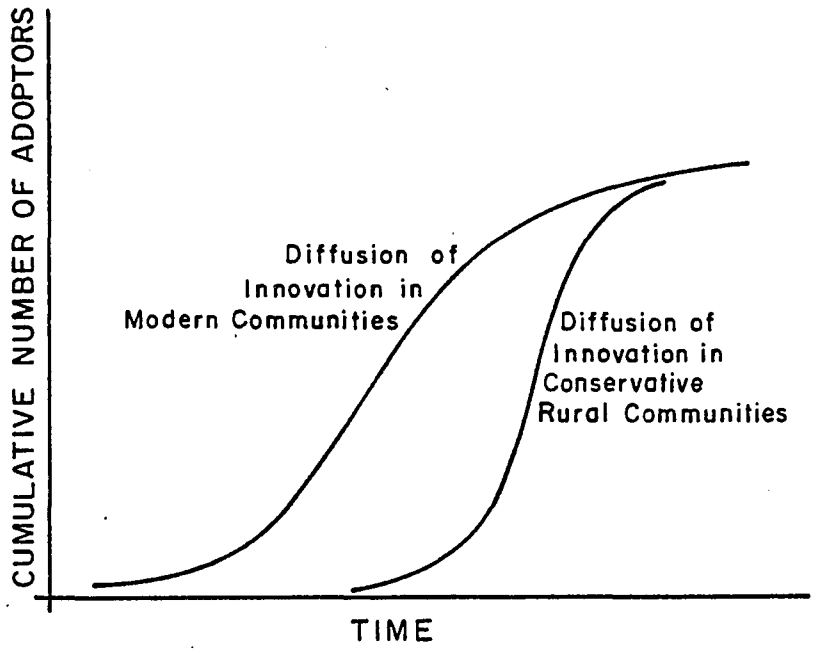

Figure 55. Model of diffusion in modern and folk communities.

moderate pace, in conservative rural communities innovations are introduced later and then diffuse rapidly.

This model does not, of course, refer to all changes which can occur in a community. In Chapter 1 reference was made to two different types of social change. In one type, change concerned the diffusion of innovations within a continuing conservative rural community and in the other social change concerned the transformation of a community from the conservative rural type to the modern type. The step model refers only to the diffusion of innovations within a community, not to the manner in which that community may evolve into a modern community. Since modernization of conservative rural communities is a gradual process, the interesting question becomes why the modernization is not more rapid if innovations diffuse rapidly.

A partial answer to this question is, obviously, that the two changes are of a fundamentally different type. As a conservative rural community modernizes, rapid internal diffusion should disappear since, it has been argued, rapid internal diffusion is most pronounced in conservative rural communities. A second part of the answer is that, although internal diffusion occurs rapidly overall, the change can be thought of as slow when one considers the relative date innovations are introduced in conservative rural communities. This consideration brings back the distinction between chronological and social time. When speaking of rapid diffusion in conservative rural communities, the reference is to diffusion as a social process in social time. Conservative rural community social change is, however, usually conceived

in chronological time, and in these terms adoption of innovations occurs slowly because the innovations are usually introduced (chronologically) later even though they diffuse (sociologically) rapidly. For example, among the Altkolonier automobiles still have not been introduced and for this reason there is a sense in which one can say that the adoption of automobiles is very cautious. Although, from this dissertation, it would be predicted that the diffusion of the automobile through the Altkolonier community will proceed rapidly when the decision to adopt has been made, the Altkolonier change slowly in that they introduce innovations slowly.

The fact that the general modernization process and the diffusion process for specific innovations do not change at similar rates has implications for the concept of social change in folk communities. It would be a gross oversimplification to attempt to describe folk community social change as a unidimensional phenomenon which can be described as fast or slow. Further, the contrast between innovation diffusion and modernization clarifies some of the problems in development work among conservative rural societies.

One difficulty concerns the strong resistance innovations receive when first introduced. The contrast outlined above helps explain why resistance is so strong. Initial acceptance in conservative rural communities implies something different than it does in modern, urban populations. Initial acceptance in conservative rural communities is followed by total adoption in a relatively short time. The community in one way or another has come to an agreement about the

innovation. In modern communities, on the other hand, introduction often indicates an innovative individual who will experiment with the innovation irrespective of popular opinion. Rogers (1962:229-231) has noted this contrast in the types of people who first adopt in traditional and modern communities. He found that the first people to use a new item in conservative rural communities were opinion leaders -- people who were well in tune with community opinion; indeed, this is why they were leaders in opinion. In modern villages, however, the first people were rated high in innovativeness; they were people who experiment.

A second difficulty is the incongruity between an innovation and the social context into which it is introduced. The clash between the two is often dramatic (Spicer 1952), and the magnitude of the clash may be, at least, partially due to the fact that once convinced to accept an innovation conservative rural communities tend to adopt rapidly and wholeheartedly. Thus, in urging such a community to adopt an innovation, the change agent may, in fact, be asking the community as a whole to adopt with relatively little vicarious experience with the innovation. The community has little time for gradual adjustment or for complimentary innovations to be realized and adopted. In the modern situation the adoption period is longer allowing time for necessary mutual adjustment.

One major conclusion follows for this discussion, and that is, the nation of slow changing conservative rural communities needs closer scrutiny. Mexican Mennonite architectural change suggest that in most

conservative rural communities diffusion proceeds at a faster rate than more modern communities. Based on the effect of group pressure on individual behavior, research among small groups and in rural sociology provides a framework for explaining this observation.

Foster (1953:164) once argued that peasant culture needs "time to simmer," time to integrate diffused traits into the fabric of peasant society. To the extent that peasants are characteristic of conservative rural communities, the results of this research can help clarify what "time to simmer" means for these communities. First, it is not simply a matter of conservative rural communities needing or taking more time to change. In fact, it is apparently impossible to characterize simply change in conservative rural communities as either slow or fast for, while diffusion was rapid, date of introduction was actually slow. Thus, "time to simmer" for conservative rural communities must mean time to accept an innovation, but once accepted community pressure assures little time in diffusion.

As a final note, it is worthwhile reflecting on the methodology. Dated material culture provided a useful diachronic record of Mennonite behavior, and the results recommend consideration of material culture in future research. Without diachronic records, questions concerning rate of change have been largely ignored. As the durable products of past behavior, however, it preserves a behavioral record which can and should be more frequently exploited -- particularly in social change research.

APPENDIX A

USING MATERIAL CULTURE TO CREATE AND EVALUATE RATES OF SOCIAL CHANGE

As evident in the Richardson, Kroeber, and Hodgen works (see Chapter 2), the observations of behavior in time series are essential for actually depicting the course of social change, and they are the only way for determining the rates of social change. Neither synchronic studies, restudies, generational studies, nor typological studies can provide the temporal dimension necessary to establish rates of change. They can establish that change has occurred and to some extent that relatively more has occurred in society A than B, but they cannot determine whether the greater change in society A is the product of a faster rate of change or to an earlier beginning date. Temporal data are necessary to settle this issue. But as Chapter 2 points out, a major obstacle to achieving this ideal in the anthropological study of social change is the difficulty in creating diachronic records.

Material Culture and Diachronic Research

Material culture is an often overlooked potential source of good diachronic data. The durability of material artifacts can provide researchers with the fossilized byproducts of past human behavior. As such, material culture has been particularly useful in reconstructing the past adaptive context of cultural change (Longacre 1970; Cook 1973).

Geertz (1963:8-9) points out that material culture is an integral element in human adaption, and, given its durability, material culture holds considerable potential for the development of a temporal parameter in studies of social change. Plog (1973) has argues most effectively for this use of material culture to create a diachronic anthropology. He feels that anthropologists should be attempting to,

> . . . explain variability in the adoption of technoeconomic and organizational variations in both the prehistoric and modern records. Explanations for variability in the adoption of innovation are sought by considering the origins and nature of the innovations and the context in which innovations are introduced (Plog 1973:195).

By offering a time depth often exceeding that available in historic records, the use of material culture holds considerable potential in research behavioral and social change.

Durable material artifacts as records of past behavior can be important even when written records exist. Glassie (1968) has argued that historic documents seldom record the behavior of the common man or the society as a whole; often the only surviving record is in material culture. Ascher and Fairbanks (1971) and Lange and Rydberg (1972) conducted such research as Georgia slave and Costa Rican peasant house sites showing how material culture data could be used to fill out incomplete written records. When questions involve the typical behavior of a population, research may have to turn to the material products of this behavior.

Vernacular Architecture as a Record of Past Behavior

One of the most durable and pervasive elements in man's material culture is his housing, but, unfortunately, its use in social science research has been primarily in problems of a spatial rather than a temporal focus. For the most part, vernacular architecture has been used to determine cultural affiliation or to establish culture areas. Table A-1 summarizes the extensive bibliography of vernacular architectural studies assembled by Rickert (1967:212-215) and gives an impression of the magnitude of the spatial bias.

Table A-1. The use of vernacular architecture: 1919-1965.

Type of Study	1919-1949		1950-1965	
	No.	%	No.	%
Descriptive	18	22	7	27
Functional	31	37	7	27
Cultural origins and diffusion	24	29	7	27
Sequence occupation	10	12	5	19
Total	83	100	26	100

The descriptive type studies are chiefly interested in describing the areal distribution of architectural styles in an attempt to synthesize vast amounts of regional variation existing in vernacular architecture. The classic example of this approach is Kniffen's "Louisiana House Types" (1936). Functionalist studies emphasize how architectural features result from an adjustment to subsistence, physical environment, social environment, or some combination of these. Rapaport's (1969)

recent book is a condensation of the major contributions of research in this tradition.

Research into the cultural origins and diffusion of house styles has a temporal dimension (for example see Francaviglia 1965; Kniffen 1965), but it has not been very useful for a behavioral approach to social change. These studies focus on the spread of architectural styles rather than focusing on the architectural behavior of defined population. Consider the following passage where Kniffen describes the relationship between the Pennsylvania German barn and social groups.

> The Germans of Pennsylvania were saved from cultural extinction especially by their two major contributions -- log construction methods and basic barn types, for the principle dissemination of which they enlisted the widely spreading and aggressive Scotch-Irish (Kniffen 1965:558).

Clearly this approach cannot deal with the changing behavior of a population through time. It may allow one to recognize changes in style, but it will not allow the determination of the social change of a population through time simply because no clear population is ever defined.

The final use of architecture recognized in Rickert's bibliography, sequence occupation, does begin to focus on a population (or rather a geographic area) and records temporal changes in architectural behavior. Sequence occupation is the chronological ordering of broad occupancy patterns in an area and is very reminiscent of archaeological stratigraphic research. In a limited way it begins to take advantage of the durability of architectural features in order to establish a diachronic record of social change. However, sequence occupancy for

the most part has not been very detailed in its analysis. For example, Spencer (1945) organized the architectural behavior of the Mormons of Southern Utah into type sequences through time: adobe, early importation, and contemporary periods. Spencer gives an impression of the types of changes that were taking place, but fails to provide a very detailed discussion. In another example (McIntire 1971) sequence occupancy provides more detail by breaking Southwestern pueblo architectural change into five different stylistic periods, but neither in this nor any other sequence occupancy study has a trend in or rate of stylistic change been derived because architectural change has not been observed in a good quantified form. It provides a subjective impression of stylistic periods but no time series description of the changing frequency of architectural behavior.

A similar criticism can be leveled at a number of studies which are closely related to the sequence occupancy approach. In these studies, research describes the latest changes in the architecture of an area or a population. Hill (1965) in a chapter entitled "Residential Land Use and House Types as Indicators of Change," noted that recent folk architecture in a Chiapas, Mexico, town was being built of more commercially manufactured material as opposed to natural materials. Similarly Crooke (1967) found that rural housing forms suited to low-density living in associated family groups were being discarded in favor of urban housing forms suited to higher density living in self-contained groups in Nigeria. In neither case, however, are the changes

documented by good time series data. This type of information is essential to a behavioral description of architectural change.

Recently studies have been conducted which quantify changes in building behavior. Kiefer (1972:496), in the course of an analysis of an entire settlement complex, recorded the number of different roof styles per time period in a rural area of Indiana. With this information, a clear picture of the rate of behavior change within the population of this area can be grasped. Rather than just knowing that certain roof styles existed between certain dates, well-dated architecture show the rate and direction of change (Fig. A-1). With comparable material in controlled comparisons it would be possible to answer questions about determinants of adoption rates. Another notable attempt to use total architecture is Otterbein's (1975:82-88) study of a Bahaman community. Although Otterbein suffered from an inability to date the early portion of the architectural record, the later part was dated and quantitatively described making it possible to see the increasing rate of adoption of the "modern" house type. Figures A-2 and A-3 are derived from the data collected for this dissertation, and they can be used to show the value of quantitative observation. When quantitatively comparing changes in Altkolonier architecture to Sommerfelder changes interesting differences in rate and direction of change become obvious which are essential in understanding stylistic developments in architecture. The decline in Type C, the increase in Type B, and the late revival of Type A among the Altkolonier all show more dramatic changes than they do among the Sommerfelders. By extension such

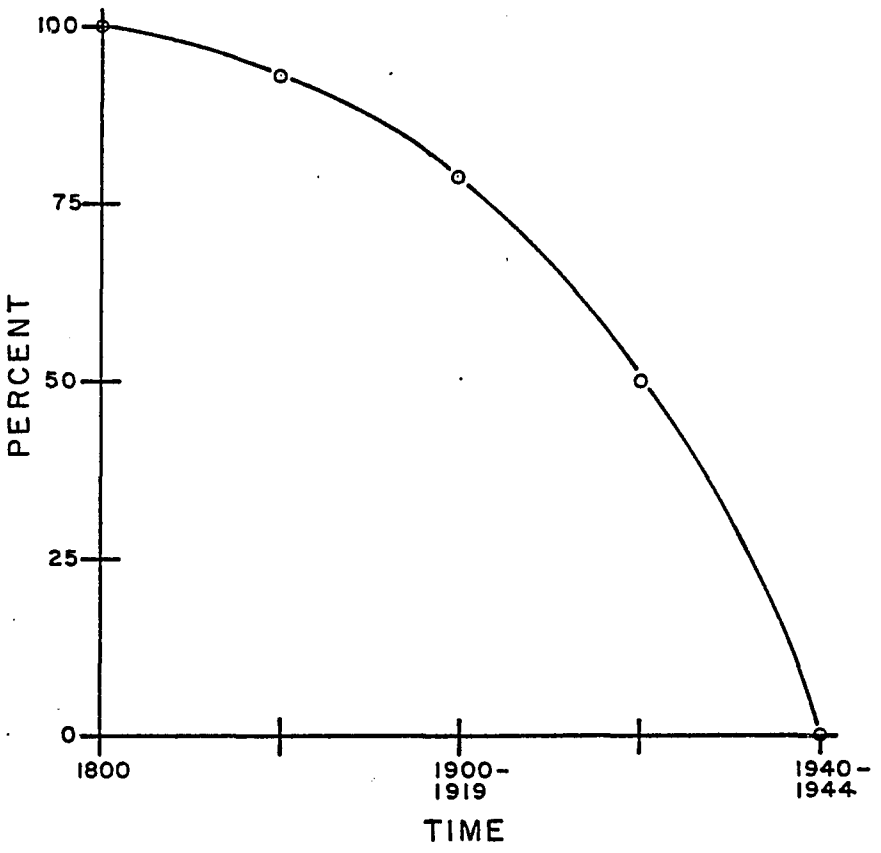

Figure A-1. Percent gabled barn roofs, Indiana. -- After Kiefer 1972:496.

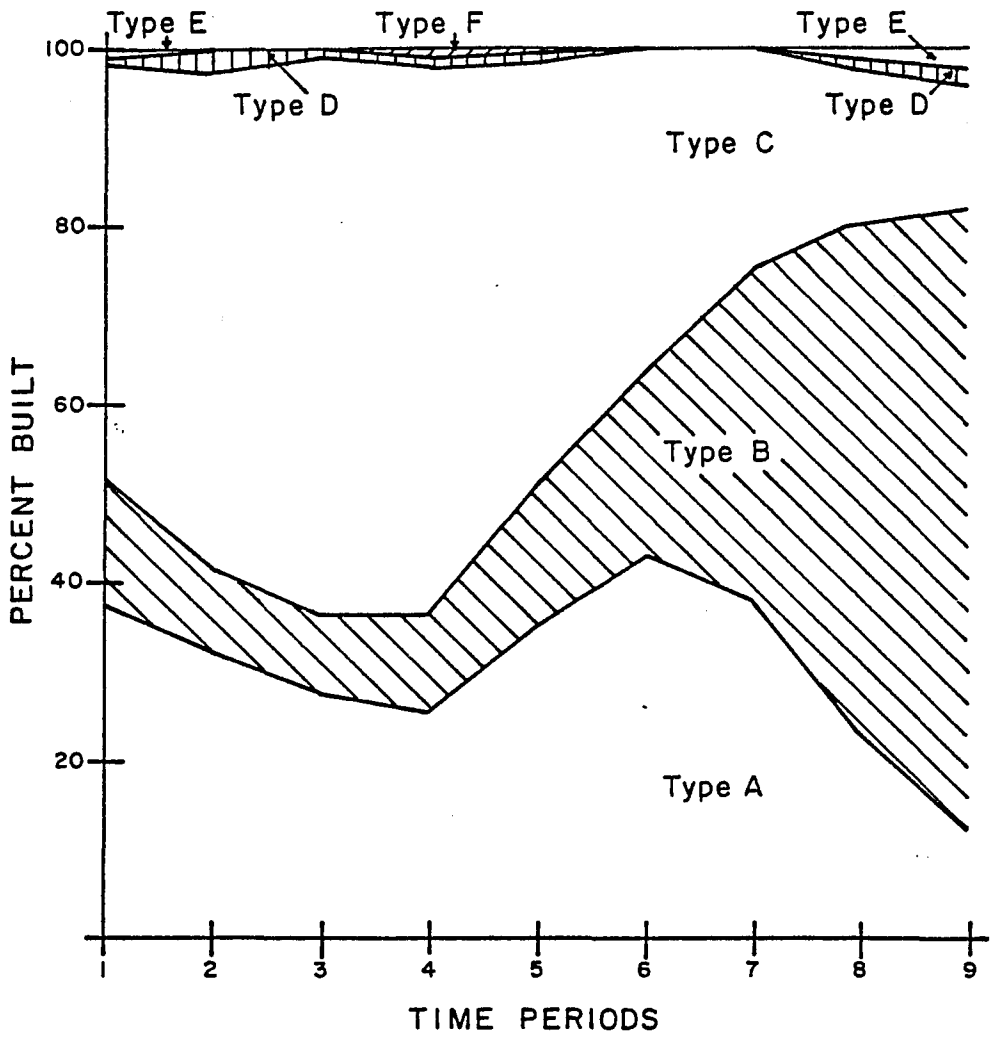

Figure A-2. Altkolonier housing types through time (three period moving average).

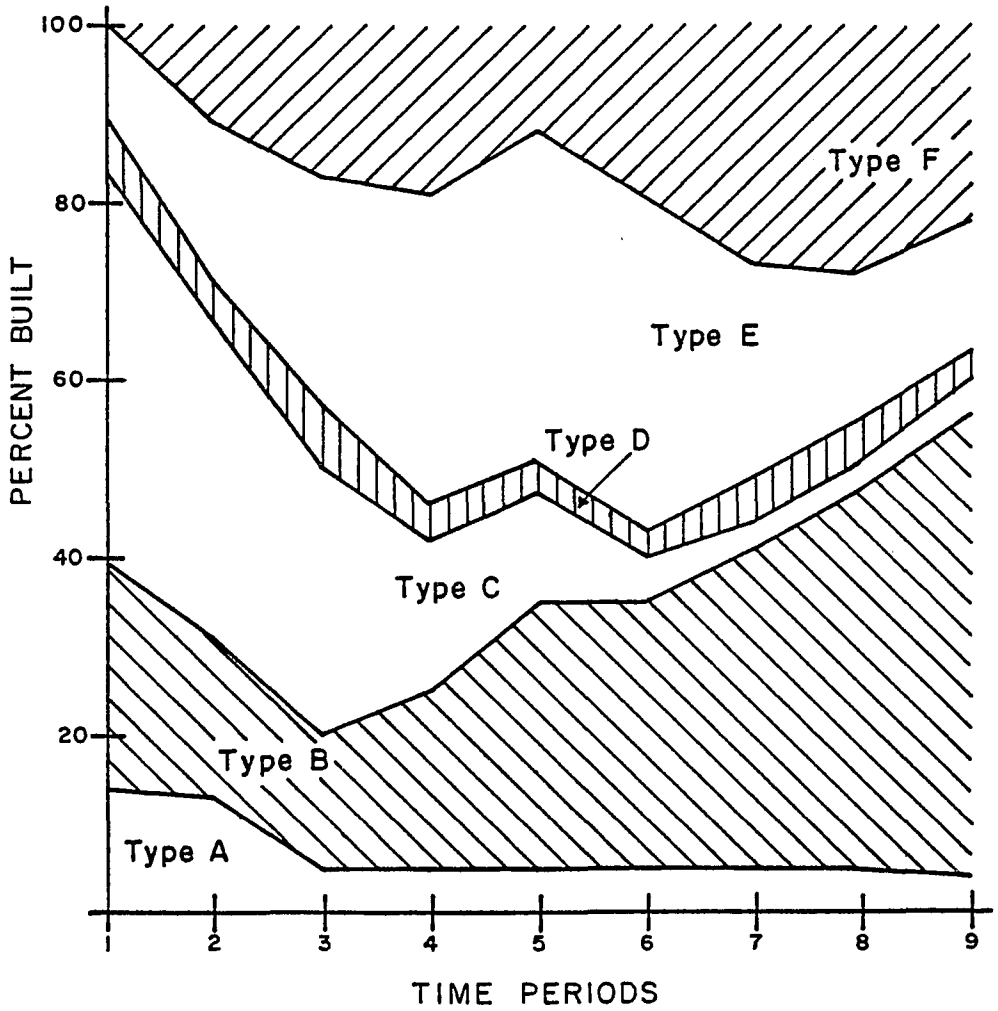

Figure A-3. Sommerfelder housing types through time (three period moving average).

differences may inform on interesting differences in social change processes among the two groups.

These examples of the use of dated architectural information are encouraging because they suggest that material culture may provide the evidence necessary to study questions about social change in situations of interest to anthropologists. In effect, then, this dissertation attempts to provide an experimental exploration into the methodology of time series data collection and analysis using material culture as well as provide insights into conservative rural community social change. This appendix outlines solutions to some of the methodological problems faced in the use of material culture for studying social change. Major problems encountered include dating, sampling, field observation of vernacular architecture, and time series data analysis.

Dating and Sampling

In order to study change the first methodological problem is simply dating the architecture. An attempt was made to determine the dates of major modifications and additions as well as of house and barn construction. These dates were usually provided by the owner and/or builder of the house. The existing written records consist of property transactions and not the construction date of houses. We found that among the Mennonites, women gave less equivocal responses because they most often bracketed building activity between major events in the family's development. Generally we felt confident that the dates given were within a year or two of the actual construction date but they

could not be determined with absolute certainty. The distribution of estimates clusters slightly around 1930, 1940, and 1950 which shows a certain degree of imprecision. Further, there is some evidence that poor guessing may have a systematic bias. In Waldheim (Campo 23), one of the more poorly dated villages, we had to rely on an older informant for several of the dates. We checked his guesses on all houses against the guesses of the actual owner and/or builder (Table A-2). For houses built before 1940 (based on owner/builder guesses), the informant agreed with the owner/builder for nine houses, but his errs tended to be later estimates 10 of 16 times. For houses build after 1940, he tended to give an earlier date three of four times. Fortunately, the owner/builder could be used to supply most dates so that most dating err should do no more than blur change trends rather than systematically alter their shape or trajectory.

Dated houses were grouped into nine periods from 1922 to 1976. Ideally, it would have been best to sample each year for the type of building activity going on during that year. With a sample of ten houses per year this would have required recording 540 houses for one Mennonite group alone. Since recording over a thousand houses would have been impossible, the 54 years of Mennonite building activity was divided into groups of four to six years in length. These divisions were not made beforehand; they were, instead, created later by lumping the dated houses into as small as possible periods while still maintaining a reasonable number of houses in each period. The samples were not randomly selected. While in the field we worked on a village

Table A-2. Estimates of first house construction dates: Campo 23.

House ID Number	Informant	Owner/Builder	Difference
1	1962	1958	4
2	1938	1935	3
3	1936	1925	11
4	1924	-	-
5	1938	-	-
6	1930	1924	6
7	1969	1971	-2
8	1928	1922	6
9	1930	-	-
10	1928	-	-
11	1930	1928	2
12	1924	1930	-6
13	1928	-	-
14	1927	1932	-5
15	1922	-	-
16	1927	1927	0
17	1926	-	-
18	1950	1962	-12
19	1926	1927	-1
20	1922	1922	0
21	1928	1927	1
22	1932	-	-
23	-	1924	-
24	1927	-	-
25	1928	1927	1
26	1922	1925	-3
27	1940	-	-
28	1922	1922	0
29	1930	-	-
30	1927	1938	-11
31	1959	1960	-1
32	1922	1922	0
33	1922	1922	0
34	1924	1922	2
35	1928	1927	1
36	1936	-	-
37	1922	1922	0
39	1922	1922	0
41	1968	1968	0
43	1936	1936	0
45	1922	-	-
47	1947	1930	17
49	1930	-	-

basis. Since we knew when villages were established, we could pick villages which would likely have houses built in time periods for which we needed representatives. Again, there may be some systematic bias because some villages are more conservative than others or poorer than others. For example, one Altkolonier village, because it was more recently settled and has fewer farmers is less conservative than other Altkolonier towns. In order to obtain a random sample and avoid these problems, even greater obstacles would have had to have been overcome. Every house would have had to be dated, this distribution stratified by time period, and then, the houses from each period sampled. The 1970 Mexican census does provide information on the number of houses per village but not dates of construction. The census information, thus, allowed us to sample Mennonite houses for construction dates which then could be used to acquire an idea of growth in Mennonite housing, but it did not allow sampling by time period. A 10% random sample of all Altkolonier housing took over a month to complete and did not include photography, recording architectural details, nor any Sommerfelder houses. It was impractical, therefore, to attempt to date every house and then return later for an architectural study of a random sample of each time period.

Two hundred thirty-six Altkolonier houses and 118 Sommerfelder houses were recorded which are approximately 13 and 36 percent of the houses in each group. These sample sizes are probably large enough to avoid major sampling errors, and since the same procedure was conducted for each group the results should be comparable. Factors such as size and appearance were not, of course, criteria for selection.

Observation of Vernacular Architecture

A second methodological problem is recording architecture as meaningful behavioral information. Stylistic studies such as Spencer's (1945) and McIntire's (1971) attempt to make one typological observation per house. It lumps all the behavioral elements required to build a house into a single classificatory identification label. This technique obviously glosses over much behavioral information and variation. Rickert (1967) has improved the use of typological observations by breaking houses down into a number of elements like garages and porches, but the observation of these elements is still based on a typological, non-quantitative classification. Thus, he illustrates changes in porches by noting changing porch styles. Generally, the problem with typological observation is that it renders quantitative observation of behavioral variation nearly impossible. In order for architecture to be used for behavioral information, it will be necessary to observe it in more quantitative behavioral terms like size, plan, material, and technique. The researcher always has the option of creating stylistic typologies based on these observations, but it is very difficult to go from stylistic observation to its behavioral components.

Besides obtaining detailed observation, a second problem must be considered before architecture becomes good behavioral information. Architecture can only be useful as information about social behavior when the architecture selected reflects the behavior of the population of interest. For this dissertation, research interest focused on the Altkolonier and Sommerfelders as social groups. These people build

their own houses which range from very substantial structures to small two or three room buildings. This architecture falls within the range of what is known as vernacular architecture as opposed to professionally designed and built structures. Most existing schemes for the detailed recording of architecture not only focus on professionally designed and built structures but just on the most substantial of these buildings (Sykes and Falkner 1971). Focusing on "elitist" architecture obviously reflects only a small portion of the architecture of a population and observational schemes designed for these buildings have little utility for vernacular architecture. The research tradition of Dr. R. A. Cordingley and the Vernacular Architecture Group of England as summarized by R. W. Brunskill (1970) has been found most helpful as a guide to the observation of vernacular architecture. The following observations were made on the architecture of the Mennonites in Mexico:

I Identification

- group
- village
- farmstead
- photographs

II Main house description

- construction dates
- modifications
- orientation
- plan
- stories
- links
- area
- roof shape, pitch, material
- ridge material
- chimney position, material, type
- dormer position, shape, window
- wall material, construction, modification, height
- house length, width
- wall area, length, width

window bay length, width, head shape, sill type, sill material, frame material
window opening mechanics, number of panes, divisions, secondary window structures
door bay height, width, head shape, sill type, sill material, frame material, architrave
door material, hinge, paneling, knob type, knob material, secondary doors
foundation
guttering
main door location
paint color
trim color
vent type, position
planters

III Barn

distance from house
stories
area, roofed, total
roof shape, pitch, material
ridge material
wall material
window types
door types
foundation

Dating is always a crucial problem because even if the basic house is well dated many elements could be added or altered later; therefore, it is often essential to make sure that the observation dates to the house construction.

Time Series Data Analysis

The Mennonites showed considerable period to period variation in the frequency of different building practices. The use of moving averages helped to suppress short term variation and express the longer term trends. A three period moving average was used to derive most transformed values. The first and last values are based on the average of the two earliest and the two latest periods. A similar solution was

employed for Sommerfelder barns where period three is blank. Period one and two were used to derive a transformed period one average, periods two and four to derive a period three average, and period four and five to derive a period five average. This procedure resulted in no moving averages for periods two and four. Once the histories of the variables had been recorded and "cleaned up" a number of interesting changes could be picked out.

Plotting Altkolonier changes and Sommerfelder changes on the same graph gave a subjective impression of the difference in the way architectural change occurred in the two groups, but more quantitative and objective techniques exist for evaluating the difference between change trends. To appreciate these simple techniques, it is first useful to clarify what is being compared.

Comparing rates of architectural change is not the same as comparing the histories of architectural change in the two groups. Change by definition occurs through time but change itself can be independent of any historical point in time. Thus, the same architectural change could occur historically earlier among one group than it does in the other. This fact calls attention to the difference between what Galtung (1975:15) calls chronological time and social time. He points out that there is "no reason to expect that in general the 'take-off point' (however that may be defined) should be the same point for each /group/. . . ." The first task in comparing social change is "to express the time series for each /group/ relative to a comparable time dimension, to social time and not to chronological time."

In this dissertation the beginning of social time or the "take-off point" of an architectural change is defined as the time period when a sustained change trend was initiated. (A list of the beginning points for the variables used in this dissertation is provided in Tables 19 and 20; the chronological records from which they were taken is provided in Tables 15 through 18.) This definition is not necessarily the best one, but it is easily identified given the few data points available. Griliches (1957:504) points out that there is simply no sure way to know the starting point of a change process. When the architectural changes are plotted in social time with similar starting points, change rates can be more easily compared.

The difference between Altkolonier and Sommerfelder change rates can be expressed in quantitative terms. In order to do this and find out whether trends in one group are different from trends in the other, one must fit the time series to some model (e.g., linear, logistic, exponential) and then compare parameters of the best fit. For instance, if a linear model is employed to study rates of social change, the parameter of interest is the slope of the regressions and if the logistic is used, the parameter of interest would be the rate constant. In all likelihood a logistic model probably describes architectural change under ideal conditions (that is, when conditions are constant throughout the episode of change). The introduction and spread of many architectural changes can be seed as special cases of the binary adoption/diffusion process (Hamblin, Jacobson and Miller 1973: Chapters 3 and 4). The diffusion of an innovation by an

interacting population when extraneous influences are held constant has often been found to follow a logistic curve (S-shaped).[1] The image of social change depicted by an S-shaped adoption process makes intuitive sense. This type trend implies a slow take-off as adventuresome individuals (or opinion leaders) try an innovation, followed by a period of rapid adoption when most people adopt the item, and finally another period of slow increase in adoption as the laggards finally accept the innovation. Many empirical data sets fit this model well.[2]

Among the various Mennonite architectural changes several logistic trends are evident -- gabled earth roofs, commercial roofing materials on barns and houses, barn and house concrete foundations. Figures A-4 and A-5 illustrate the adoption process for concrete house foundations and commercial roof materials. All the clear logistic trends result from the adoption of various commercial building materials. Even the decline in gabled earth roofs (Type C houses) is

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1. Binary diffusion is distinguished by Hamblin et al. (1973: 65) as diffusion measured in terms of the number of people adopting a new item. Changes in roof pitch, floor area, and barn distance are not measures of binary diffusion. These changes plot the average course of a changing social behavior pattern. Although the changing behavior pattern may be largely due to the adoption of an innovation, they are not the measure of the binary diffusion process itself. If changing roof pitch, for example, were conceived as a binary diffusion process, the question would be "how many people have adopted low pitched roofs (how ever low pitch is defined) per time period?" There is no reason to expect changes in roof pitch, floor area, barn distance to conform to a logistic pattern.

2. The S-shaped trend apparently applies only to binary diffusion of an innovation through an interacting population. If the use of an innovation is measured, the trend through time seems closer to exponential curves. Further, if the population is not interacting well, the trend seems to approach a decaying exponential model.

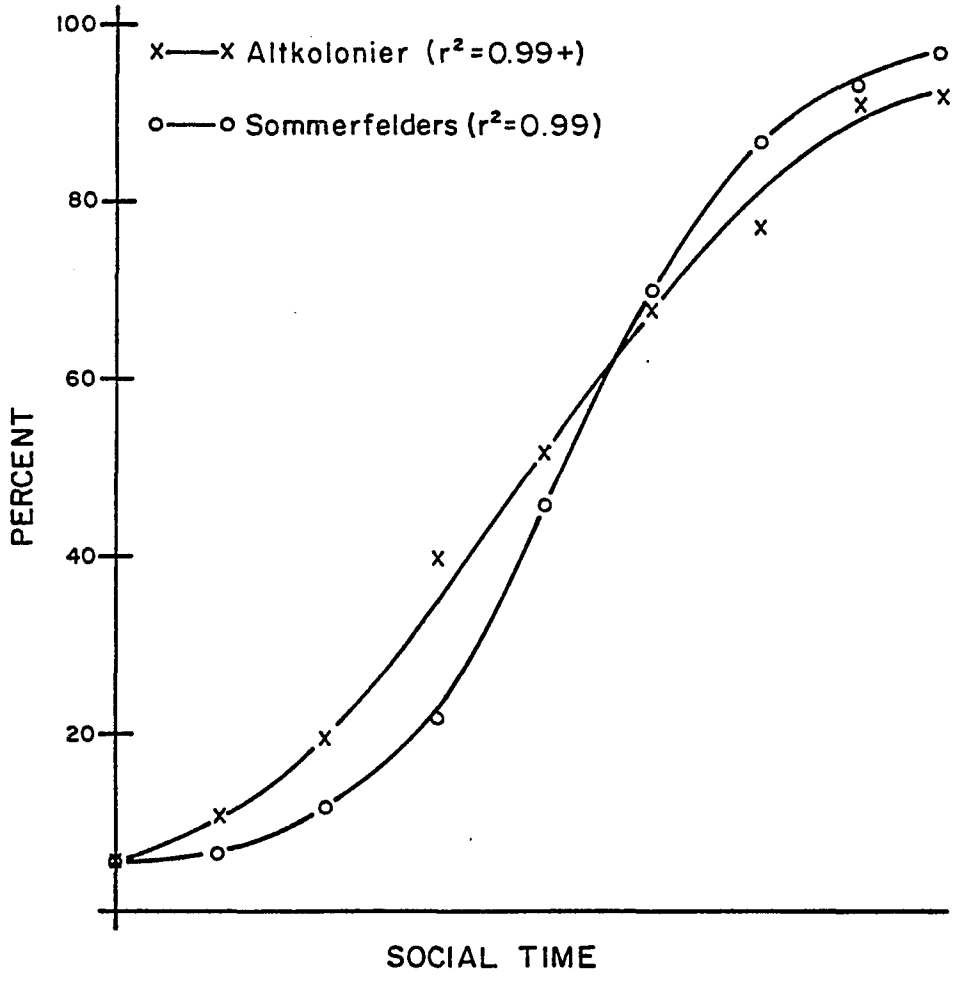

Figure A-4. Growth in concrete foundations and best logistic fits.

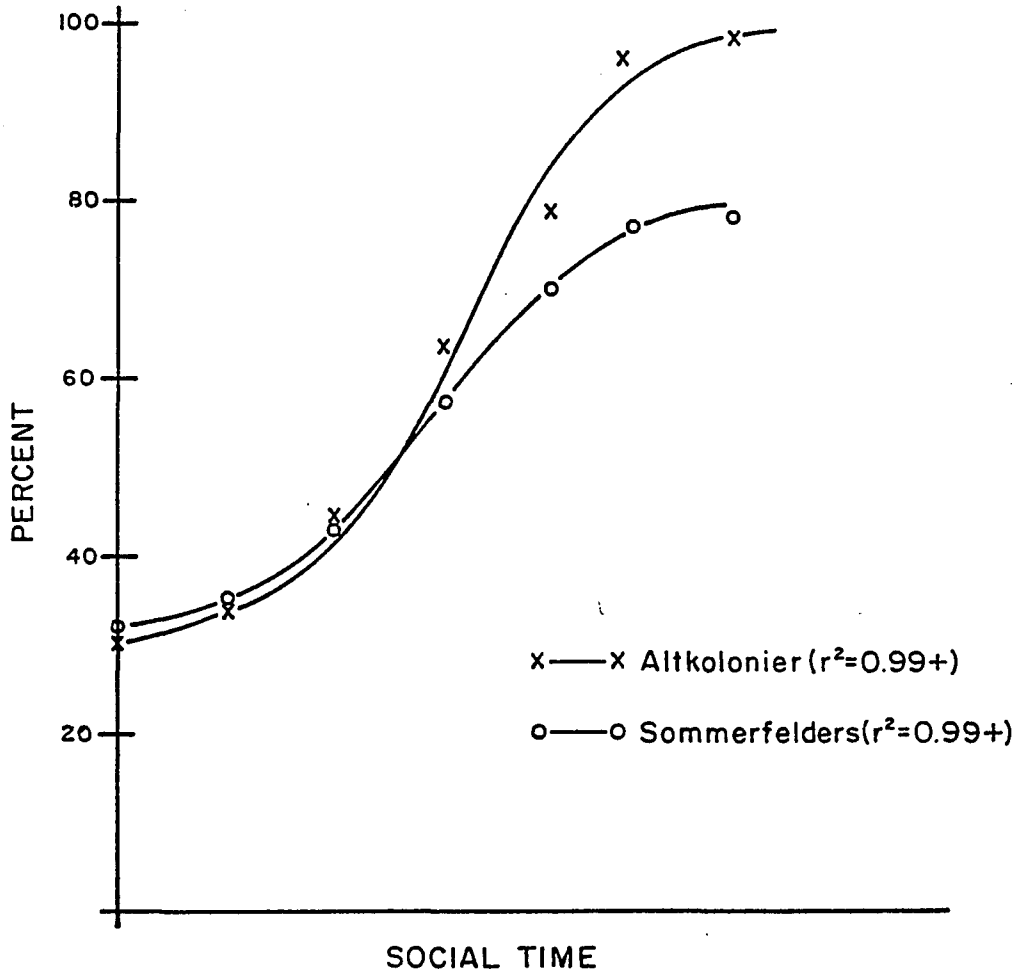

Figure A-5. Growth in commercial materials used on house roofs with best logistic fits.

probably a function of the replacement of earth material by corrugated sheet metal. A couple of other possible logistic processes occur with wall material and eave trimming. In these cases the Sommerfelder trends appear less well defined and only the initial portion of Altkolonier trends are available for inspection.

However, not all cases of architectural innovation-diffusion reveal a clear logistic or any other ideal mathematical model. Conditions affecting style, technique and plan appear less stable than do those affecting materials. As is true for most social behavior, conditions which encourage or discourage the adoption of a new item are far from constant and the caveat "all things being equal" becomes a serious obstacle to accurately fit mathematical models to all but a few ideal data sets. Thus, during a period of observation a major alteration in the significant conditions can cause the rate of behavior change to shift also; further alterations can cause other rate changes. The temporal record can become so complicated that it is hard to decide how to interpret the record of social change. Should each subperiod be treated separately or is the overall trend more important? Or, as often happens in social change research, the observation period may be shorter than the entire change trend so that only a partial picture of the trend is available.

Only a few attempts have been made to analyze the less than ideal situations quantitatively, but in one form or another all these attempts rely on a simple linear model. A linear model describes complex records of change at their most general level, that is, in terms

of the direction and average rate of change. Fliegel and Kivlin (1962: 365) derive an average adoption rate by averaging the percentages of new adopters for each of the eight years of most rapid adoption. Coughenour (1963-64:327) uses a slightly different procedure. He assumes a date of introduction and maximum level of adoption by the populations, and he measures adoption levels for three five-year time periods. He uses this information to derive average diffusion rates which he claims are related to the rate constants of a logistic process. A linear model has also been used to describe the general trajectory of more complicated records of change. Burt (1975:278) performs linear regressions on erratic time series to compare general changes in the relative amount of attention given to individual and corporate entities in the United States. He found the rate of change to be equal for the two entities but one was increasing while the other decreased.

A linear model does not describe the diffusion process well. The average squared correlation coefficient for the cases of binary diffusion used in this dissertation with over five data points was .91. Hamblin et al. (1973:7) suggest that an r^2 equal to or greater than .98 is necessary for the confident use of mathematical models. However, for many social situations the slope of a linear function may be the only index to the rate of change. For the myriad cases where social change is poorly monitored or where conditions change, the linear may be the best quantitative description possible for comparing change sequences for differences in rate of change.

APPENDIX B

ARCHITECTURAL DATA

The following tables contain the raw data used to compare diffusion rates within the Altkolonier and Sommerfelder groups. The figures are presented as period observations. These data were converted to three period running averages before being compared in social time in Chapter 4. All are in percentages except for Tables B-27, B-28, B-33 and B-34 where lengths and volumes are in meters. The figures in Tables B-27 and B-28 refer to the size of houses as they were first built (excluding later additions). This history of house size growth will be treated in detail in the near future.

Table B-1. House types: Altkolonier.

Period	N	Type A	Type B	Type C	Type D	Type E	Type F
1	42	36	14	45	2	2	0
2	16	38	12	50	0	0	0
3	27	22	0	74	4	0	0
4	27	19	15	63	0	0	4
5	17	35	18	47	0	0	0
6	14	50	14	36	0	0	0
7	22	45	32	23	0	0	0
8	26	19	65	15	0	0	0
9	36	6	73	14	3	3	0

Table B-2. House types: Sommerfelders.

Period	N	Type A	Type B	Type C	Type D	Type E	Type F
1	7	28	28	43	0	0	0
2	9	0	22	44	11	22	0
3	10	10	0	20	0	30	30
4	18	6	22	22	11	22	17
5	14	0	36	7	0	50	7
6	13	8	31	8	0	38	15
7	13	8	23	0	8	23	38
8	17	0	53	0	6	12	29
9	12	8	50	8	0	17	17

Table B-3. House roof material: Altkolonier.

Period	N	Wood	Sheet Metal	Earth	Carton	Misc. Commercial
1	42	5	28	55	5	7
2	19	21	37	42	0	0
3	26	8	19	73	0	0
4	27	0	11	67	18	4
5	18	0	44	50	6	0
6	18	0	39	50	6	6
7	21	0	71	10	19	0
8	26	0	88	8	4	0
9	36	0	91	3	3	3

Table B-4. House roof material: Sommerfelders.

Period	N	Wood	Sheet Metal	Earth	Carton	Misc. Commercial
1	7	14	14	43	14	14
2	9	0	11	67	22	0
3	10	0	20	70	10	0
4	18	0	22	67	11	0
5	14	0	29	57	14	0
6	13	0	54	46	0	0
7	13	0	66	25	8	0
8	17	0	76	18	6	0
9	12	0	58	25	17	0

Table B-5. Exterior wall vent use: Altkolonier.

Period	N	Vents Present	Vents Absent
1	42	67	32
2	19	78	21
3	25	84	16
4	27	70	30
5	18	83	17
6	18	83	17
7	22	82	18
8	26	58	42
9	35	37	63

Table B-6. Exterior wall vent use: Sommerfelders.

Period	N	Vents Present	Vents Absent
1	8	75	25
2	8	75	25
3	9	89	11
4	17	76	24
5	14	64	36
6	11	64	36
7	14	62	38
8	17	71	29
9	12	42	58

Table B-7. Door sill material: Altkolonier.

Period	N	Wood	Concrete	Stone
1	60	81	12	6
2	31	90	0	10
3	25	80	20	0
4	33	91	9	0
5	26	100	0	0
6	28	86	14	0
7	37	38	62	0
8	42	50	50	0
9	48	25	75	0

Table B-8. Door sill material: Sommerfelders.

Period	N	Wood	Concrete	Stone
1	25	96	0	4
2	12	75	25	0
3	19	100	0	0
4	30	100	0	0
5	24	50	50	0
6	22	50	50	0
7	28	75	25	0
8	30	60	40	0
9	26	50	50	0

Table B-9. Types of windows which face the street: Altkolonier.

Period	N	Single or Double Hung	Modern Type	Other
1	62	100	0	0
2	31	100	0	0
3	41	100	0	0
4	49	90	0	10
5	29	93	0	7
6	36	92	0	8
7	34	100	0	0
8	38	83	13	3
9	44	57	39	4

Table B-10. Types of windows which face the street: Sommerfelders.

Period	N	Single or Double Hung	Modern Type	Other
1	12	100	0	0
2	9	89	11	0
3	10	90	0	10
4	25	76	24	0
5	20	85	0	15
6	24	75	17	8
7	20	70	20	10
8	18	68	25	7
9	18	67	17	17

Table B-11. Non-earth roof pitch: Altkolonier.

Period	N	Non-earth Roof Pitch
1	20	35
2	11	36
3	7	35
4	9	31
5	9	35
6	10	28
7	19	25
8	23	18
9	35	15

Table B-12. Non-earth roof pitch: Sommerfelders.

Period	N	Non-earth Roof Pitch
1	4	27
2	3	26
3	3	26
4	6	23
5	7	25
6	7	20
7	11	25
8	9	18
9	8	21

Table B-13. House wall material: Altkolonier.

Period	N	Concrete or Brick	Adobe	Wood
1	42	0	83	17
2	19	0	100	0
3	25	0	100	0
4	28	0	100	0
5	18	0	100	0
6	18	6	94	0
7	20	5	95	0
8	26	46	54	0
9	36	81	19	0

Table B-14. House wall material: Sommerfelders.

Period	N	Concrete or Brick	Adobe	Wood
1	9	0	78	22
2	9	0	100	0
3	9	0	100	0
4	18	0	100	0
5	15	7	93	0
6	13	8	92	0
7	14	0	100	0
8	16	6	94	0
9	12	33	67	0

Table B-15. Eave treatment: Altkolonier.

Period	N	Rafters Exposed	Eaves Trimmed
1	42	69	31
2	18	67	33
3	27	70	30
4	27	89	11
5	17	71	29
6	18	67	33
7	22	64	36
8	24	42	58
9	34	47	53

Table B-16. Eave treatment: Sommerfelders.

Period	N	Rafters Exposed	Eaves Trimmed
1	9	67	33
2	6	50	50
3	6	33	67
4	9	55	45
5	7	28	72
6	7	14	86
7	10	0	100
8	13	0	100
9	12	8	92

Table B-17. Chimney materials: Altkolonier.

Period	N	Concrete	Metal	Adobe	Brick
1	44	9	20	18	52
2	25	12	20	12	56
3	33	9	18	21	52
4	38	13	18	18	50
5	27	0	41	4	56
6	27	26	30	15	30
7	30	23	47	3	27
8	36	11	83	0	6
9	37	11	89	0	0

Table B-18. Chimney materials: Sommerfelders.

Period	N	Concrete	Metal	Adobe	Brick
1	13	8	15	38	38
2	12	25	17	25	33
3	13	23	23	15	38
4	30	13	40	13	33
5	16	6	50	12	31
6	18	28	28	0	44
7	20	20	40	10	30
8	19	5	53	21	21
9	15	7	53	13	27

Table B-19. Window and door head treatment: Altkolonier.

Period	N	Lintel only	Plain Trim	Molded Head	Shaped Head
1	154	19	24	26	31
2	32	0	13	25	62
3	50	24	16	28	32
4	72	12	21	32	34
5	43	14	26	28	33
6	57	0	9	44	47
7	78	5	3	32	60
8	93	19	9	2	70
9	121	0	4	15	60

Table B-20. Window and door head treatment: Sommerfelders.

Period	N	Lintel only	Plain Trim	Molded Head	Shaped Head
1	28	7	25	4	64
2	36	6	50	11	33
3	38	16	34	3	45
4	63	11	35	2	51
5	47	6	23	0	55
6	46	4	9	9	78
7	61	5	10	21	64
8	59	5	10	8	77
9	40	5	0	0	95

Table B-21. Foundation material: Altkolonier.

Period	N	Stone	Concrete	None
1	33	85	12	3
2	19	100	0	0
3	27	78	22	0
4	28	57	39	4
5	18	39	61	0
6	18	38	56	6
7	18	6	89	6
8	26	12	85	4
9	34	0	100	0

Table B-22. Foundation material: Sommerfelders.

Period	N	Stone	Concrete	None
1	9	89	0	11
2	9	78	11	11
3	9	89	11	0
4	18	88	12	0
5	14	49	43	0
6	12	17	83	0
7	13	15	85	0
8	17	6	94	0
9	11	0	100	0

Table B-23. Chimney styles: Altkolonier.

Period	N	Regular	Bulding	Covered
1	44	100	0	0
2	25	100	0	0
3	33	100	0	0
4	31	100	0	0
5	24	58	0	42
6	20	100	0	0
7	30	70	0	30
8	28	50	11	38
9	52	38	38	25

Table B-24. Chimney styles: Sommerfelders.

Period	N	Regular	Building	Covered
1	13	100	0	0
2	12	100	0	0
3	12	50	33	17
4	15	33	33	33
5	17	50	33	18
6	21	0	100	0
7	20	50	25	25
8	18	28	72	0
9	13	85	15	0

Table B-25. Cardinal orientation of main house entrance: Altkolonier.

Period	N	North	South	East	West
1	42	14	48	26	12
2	18	11	39	33	17
3	27	18	44	33	4
4	27	26	26	41	7
5	17	12	35	35	18
6	17	18	24	47	12
7	22	23	36	36	5
8	26	12	19	38	31
9	36	19	22	50	8

Table B-26. Cardinal orientation of main house entrance: Sommerfelders.

Period	N	North	South	East	West
1	9	22	11	67	0
2	9	44	0	44	11
3	10	20	10	60	10
4	18	28	6	56	11
5	14	21	0	71	7
6	13	23	15	54	8
7	13	15	0	85	0
8	17	12	0	88	0
9	12	8	0	92	0

Table B-27. House size: Altkolonier.

Period	N	Floor Area (M^2)	Wall Height	North-South	East-West
1	39	66.1	2.67	9.9	8.8
2	19	74.2	2.68	10.0	8.9
3	26	99.2	2.77	11.8	10.9
4	28	83.6	2.96	10.0	11.3
5	17	75.9	3.06	9.7	9.7
6	17	76.3	3.32	10.5	9.9
7	22	99.4	2.58	10.3	11.4
8	25	84.6	3.06	11.6	8.6
9	34	87.6	2.68	10.8	10.0

Table B-28. House size: Sommerfelders.

Period	N	Floor Area (M^2)	Wall Height	North-South	East-West
1	10	81.4	3.12	9.4	10.0
2	9	83.8	2.76	9.8	11.9
3	9	67.2	3.81	9.5	9.1
4	12	86.5	2.40	10.3	10.7
5	15	72.4	3.08	10.1	8.6
6	13	77.6	2.57	10.4	9.0
7	13	62.8	3.38	9.0	8.5
8	17	87.5	2.45	10.5	9.7
9	11	88.7	2.52	12.4	9.8

Table B-29. Barn roof material: Altkolonier.

Period	N	Wood	Sheet Metal	Earth	Carton	Sheet Metal and Carton
1	17	12	12	71	6	18
2	14	0	14	86	0	14
3	22	5	14	77	5	19
4	27	0	30	55	15	46
5	12	0	67	17	17	83
6	20	0	45	20	35	80
7	22	0	73	5	23	96
8	26	0	85	4	12	97
9	32	0	81	3	16	97

Table B-30. Barn roof material: Sommerfelders.

Period	N	Wood	Sheet Metal	Earth	Carton	Sheet Metal and Carton
1	7	28	28	44	0	28
2	5	0	0	60	40	40
3	0	-	-	-	-	-
4	10	0	30	40	30	60
5	9	0	67	33	0	67
6	12	0	50	25	25	75
7	16	0	69	0	31	100
8	13	0	77	0	23	100
9	20	0	80	0	20	100

Table B-31. Barn wall material: Altkolonier.

Period	N	Sheet Metal	Stone	Adobe	Wood	Concrete
1	17	0	6	76	18	0
2	10	0	0	100	0	0
3	24	0	0	96	4	0
4	27	0	0	100	0	0
5	13	0	0	85	15	0
6	22	0	0	95	5	0
7	22	0	0	95	5	0
8	26	31	0	46	4	19
9	30	3	0	27	10	60

Table B-32. Barn wall material: Sommerfelders.

Period	N	Sheet Metal	Stone	Adobe	Wood	Concrete
1	7	0	0	44	57	0
2	5	0	0	80	20	0
3	0	-	-	-	-	-
4	10	0	0	100	0	0
5	9	0	0	100	0	0
6	12	0	0	92	8	0
7	16	6	0	84	6	6
8	13	0	0	92	0	8
9	20	10	0	50	15	25

Table B-33. Barn distance, size, and linkage: Altkolonier.

Period	N	House to Barn Distance (M)	Roofed Area (M^2)	Total Floor Area (M^2)	Barns Linked to Houses (%)
1	19	16.5	105	112	18
2	15	7.8	102	102	47
3	24	11.0	102	106	46
4	27	7.3	108	130	56
5	13	12.0	98	147	31
6	22	13.4	91	121	18
7	22	17.0	105	121	23
8	25	15.3	73	85	24
9	29	24.0	57	62	10

Table B-34. Barn distance, size, and linkage: Sommerfelders.

Period	N	House to Barn Distance (M)	Roofed Area (M^2)	Total Floor Area (M^2)	Barns Linked to Houses (%)
1	7	19.7	85	108	14
2	5	15.5	77	95	20
3	0	-	-	-	-
4	10	17.8	107	107	10
5	10	31.8	80	85	10
6	12	26.8	66	72	8
7	16	31.7	79	84	0
8	13	29.7	80	80	0
9	20	29.2	78	78	5

Table B-35. Barn stories: Altkolonier.

Period	N	One	One and a Half	Two
1	19	95	0	5
2	15	80	7	13
3	24	96	0	4
4	27	74	15	11
5	13	67	8	25
6	22	59	9	32
7	22	68	5	27
8	26	85	8	8
9	32	90	3	7

Table B-36. Barn stories: Sommerfelders

Period	N	One	One and a Half	Two
1	5	60	20	20
2	5	80	0	20
3	0	-	-	-
4	10	90	0	10
5	9	78	11	11
6	13	85	8	8
7	16	81	12	6
8	13	100	0	0
9	20	100	0	0

Table B-37. Barn door material: Altkolonier.

Period	N	Metal	Wood
1	23	0	100
2	25	9	91
3	40	12	88
4	42	14	86
5	24	37	62
6	35	37	63
7	29	24	76
8	33	61	39
9	47	54	46

Table B-38. Barn door material: Sommerfelders.

Period	N	Metal	Wood
1	7	0	100
2	6	0	100
3	0	-	-
4	14	0	100
5	12	17	83
6	17	12	88
7	20	20	80
8	20	75	25
9	24	50	50

Table B-39. Barn foundation material: Altkolonier.

Period	N	Concrete	Stone	None	Concrete of Prepared Foundations
1	15	13	87	0	13
2	14	0	100	0	0
3	22	14	86	0	14
4	27	30	70	0	30
5	12	42	42	17	51
6	20	35	55	10	39
7	20	80	10	10	89
8	25	68	8	24	89
9	29	79	7	14	92

Table B-40. Barn foundation material: Sommerfelders.

Period	N	Concrete	Stone	None	Concrete of Prepared Foundations
1	5	0	80	20	0
2	5	20	60	20	25
3	0	-	-	-	-
4	7	44	56	0	44
5	9	56	33	11	63
6	13	31	69	0	31
7	16	75	19	6	80
8	11	91	9	0	91
9	19	84	0	16	100

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