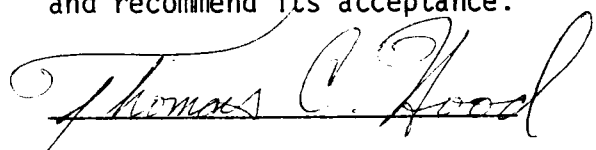
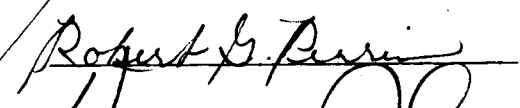
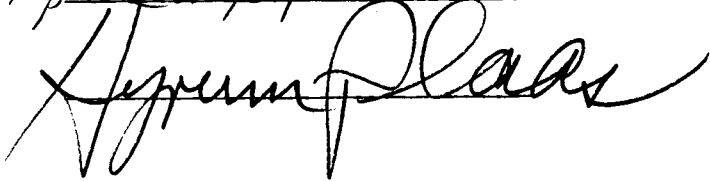


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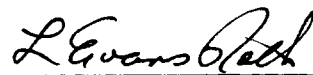
I am submitting herewith a dissertation written by Jerry Norman Harrison entitled "Demographic Transition in a Frontier Town: Manti, Utah, 1849-1948." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Sociology.


Donald W. Hastings, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:


Vice Chancellor
Graduate Studies and Research

DEMOGRAPHIC TRANSITION IN A FRONTIER TOWN:

MANTI, UTAH, 1849-1948

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Jerry Norman Harrison

December 1982

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I am beginning to be sorry that I ever undertook to write this book. Not that it bores me; I have nothing else to do; indeed, it is a welcome distraction from eternity. But the book is tedious, it smells of the tomb, it has rigor mortis about it; a serious fault, and yet a relatively small one, for the great defect of this book is you, reader. You want to live fast, to get to the end, and the book ambles along slowly; you like straight, solid narrative and a smooth style, but this book and my style are like a pair of drunks: they stagger to the right and to the left, they start and they stop, they mutter, they roar, they guffaw, they threaten the sky, they slip and fall . . .

Machado de Assis

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The author is grateful for the assistance of Professor Donald W. Hastings, of the Department of Sociology, for his patience, interest, and skills in the preparation of this dissertation. Without his unflagging guidance and dedication to exploring new areas of demography and sociology it would have been impossible to organize, process and write this document covering the historical demography of an American frontier town. Because of his work, this dissertation is a true contribution to our knowledge of the vital processes occurring in a significant population group in our society. Also, without outside funding, he managed a study usually conducted by a large research team.

Several other individuals contributed their knowledge and skills to the completion of the study. Residents of Manti, Utah graciously assisted in the compilation of data sources and verification of information. Mr. Albert Antrei and Mrs. Lillian Fox offered interviews and access to personal records. Mr. Antrei detailed the events of pioneer days and outlined the frontier years. Mrs. Fox, editor of the Saga of the Sanpitch (an annual publication on local history) offered several volumes of recollections of residents of the community. She also imparted valuable information about the years between the turn of the century and World War II. The Sanpete County Clerk, the Manti City Clerk and the City Librarian opened their records and

resources for examination. The town sexton provided burial records for copying as well as office space for work.

Outside Manti, genealogical librarians (volunteers) in Mt. Pleasant, Utah, and Las Cruces, New Mexico assisted in searches of the genealogical collection of the LDS Church for records of individuals who had lived in Manti. Miss Phoebe Stages, of Las Cruces, provided advice in locating and verifying information in the records. Dr. Harold Daw, President of the Las Cruces Stake and Vice President of New Mexico State University, cooperated through access to the facilities of the branch library in Las Cruces (frequently a microfilm reader was occupied for twenty or more hours a week, one-fourth of the available readers and time available for use by patrons).

Several former Manti residents and/or their descendants contributed information. They allowed access to private family histories, personal recollections, and confirmation of information gained through the genealogical method. They were helpful in sorting out individuals who (1) had identical names, (2) experienced vital events at about the same time, and (3) had resided in Manti at the same time.

Special thanks are given to Mr. Peter Hastings and Dr. Mahmoud el-Najjar, the latter of the Department of Sociology and Anthropology of New Mexico State University, for technical assistance in completion of the project.

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The project could not have been completed without the care in manuscript preparation provided by Mrs. Margaret Garrett, former Secretary of the Department of Sociology.

ABSTRACT

This dissertation recapitulates the historical demography of a frontier town, Manti, Utah, from 1849 through 1948. Demographic transition theory was used as a framework by which to discuss population composition and change. Special attention was given to community history and the influences of state and national developments affecting the local population. Three periods of community and population history were noted: (1) the Frontier Period (1849-1889), (2) the Transition Period (1890-1929), and (3) the Modern Period (1930-1948).

Family reconstitution was used to collect demographic information on individuals and families. Membership records of the LDS Church and civil records maintained by the City of Manti, Utah, and Sanpete County, Utah, were used to identify townspeople and source documents for the dates of vital events which they experienced. The method, quality of data sources and issues relating to Mormon genealogical and ecclesiastical records were discussed in detail. Also, issues in computer processing and specifics of programming that generated demographic data from genealogical sources were outlined. For example, a discussion of the logic underlying the calculation of age at death was included.

The findings of the study lead to the conclusion that the population experienced demographic transitions in mortality and fertility. Also, a transition in type and form of migration occurred over the 100 year period of community history examined. Based on family reconstitution data, over 3,200 family units were identified and placed into the computer file for statistical analysis. Findings support the

application of demographic transition theory and show that the population experienced demographic events much like other Mormon populations which have been studied.

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CHAPTER I

OVERVIEW: THE DEMOGRAPHIC TRANSITION

Introduction

U.S. Route 89 in Utah passes through the core of Mormon settlements, running north and south the length of the state. Today the small towns scattered about every five or ten miles apart seem to be sleepy vestiges of another place and time. Village architecture is reminiscent of New England, but homes are constructed of stone rather than wood. The prominence of agriculture, even in an urban age, is visible in the outlying fields, farm machinery moving along the highway, and supply stores on the main streets. Town populations are small in comparison to other regions of the country, hinting that the best times are past.

This study reviews mortality, fertility and migration in one of the towns located on Route 89. The population processes are traced from the middle of the nineteenth century to the middle of the twentieth century. The predominantly Mormon (Latter Day Saints) population of Manti, Utah is examined using the theoretical framework of the demographic transition and the methodological technique of family reconstitution.

Demographic transition theory is a model of population and social change most often applied to societies undergoing development. Nearly always it is discussed within the contexts of urbanization and industrialization. Rarely has the theory been applied to a Western

society which remained rural. The study applies transition theory to a society moving from pre-industrial subsistence level agrarianism at its beginning to agribusiness by the close of observation. Over the short period of 100 years, the population and the demographic characteristics of members changed.

This study examines if population changes in Manti were consonant with the demographic transition as it occurred in Westernized societies, with historical change in the United States, and with systematic alterations in rural society. To portray accurately population change over an extended period of time using transition theory, both community history and formal population statistics must be interpreted. Implicit to demographic transition theory is the fact that changes in the primary demographic variables are driving forces in population dynamics and that changes in each are interwoven. For example, if mortality rates fall dramatically but social and economic factors favor high fertility, a population grows explosively through natural increases (unless large numbers of people move). The demographic transition, then, is linked with social values and events happening over time.

The study fills a void in the knowledge about populations in the American West. Three distinct contributions were made: (1) a factual social history of the community, one not based on Western myth and romanticism, was outlined; (2) over 3,000 families were reconstituted in full or partially using genealogical techniques; and (3) population processes in a frontier town were examined in the context of a major demographic theory. One of the reasons that the Manti population was chosen for study was that for a lengthy period of its history it was

a closed society in regard to religion. Regarding the family, the number of children, and birth control Mormon values are well known: they are pro-family, pro-natalist, and anti-birth control. Less known are values and behaviors linked to mortality and migration.

Public statements by Church Authorities advocated family formation, permanency of the transcendant family, and large family size. Yet, it is documented well that fertility rates of the Mormon population converged with the rates of non-Mormons, that Mormons over time produced smaller families and adopted birth control in opposition to the theological opinions of church leaders (Hastings et al., 1972; Spicer and Gustavus, 1974). Positive evaluation of high fertility of Mormons is rooted deeply in their theology and cultural history. Theology demands production of children to bring new souls into the world and to assemble the entire family for eternity. History reveals a religious minority group dominated by a persecuting secular society threatening extinction time and again.

The Mormons used group migration, couched in theology, to set themselves apart from the host society in physical and social space. In the exodus to Utah and the gathering of converted European Saints there was created an environment in which oppositional beliefs and practices, i.e., emphasis on large families and polygamy, could be practiced openly. While isolated in Utah for a short period, the Mormons cultivated separateness and independence, the outside society reveled in the obvious eccentricities of group and individual behavior. As long as interaction among groups was minimal and controlled,

dissimilarities were maintained easily, values and behaviors remained distinct.

Under economic and political pressure in the late nineteenth century the Mormons re-entered the larger American society. Their fortunes were tied with the interests of the larger society, sometimes forcibly in the case of polygamy or gradually in the erosion of economic insularity produced by the arrival of the railroad and statehood. Consequently, institutions were freed of complete control by Church Authorities.

Marks of distinction such as large family size and polygamous marital unions in the period of isolation were in-group methods of binding theology and behavior. As the need for differentiation diminished with social, economic and political reintegration, beliefs and practices were modified, abandoned or replaced. The scene then was set for "interactive assimilation," i.e., assimilation in which "migrants and host move toward one another" (Hastings et al., n.d.:3).

Migration to Utah by the Nauvoo refugees in 1847 was forced by the events of death and destruction in Missouri and Illinois. Thereafter Mormon migration to Utah took on a very different pattern. In 1849 the Perpetual Emigration Fund (PEF) was established to gather all of the Saints together, to build the new Zion:

"The gathering," not polygamy, was Mormonism's oldest and most influential doctrine. It was the signature of the "new and everlasting covenant" which the Lord had made with his elect in this last of all gospel dispensations. The doctrine reflected a tradition of golden dreams and fierce desires reaching back to the promises made to Israel and forward to the Second Coming. The gathering was as new at the latest proselyte, as old as prophecy.

It was a still small voice and a mounting whirlwind, at once the product of a thousand personal decisions and of the Divine Will unfolding itself in history (Mulder, 1957:18).

Migration, then, was every much as religiously motivated as the values and behaviors related to marriage and the family. Mormonism, like many other nineteenth century separatist movements, proclaimed the millennium: the latter days were at hand, believers should gather together in "the chosen places" to prepare the Kingdom and for eternity.

In the 1840s and 1850s the Saints gathered, by the thousands, in the Great Salt Lake Basin. They moved collectively under the direction of Brigham Young from Illinois, the PEF transported families across oceans and continents, filling usable land with American and foreign-born Saints. As Utah filled and its resources were strained, the Church relaxed organizational efforts to bring all the Saints to Zion. It increased emphasis on individual missions. In-migration diminished to a trickle at about the same time as Mormon-Gentile conflicts reached their nadir. With the decline of church sponsored migration, economic and kinship motivations to move came into play.

The gathering of the Saints was an acting out of the process of divinely ordained, revealed, plans: life existed on earth and in the hereafter, the physical Kingdom a place of elementary preparation. Death was regarded as but one step among many in an eternal process. "To become like God required an eternity, an endless unfolding of re-generated powers by study, faith, experience, and the intelligence which was the glory of God" (Mulder, 1957:19).

Birth, migration and death were truly dynamic forces for the

nineteenth century Mormons: new souls were to be brought into the world, all of the Saints gathered together in the prepared place to become more God-like, and to pass through the various stages of Godhood. Each vital process was interpreted in terms of the millennialism inherent to Mormon theology. Outside of ecclesiastical considerations, the Mormons exhibited changing population characteristics similar to those occurring elsewhere. In society after society in the Western world declining mortality, falling fertility rates and economic or technologically governed migration appeared.

This study draws upon the social history and reconstituted demographic data of an isolated, rural Mormon population in Utah to show the kinds of change occurring in a local population. On the basis of a single community, it would be impossible to generalize to the entire group or State of Utah. From the study the image of the hallmarks of Mormon life, at least in objective population characteristics, is affected. For example, large family size is assumed by Mormons and non-Mormons alike to be a significant symbol of differentiation. Nineteenth century Mormons were assumed to have extremely large families. Do the data on community populations, not records of the devout, those who led exemplary lives, or decennial census data bear out the assumption? Do fertility, migration and mortality patterns indicate convergence of population characteristics of both in and out groups?

Group values and ideas emerge in the history of a collectively-based group as plans are played out. They are not so readily apparent in regard to individuals or families. This study will focus upon aggregated demographic statistics and local history to assess changing

patterns in the three primary demographic variables. The transition model is applied to explain if changes were consonant with those which took place among Mormons in general and within rural American Society. Later studies, using additional data sources, will make the ties between individual and aggregate events.

The Demographic Transition

The shifts that occurred in the social, economic and political spheres of life in Manti were accompanied by changes in population processes. Themes weaving from the frontier to the modern period are the erosion of provincial dependency, ascending development and the intrusion of national industrialization and modernization. The demographic transition model of population growth can be applied to describe change in Manti.

At no point in community history did Manti attain the characteristics of an urban area, using a strictly statistical definition or one emphasizing occupational mix. Manti always has been rural, although significant shifts in population processes occurred. Such shifts indicated that the town population was subject to modernizing forces beyond local control.

Demographic transition theory, on a grand scale, describes societal-wide population changes from high birth and death rates to low birth and death rates (the literature on the demographic transition is large, extending back to 1919; for example, see Thompson, 1929; Notestein, 1945; Blacker, 1947; van Nort, 1955; Petersen, 1960; Abu-Lughod, 1964; Carlsson, 1966; Zarate, 1967; Kammeyer, 1970; Satin,

1969; Weinstein, 1976; Caldwell, 1976, 1978). The demographic transition is a complex set of social, economic, cultural, social psychological, political and demographic factors that produce changes in populations.

Although the demographic transition theory is over forty years old, little substantive change in it has occurred in the last thirty years. Fertility and mortality transitions were most evident to observers of demographic trends. In 1945 Frank W. Notestein noted that social forces contributed to high fertility rates. For example, "Religious doctrines, moral codes, laws, education, community custom, marriage habits, and family organization . . . all focused towards maintaining high fertility" (Notestein, 1945:39). As mortality declined in most Western societies as a result of concerted eradication of infectious diseases, the "props" of, for example, religious doctrines supporting high fertility performance, were not required or could be altered (Caldwell, 1976). That is, while mortality declined, fertility continued at high rates, increasing population growth rates. Only as fertility came under control could growth rates stabilize. Such a pattern of change in fertility and mortality was common for European populations.

The European, or Western, model of the demographic transition is linked inextricably with urbanization and industrialization: low fertility is omnipresent in urban society (for a contrasting situation in the Third World, see Abu-Lughod, 1964). Although little, if any, attention has been given to it, the demographic transition also affected non-urbanized agricultural populations. This study will apply the demographic transition model to population change to a community

which never became urban or heavily industrialized. Features of social change in Manti were akin to those listed by Rogers and Burdge of those in other rural American societies:

1. An increase in farm productivity per man is accompanied by a decline in the number of farm people in the U.S.
2. Linkage of the farm with the nonfarm sector of U.S. society is increasing.
3. Farm production is becoming more specialized.
4. Rural-urban differences in values are decreasing as the U.S. moves toward becoming a mass society.
5. Rural people are increasingly cosmopolite in their social relationships, due to improved mass media communication and transportation, and realignment of locality groups.
6. There is a trend toward centralization of decision-making in rural institutions.
7. Changes in rural social organization include a decline in the relative importance of primary relationships (such as in special-interest, formal organizations, government agencies, and business firms) (Rogers and Burdge, 1972:4).

The demographic data available on the Manti population offer a unique opportunity to apply the demographic transition model to a rural, relatively isolated United States frontier community from settlement to modern times. Descriptive information about it also is available by adding the social and historical contexts necessary to interpret the formal, statistical data and compare local changes with those elsewhere. The demographic transition is a series of multiple events happening simultaneously and continuously. Findings are compared to the European demographic transition and to general changes shown in United States rural society.

Corollaries of the demographic transition in the history of Manti appear in changes in economic development, transportation, communication, education, public health, government and church relations. While changes

occurred in these areas, change also took place in population processes.

Economic Development

Manti always has had an agricultural economy and many features of it changed slowly. The old ways of doing things existed as innovations in farming diffused. Tools, long used for example, were not always replaced quickly when more efficient ones were available and affordable. The economy changed from family-based subsistence farming in the Frontier Period (1849-1889), to diversified cooperative efforts in the Transition Period (1890-1929), to the beginning of non-familial agribusiness in the Modern Period (1930-1948). The thrust of change yielded increased productivity and decreased need for manual laborers. As time passed a need for a large labor force diminished.

The Frontier Economy

In the Frontier Period, initial efforts were directed to eking out a living. The primary modes of production throughout the period were familial and communal farming. Each family worked specific plots of land outside Manti. Families also had small gardens adjacent to their homes in town. The residents made arid land productive (despite the incredulity of some) and created a solid agricultural base to the local economy. They entered cooperative ventures with little complaint, but rejected experiments in religious communism.

Large families were not uncommon and were an asset in farm production, whether for family farming or in the communally held fields. Powerful Church leaders, locally and in Salt Lake City, advocated large

families. Theological and practical terms dictated addition of new members to Zion.

Production was labor intensive and inefficient. Many hands were required to perform necessary agricultural tasks. Children and migrants were necessary to increase the size of the labor force. Workers were to busy themselves, living out the motifs encapsuled in the Mormon analogies of the industry of the bees and the workers in the vineyard.

In the early years economic decision-making for Manti and all of Deseret was exercised by the General Authorities of the Latter Day Saints (LDS) Church in Salt Lake City. Control of decision-making was located outside of local rural institutions. As outposts like Manti fit into Church plans for the creation of the Kingdom of God on earth, their agricultural bounty was shared. Consequently, surplus products were shipped out to urban residents of Utah and to farmers experiencing famine and crop destruction. Local bishops coordinated distribution of surplus crops.

As the frontier era passed and the Church bureaucratized, decision-making took on a local character. Formal communal efforts, e.g., the United Order of Enoch, were tried but failed. Less formal cooperative ventures in production, marketing, and purchasing met with more success and acceptance by the Manti population.

Elementary capitalism and individual marketing, by the end of the frontier period, eroded the pervasive influence of the Church-run economy. The ethic of cooperative farming was not replaced completely and it aided in ameliorating the effects of downward economic cycles.

Migration, the gathering of Saints in Utah and their dispersal to outposts, was organized by the Church and it affected the economy of Deseret. A work force was recruited and distributed throughout the Mormon Zion. Skilled workers were in high demand, as were those with farming abilities. The cooperative experience of Scandinavian immigrants precluded the easy demise of coordinated agricultural production in Manti.

The Transitional Economy

The economy in the transition period diversified beyond production of agricultural goods for specialized markets. Productivity rose with technological changes. The arrival of the railroad altered the relationship Manti had with the rest of the Utah economy. Grain, poultry, vegetables and livestock production were administered cooperatively to take advantage of state, regional, national and international markets.

Rational local decision-making replaced the cohesive planning of the economy by the Church. Individual farmers, for example sheep breeders, made decisions that molded the local economy. Some decisions were removed from both Church and local control as national corporate policy was set outside of Utah.

Crops did so well that subsistence farming was replaced completely. The local economy was tied to that of the nation in the transition period, replete with economic booms and busts. Individual and corporate indebtedness replaced mortgage-free and cooperative farming. As a result, local decision-making infringed further on the

power of the Church bureaucracy (which was in debt remaining from organized immigration and legal battles associated with polygamy). With the coming of the railroad and statehood the locus of economic control shifted to the national level.

Theology and fears of "race suicide" dictated high fertility performance during the transition period. The very real fear of extinction, based on the long history of Mormon persecution, did not diminish as time passed. The Church advocated large families and emphasized completion of genealogies. Although the transcendent family was evaluated positively from all theological aspects, as a practical and efficient economic unit the family declined in importance.

Statehood signaled the arrival of a secular sphere in the Utah economy. Forces came to play in local and state economies which the Church could not manage and of which it became part. As arable land filled, the LDS Church took on an increasingly conservative position in accepting foreign immigrants. In-migration diminished by the turn of the century and Church-sponsored missions in Scandinavia no longer encouraged converts to move to Zion. Pressure was placed at the local level in distribution of productive farm land as sons and daughters of the second and third generations entered the labor market. Locally, young people found little opportunity for upward economic mobility. By the close of the transition period out-migration became an alternative to underemployment.

With local indebtedness and unpredictable agricultural markets, Sanpete County farmers took second jobs such as teaching, blacksmithing or shop-owning. According to Smith (1972), the number of

farms in production declined by the end of the 1920s. Only co-operatively owned sheep raising saved the county economy from the worst effects of post-World War I downturns. Individual decision-making took on increased importance as members of the LDS Church were caught between economic demands and necessities and maintenance of good-standing (tithing, progression through the priesthood) in their religion.

The Modern Economy

During the modern period agriculture showed advances in mechanization and increased productivity that in turn diminished the need for manual labor. There were fewer, but larger, farms, following national trends (Smith, 1972). As an efficient source of labor large families no longer were of primary necessity. Although the Church continued to evaluate bearing children positively, and even stepped up efforts to encourage the membership to bring more souls into the world, economic constraints in small communities like Manti mitigated against extremely large families. Crop production was planned for the market-place rather than family and church consumption.

Young people, wanting to marry or in search of education or jobs, found few real opportunities locally in agriculture, light industry, or the WPA projects of the Depression years. The family and Church, affected by the creation of income support systems for the needy and elderly that were administered by government agencies, yielded to change.

Transportation

As for transportation, the period under study showed a change from high desert isolation to interconnectedness with the metropolitan and urban areas of Utah. Over time it was easier to deliver goods into and out of the community and for people to enter and leave. Migration, as one of the primary demographic variables, went from a condition of an inward, heavy flow in the colonization years, to diminishing levels of in-migration in the transition period, and a condition of instability in the modern era as members of the population moved in and out. Ease, efficiency and interconnectedness all were influenced by the technological changes in transportation.

Transportation in the Frontier Period

In the frontier period the major modes of transportation were inefficient. (Stories of Saints walking from Missouri to Utah, then internally from Salt Lake City to Sanpete County abound.) Impediments to travel were the natural geographic barriers of rivers, streams, arroyos and mountains. Hostile Utes and bad weather hindered safe and easy passage. Movement on foot or by wagon limited distances that could be covered to a minimum. Despite these severe difficulties, hundreds of people moved into Manti in the frontier period and thousands into Sanpete County under the auspices of the Church. In the early years the rigors associated with movement across the land affected mortality in that the less hearty, the elderly and the ill were subjected to the risks of disease and death. Illnesses in the form of airborne and waterborne infectious diseases (e.g., malaria and cholera)

passed easily among travelers hard put to move a few miles per day.

Migration was restricted by raging rivers in spring time, heavy snows and cold weather in winter, and heat and virulent outbreaks of infectious diseases in summer months. During the frontier period, transportation became safer and the deleterious effects on life and health diminished. Rural farmers, however, remained on their farms with limited ability to move. Social relationships were primary, centered on home and church.

In 1874 mechanical transportation, a local railroad, appeared in Sanpete County. Rails were not extended widely in the valley and use was limited. Despite the addition of the first rail line, travel in the frontier period remained strenuous, dangerous, expensive and time-consuming. For all of the frontier period Manti was remote simply because of the difficulties associated with getting there.

Transportation in the Transition Period

During the transition period the transportation system affecting Manti changed dramatically. National railroad companies speculated on the exploitation of local natural resources and agricultural production. Trails were developed and improved. Indian hostilities ceased, rivers and streams were spanned by bridges. Each change contributed to safer and faster travel, while reducing remoteness. Social relationships no longer were restricted to those in the immediate proximity. Opportunities for secondary relationships increased. Improvements in the transportation system allowed agricultural and mineral markets to be tied closer together, economies integrated.

People moved more rapidly north and south on the Denver and Rio Grande Railroad (which began operating in 1891) than by the inefficient transportation modes of the frontier period. Interconnections with east-west carriers were made at Salt Lake City. Access to the outside world in the early years of the transition period, with its competing values and ideas, was no longer prohibitively difficult. The religiously closed Mormon society experienced unwelcome contacts with outsiders. Intrusions by Federal troops and installations sent to enforce anti-polygamy laws, development of the railroad, and exploitation of natural resources attracted more and more "Gentiles" with differing ideologies, values, customs and habits into Utah. Also, the economic dislocations associated with the need for industrialization and manufacturing in the urban areas of Provo and Salt Lake City touched agricultural areas like Manti, which contributed their youth to the urban labor force. Young men and women left, using the railroad and, in the later years of the transition period, automobiles. The Model T Ford, as family vehicle and farm implement, broke free the Mormon farmer from slow movement over the high desert landscape.

Transportation in the Modern Period

In the modern period automobiles, buses and airplanes diminished further the isolation of Manti and Sanpete County from the urban centers of the state and national influences. In Utah urban areas have lower fertility than areas that are rural in character (DeHart, 1941). Migration out of town was accomplished more easily. Mortalities while traveling, due to automobile accidents, increased.

A round-trip to and from Salt Lake City by car or truck took a few hours compared to nearly two weeks by wagon in the frontier period. Air travel placed Manti just a few hours away from large cities in several states. Route 89 was paved and improved, connecting villages and farms. As Rogers and Burdge note, "The road-building efforts to get the farmer 'out of the mud' . . . had the unanticipated consequence of getting him and his children out of agriculture" (Rogers and Burdge, 1972:9).

Travel in the modern period was inexpensive and efficient. Mortality and morbidity connected with travel reappeared as automobile accidents produced death and injury, perhaps with as much impact as that in the frontier period.

To summarize, improvements in transportation in the 100 years of community history examined revealed adoption of technological innovation reducing remoteness and contributing to interconnectedness. Unlike other communitarian groups that had their beginnings in nineteenth century America, the Mormons did not shun technological improvements such as mechanization. People moved in and out of the community with relative ease by modern times. Social relationships, restricted by difficulties in transportation in the frontier period, expanded outside the local community by the modern period.

Communication

As with transportation, changes in communication contributed to increasing interconnectedness with the outside world as the community passed through the three historical periods. New ideas challenged

traditional Mormon beliefs, news of events happening in the Church was spread with increased ease, and people contacted one another with few problems associated with movement over the landscape.

Communication in the Frontier Period

In the frontier period communication with the world outside Manti was limited by the speed of transportation. Letters, newspapers and all other forms of written communication were constrained by the length of time wagons, riders and those who walked to and from Utah took to arrive at a destination. News of events was disseminated slowly. For example, the Deseret News, the official organ of the LDS Church, reported on the "call" for Sanpete County settlers a full six months after the pioneers encamped in Manti. Letters to the East Coast and Europe took months to arrive, if they reached their destinations at all. Following the example of Joseph Smith, many of the colonists kept diaries and journals to document events for those who would come later.

Communication in the Transition Period

After the frontier period, newspapers and gazettes proliferated in Manti. Publications were available in English and the various languages of the immigrants (the foreign language press developed late in Utah compared to other parts of the country). Railroads brought news and reporters and, most importantly, people with new ideas. Telegraph lines were strung and rapid communication between points was possible. Late in the transition period the telephone appeared, offering further efficiency in communication and access to the outside

world. Remoteness and distance were reduced and integration with Utah and the rest of the country was underscored.

Communication in the Modern Period

The modern period brought more changes in communication to Manti residents. Electronic (i.e., the telephone) communication was available to those who could afford it. The communication system was centralized, with increased efficiency and timeliness. The Deseret News and Salt Lake City Tribune, published in the state capitol, were available daily. Newspapers reported on events in the state, nation and world. Weekly newspapers, such as the Manti Messenger, reported on local events. The radio, with instantaneous communication capabilities, came to the Valley. One radio station was constructed in Manti. As a result, knowledge and ideas were spread quickly through the various rapid communication means.

Coupled with transportation changes, the alterations in communication taking place in Manti reduced rural remoteness. Technological advancements, as they were adopted and became part of daily life, allowed Manti residents to interact with others and in social institutions outside of the immediate community. The means of communication diversified over the three periods of history and the speed of communication increased. The means changed from decentralized oral modes to centralized, diverse modes including written and oral types dependent on electronics.

Education

Changes in the system of education in Manti contributed to increasing literacy, which is associated with both lowered fertility and lowered mortality. Ronald Freedman (1964) showed that a rise in education is a significant source of fertility decline as women consequently examine and change their roles and values. In Manti, females were educated as well as males. They were prepared, through education, for participation in agricultural and non-agricultural roles. Ability to communicate in English on the part of the foreign-born members of the population in Sanpete County and Manti was deemed vital by the Church. In the twentieth century the grandsons and granddaughters of the immigrants benefited from a comprehensive, complex system of education begun by the pioneers.

Education in the Frontier Period

During the frontier period education was at first crude due to the immediate necessities of colonization, shelter, food provision and relief from Indian hostilities. Formal organization of education took place in 1852-1853 with the creation of the local school board. Mission schools and LDS sponsored private schools were founded in the frontier period and the public school system developed. As is evident in the debate over use of mission (Presbyterian) schools by Mormons, the leadership of the Church, both locally and in Salt Lake City, was aware of the influences of competing value schemes which came with education and its differential uses.

The LDS Church was placed in a paradoxical position. Education was required for the newly converted European-born Saints to learn English, to become able to participate fully in the Church, and to act as true Americans. Education also threatened the Mormon value system with the introduction of new ideas and consequent re-examination of values and roles. With the mission schools, competing religious ideas became evident. It was a competition which threatened traditionally held family and religious values.

Education in the Transition Period

In the transition period the educational system in Manti and Sanpete County was developed fully. Children were involved in increasingly longer periods of compulsory schooling. Fewer children were needed in the agricultural work force as farming modernized and became mechanized. Alfalfa rakes and bailers replaced muscles and pitchforks, freeing children from the fields. Children were sent to school to learn new skills which would serve them better than working as manual laborers on the farms.

Public education prospered along with the private missionary and LDS schools. Every child was allowed at least an elementary school education locally, and many had access to secondary education, including high school and college. LDS missionaries were sent to the county to staff the local schools, contributing their knowledge and values to pupils, reinforcing those of the church. With education, however, traditional values, no matter how well presented, cannot be isolated from the influences of the outside world. Continued changes

in transportation, communication and education produced an environment containing competing ideas and values available to students in Manti.

Education in the Modern Period

The modern period is characterized by further improvements in education. Students were assured a high school education and many had access to two-year programs at nearby Snow College in Ephraim. The school system that was created, from elementary levels through college, stressed the liberal arts while providing specialized courses in agricultural studies. Many of the private schools were absorbed into the state system as they grew. The farmers, needing much specialized information to compete in national and international markets, sent their children to colleges in the state-supported system or to the LDS-sponsored Brigham Young University.

Public Health

From the work of Catherine Levison it is apparent that the population in Manti underwent an "epidemiologic transition" (Levison, 1979, 1981). The obvious transition in patterns of disease and death paralleled that of the United States, although at a somewhat slower pace. The transition in mortality experienced in the United States and Manti conformed to the classical Western model explained by Omran (1974, 1977).

Common to all . . . is a clear shift in the kinds of diseases and causes of death that are prevalent at a fixed point in time. The Old World epidemics are progressively (but not completely) replaced by degenerative diseases, diseases due to stress and man-made diseases. Thus typhoid, tuberculosis, cholera, diphtheria, plague, and the like decline as the

leading causes of death, to be replaced by heart disease, cancer, stroke, diabetes, gastric ulcer, together with increased mental illness, accidents, diseases due to industrial exposure, and new diseases which can be traced to a deteriorating environment (Omran, 1977:3).

In the Western world there were three successive stages in mortality, a fundamental factor in population dynamics over time. First, an age of pestilence (infection) and famine in which mortality was high and variable. Second, an age of receding pandemics when there was a progressive decline in mortality and the infectious diseases causing high mortality rates. Third, an age of degenerative and man-made diseases in which mortality declined further and achieved low and stable rates. The "triggers" inducing change in the Western pattern of death were fourfold: (1) social change; (2) improved hygiene in the family; (3) increased personal cleanliness; and (4) improved nutrition (Omran, 1977:4).

In the classic form, the effects of the epidemiologic transition are experienced first by women and children as they are susceptible to life-threatening infectious diseases associated with childbirth. As the transition proceeds, average life expectancy rises from between 20 and 40 years to over 50 years. Sex and age differences, consequently, impinge on demographic and social patterns. First, there is upward movement in the average age of death as eradication of infectious diseases affecting infants and children proceeds and as the degenerative diseases tend to kill at older ages; second, an aging population is produced as children survive to older ages or adulthood before dying; third, as females survive to ages older than males, eventually the sex composition of the population changes; fourth, population growth rates change as the

effects of mortality are reduced in successive stages of the transition; fifth, as mortality and morbidity rates fall, economic productivity rises, new social forms appear (e.g., "grandparents") and the social and economic functions of the family change; sixth, with mortality decline, evaluation and religiously-based rationales advocating high fertility performance are eliminated or modified; seventh, new problems such as mental illness, alcoholism and substance abuse become prominent, social and group cohesion decrease, and social institutions such as those charged with the care of the elderly are strained (Omran, 1977:7).

The Epidemiologic Transition in the United States

The United States went through a variety of the Western, or classical, model of the epidemiologic transition (Omran also offers the "delayed" and "accelerated" models to deal with Third World and non-Western societies; Omran, 1977).

The age of pestilence and famine in the United States lasted from settlement to well into the nineteenth century. Cholera, typhus, tuberculosis, diphtheria and influenza killed thousands of people in periodic outbreaks. Populations of crowded cities of the northeast were particularly susceptible, although the people of the countryside were affected also.

The age of receding pandemics in the United States reveals a gradual process of fighting against infectious diseases and epidemics over the years 1850 to about 1920. The slow application of public health measures, i.e., changes in sanitation, diffusion of medical

knowledge and innovations, theoretical advances, environmental improvement at home and work, immunization programs and organization of health-care all contributed to the control of infectious diseases. As a result, national mortality and morbidity rates were reduced.

The history of public health measures taken in the second stage of the epidemiologic transition in the United States shows practical application of medical knowledge. The United States benefited from the slow process of change in public health measures begun by Farr in England in 1840. Medical advances by Henle, Lister, Koch, Pasteur and the Curies were adopted slowly as debate raged about germ theory and contagion. Competing explanations of diseases and spread of disease vied for acceptability. According to Susser:

Early in the nineteenth century, medicine and the public health movement were dominated by the miasma theory of Sydenham and others, that foul emanations from impure soil and water cause disease. Then the line of investigation was to prove the ill effects of miasma; the line of prevention was to eliminate the sources of miasma in slums and poor sanitation (Susser, 1972:12).

The age of degenerative and man-made diseases in the United States began about 1920 and continues to the present. The chronic generative diseases such as heart disease and cancer, and man-made environmental hazards (e.g., accidents and exposure to radiation), replaced the infectious diseases as primary causes of death and morbidity as they gave way to modern antibiotics and technological improvements.

The pattern of changes in mortality experienced by the Manti population conforms to that of the United States. The following discussion of mortality is based on Catherine H. Levison, Donald W. Hastings, and Jerry N. Harrison, "The Epidemiologic Transition

in a Frontier Town--Manti, Utah: 1849-1977," which appeared in the American Journal of Physical Anthropology (1981:83-93).

Public Health and Mortality in Manti

Living conditions during the early years of the frontier period in Manti were crude and dangerous to individual and community health. Knowledge of public health and medicine were limited and the population of the community was fortunate that uncontained famine and pestilence were less virulent than in other parts of Utah. There are no verified records of grasshopper plagues, for example, and smallpox did not appear as a cause of death in local burial records. The population was fortunate, also, in that social change occurred rapidly, that a physician moved into town who addressed the issue of public health, including community resources and personal hygiene, and that a migrant population, the Danes, brought with them knowledge of a well-rounded diet and good nutrition.

A doctor moved to Manti relatively early for frontier days (1860). Folk medicines and measures were ineffective eradicators of disease, although people used them. They also turned for help to seers, mystics and quacks. In the community-building phase of history, water sources were found and open irrigation ditches dug leading into town. Airborne and waterborne infectious diseases produced significant numbers of deaths. As water supplies were separated into culinary and agricultural sectors, and the efforts of Dr. Kenner to clean up the water supply took effect, the impact of infectious diseases diminished.

Several factors contributed to the movement from the first to

the second step of the epidemiologic transition. These included:

(1) improvement in water sources and sanitation; (2) in-migration of trained medical personnel with knowledge of public health; (3) application of new medical and public health measures as they became available; (4) nutritional improvement with the introduction of the "Danish Dumpling"; (5) absence of severe famine and pestilence; and (6) "heartiness," i.e., settlers prepared for pioneering were selected from a pool which had already withstood hardships in migration to Utah.

In the transition period water sources were cleaned up, sanitation measures enforced, and the use of folk medicines declined as more medical personnel moved into the community. Physicians, some of whom were educated in England (where public health measures were taken up seriously earlier than in the United States), moved into Manti. The public water system was broadened during the period and efforts taken to secure safer sources of supply. New approaches to combat spread of disease were adopted and public health knowledge improved. Death due to the major infectious diseases began to give way to degenerative and man-made causes.

As Manti entered the modern period the revolution in public health and medicine linked to the widespread adoption of good practices in water sources and sanitation, use of pasteurization, antibiotics and effective medicine was only beginning. Water supplies were made safe and secure from sources of infectious diseases. Piping replaced open trenches as the means to get culinary water to homes. Professional medical services were available in towns scattered about the valley. Hospitals, which were scarce in the frontier period, were located in

Mount Pleasant, Gunnison and Richfield. The institutions became the sites of medical treatment. Births and care of illness took place in antiseptic, professionally staffed environments rather than in homes. Doctors and nurses replaced midwives and relatives (or friends and neighbors) as attendants at birth and death. Diseases associated with the aging process predominated over the infectious diseases of the past as major causes of death.

Changes in the epidemiologic transition affected the demographic and social patterns of life in Manti. Some of these changes include:

1. Age at death. Data for the full frontier period are limited due to underreporting and the few deaths that occurred in a relatively small population. From 1870, however, life expectancies rose into the fifties and mid-sixties.

2. Age-sex differences. Local age-sex patterns of death conformed to the pattern observed for the United States. From 1850 to 1910, male and female differences in age-specific mortality were maximal at birth, declined between ages 5 and 35, increased at about age 49, and decreased at older ages. Females generally had lower mortality rates during those sixty years. Beginning in 1910, differences in age-specific mortality by sex narrowed from birth to age 4, remained stable from age 5 to 49, and widened after age 50 (Retherford, 1975).

3. Death of children. During the history of Manti the pattern of dying during the first year of life changed.

Infant death, as a percentage of all deaths, declined from 20.9% in the frontier period to 18.4% in the transition

period. Infant death occurring in the first month rose in each successive period, 52.4%, 61.2%, and 86.0% respectively, while infant deaths in the first month declined in each period, 47.6%, 38.8%, and 14.0% respectively. The rise in neonatal deaths and the fall in the infant deaths in months 2 through 12 suggest indirectly that exogenous causes of dying declined, while endogeneous causes increased (Levison et al., 1981:89).

Implications of Public Health and Mortality in Manti

If mortality is viewed as a driving force of population dynamics in Manti, there are several implications of changes in the pattern of dying and disease. First, with increasing numbers of children surviving the first year of life, an aging population was produced over time. Second, as females tended to live longer lives than males born during the same time period, sex composition of the population changed as infectious diseases were eliminated as major causes of death. Third, more people surviving into adulthood produced requirements for more jobs and expansion of social institutions. Fourth, social relationships and institutions, under the pressure of growth, changed. Fifth, social and economic rationales for high birth rates came into question. With the need for intensive labor in a low productivity agrarian economy with high death rates, large families can be an economic hardship. If the economic rationale for having large numbers of children is not viable, family structure can be affected (extended to nuclear, large to small), values brought into question. Sixth, a whole new set of social problems attendant to modern life appeared. Social and group solidarity were threatened, traditional ways of thinking and living examined, and authority structures of the past challenged.

Much of what we know about mortality in the United States prior

to 1900 is still tentative. In later studies, patterns of mortality and the progress of the epidemiologic transition as they occurred in other localities or regions of the country can be compared to Manti to assess if the timing of trends was different, if the presence or absence of certain conditions helped or hindered the transition, and if the epidemiologic transition as it occurred in rural areas of the United States was similar to that experienced by countries or other regions of the world undergoing "accelerated" or "delayed" epidemiologic transition.

The Demographic Transition in Manti, Utah

Patterns of fertility, mortality and migration took place in Manti. Coeval with the epidemiologic transition in mortality in most countries, and as part of the demographic transition in the West, a transition from high, unregulated fertility to low, regulated and stable fertility occurred. This study evaluates whether a transition in fertility happened in Manti, the timing of the stages of the transition, and the social and historical contexts underlying demographic events. In addition to fertility and mortality, migration, both into and out of the community, is assessed within the framework of the major time periods of community history. It is assumed that fertility, mortality, and migration are instrumental and elementary forces in population dynamics.

Chapter II, "Community History," is presented to discover if population change is linked with social change in facets of major social institutions in Manti. Population characteristics and changes

in the primary demographic variables are linked with the three time frames. The location of the settlement in the Intermountain West is discussed in reference to Mormon colonization patterns, including the "Mormon Village" and the creation of a religiously closed, geographically isolated society.

Social influences wrought change in economics, transportation, communication, education, public health, values and relationship between sacred and secular components of Utah society. Manti, as a Mormon community created by design, passed from a condition of isolated dependence on the LDS Church in the early years to complex interdependence with American society by the close of the modern period. Manti developed and modernized.

Data presented are derived from an exhaustive family reconstitution of the population performed from July, 1977 through December, 1980. Family reconstitution is the historical, demographic technique of nominative linkage of individuals, grouping them into families, and recording vital events, e.g., birth date. Material from family reconstitution forms (FRFs) is presented to show the demographic processes over time. As Manti was selected for study partly on the basis of the data collection and linkage technique, issues relating to ultimate selection of the community and population for study are discussed in Chapter III, "Data Sources and Methodology."

It is rare for an American population, especially one located in the West, to maintain records of high genealogical quality. The reasons there are records on the Manti population are discussed. Primary among them is the unique character of the population: it was almost

exclusively Mormon during the time period studied. Theological bases for Mormons keeping records and the extent of record coverage are reviewed. The method of family reconstitution using available records and the mechanics of performing a reconstitution are discussed. The quality of the reconstitution is assessed. Family reconstitution studies often cover 10 percent, or less, of actual populations. Thus complete coverage of demographic variables usually is lacking. Explanation of wider coverage for the Manti population is offered.

Chapter IV, "Findings," presents actual data from the family reconstitution study. The data are descriptive, used in preparation for extensive examination and manipulation. The outline of population change in Manti over the 100 year period 1849 through 1948 is structured. Neither demographic statistics collected through the techniques of historical demography nor the social history used to describe them are independent of one another. For example, the social revolution in family structure in the United States is apparent in the formal presentation of decennial censuses and in numerous local studies. The social implications of declining family size, however, are absent in merely leafing through volumes of tables, charts, and graphs. In historical demography quantitative data must be accompanied by thorough interpretation taking into account appropriate demographic, historical and sociological frameworks.

In this study, traditional questions in historical demography are addressed. Chapter IV is a straightforward description of what was found in the reconstitution exercise. Fertility data are keyed to women who were once-married. Migration is reviewed as church record

clerks noted data of in-migration or "removal" from the population. Mortality data were present in both civil and church records.

Fertility

Patterns in fertility are discussed to assess whether there were changes in the birth process among once-married women of Manti, the timing of changes in comparison to the United States and Utah, and in connection with the demographic transition model. Variables examined include household size, children born, age at first marriage, polygamy, duration of first marriage, and birth intervals. Each is reviewed by time period. The examination of fertility revealed unregulated fertility among those women giving birth in the frontier period. After the frontier was closed there was a fertility transition resulting in decline. The sources of the decline are discussed. In the modern period, although the once-married women had not completed their full reproductive years, fertility followed national and Mormon trends of smaller family size and widening birth intervals. Age at first marriage, not predicted by the demographic transition model, fell. The question of natural versus regulated fertility is explored through birth interval data.

Mortality

As the mortality transition in Manti was outlined in previous publications, it is discussed only briefly in regard to changing patterns of cause-of-death. The linkage between fertility and mortality is made in reference to infant deaths. Mortality, migration and

fertility are linked in a discussion of the creation of a population which, by the end of observation, attained a plateau in change.

Migration

Beginning with the flight from Missouri and extended by the PEF, the Mormons of the nineteenth century created a unique form of internal and international migration, that was organized by and under the auspices of the Church. Thousands of native and foreign-born Saints were transported over thousands of miles to gather together and build the new Zion in Utah. Whole families (and in some instances nearly whole towns from Scandinavia) migrated in organized companies. Unlike much nineteenth century American migration, that planned and executed by the Mormons was coherent. It was not aimless, wandering, transiency. In the frontier period nearly everyone and every family moved from one place to another. Families in every phase of the life cycle populated new towns, giving new communities complex age-sex structures. In the transition and modern periods migration took on a new character, one less dependent on the designs of the leadership of the Mormon Church. Migration is discussed in terms of decade of arrival, seasonality, out-migration patterns, and general effects of migration on family size. Those families in which the female spouses were migratory are compared with those who were not.

Chapter V, "Conclusions," summarizes the findings, drawing on the demographic transition model of population change as a framework. Consistencies and exceptions found in the Manti reconstitution are discussed. The primary demographic variables and events influencing

them are reviewed, attention being paid to patterns developing over the 100 years examined.

CHAPTER II

COMMUNITY HISTORY

Introduction

Community history provides social, economic and cultural perspective for demographic changes occurring during the three time periods: the Frontier Period (1849-1889), the Transition Period (1890-1929), and the Modern Period (1930-1948). The Frontier Period began with settlement and closed with the completion of the Manti Temple. The Transition Period began with the abandonment of polygamy by the LDS Church and the closing of the American frontier. The period closed as the local economy went into decline along with the world-wide Great Depression. The Modern Period began with infusion of technological changes locally despite a difficult economic environment. The period ended with the closing of LDS ward membership records. The three periods are discussed to illustrate some of the changes transpiring, to outline the forms of transition taking place and aid in interpreting demographic events.

Settlement and Colonization

To avoid persecution after the assassination of Joseph Smith in Carthage, Illinois (1844), the Mormon exodus from Nauvoo (1847) and trek toward the last American frontier began (Melbin, 1978). On arrival in the Great Salt Lake Basin (1847) territorial consolidation and

systematic colonization ensued under the charismatic leadership of Brigham Young. Manti was the first colony in southern Utah created by the Mormons. It was part of the overall Mormon strategy to gain control over habitable areas in their intermountain kingdom (Figure 1).

Settlers coming from the Midwest arrived in Utah in companies of various sizes. On arrival the leaders of the Saints were confronted with the problem of distributing members where persons were needed. Exploration parties earlier had been sent out to identify likely sites of settlement throughout Utah. The Saints, while awaiting orders for settlement in Deseret, were organized into groups of tens and fifties for relocation. A group leader was appointed by the Church Authorities and was responsible for the group in transit and community-building.

A group of explorers led by Parley Pratt identified south central Utah as a potential site to develop. In 1849 a "call" was issued by Brigham Young to produce "volunteer" settlers for the southern colony. Led by Bishop Isaac Morley, the would-be colonizers set out from Salt Lake City in the autumn of 1849. Traveling by horse and ox-cart and on foot the pioneers carried their belongings in order to make a community where there was nothing but arid isolation.

Selection of a specific site was fortuitous when the group encamped on a hillside in November, 1849. Then they literally dug in and carved out an existence on the cruel Utah frontier. Although local timber was scarce (available only in the mountains some miles distant to the east), as quickly as possible log cabins were erected. After the first winter some settlers used existing rock formations, mainly oolite limestone, to construct stone houses. Stone also was used

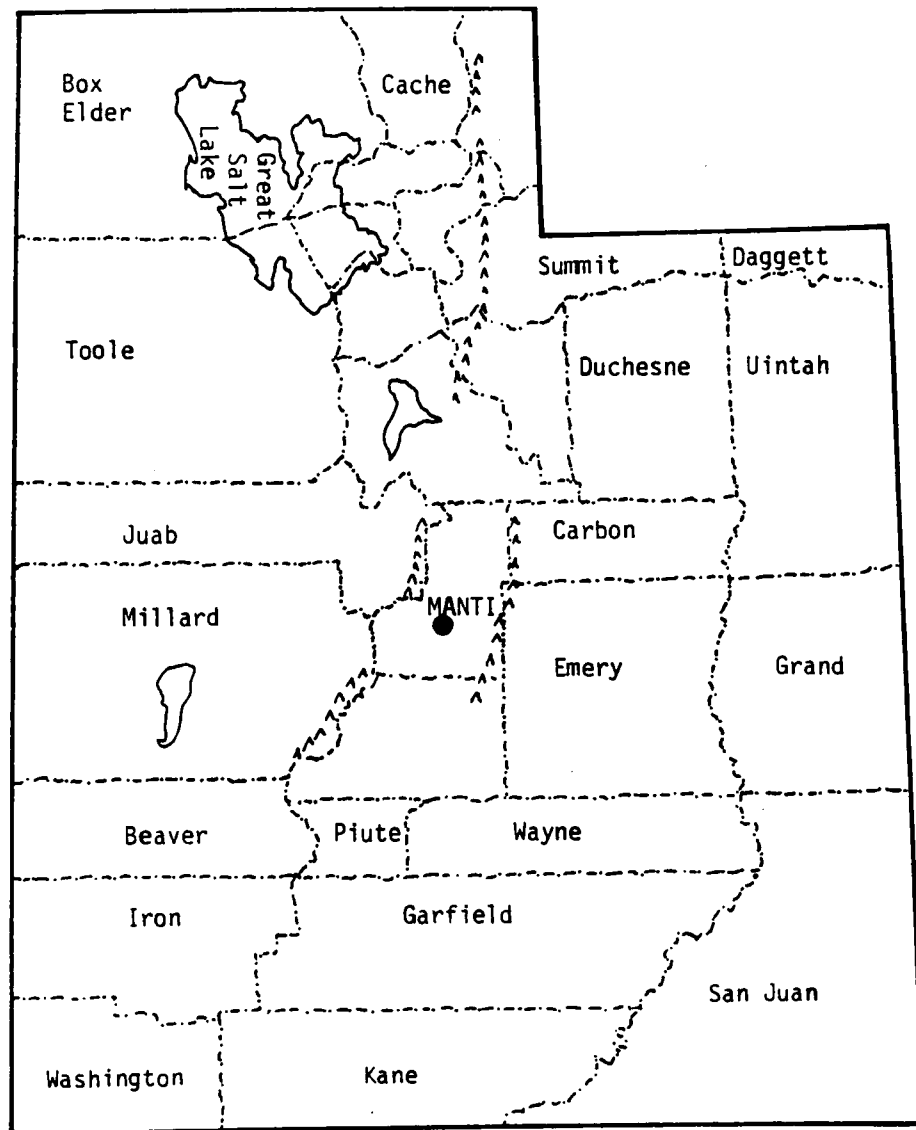


Figure 1. The Geographic Location of Manti, Utah

to construct walls around the settlement to protect it from attack.

The first group of settlers was a seasoned unit. Many had been through the Nauvoo experience, all had crossed the Great Plains, living off the land, and, of course, all had traveled the 120 miles south from Salt Lake City. For example, the Morley's, Cox's, and Smith's had roots in the Mormon movement in Vermont, New York, Ohio, Missouri and Illinois. They also experienced discrimination and persecution in the early days of the fledgling religion. Such families were ready for the trials, hopes and adventure of creating a town on a protrusion of the Wasatch Front. An auspicious beginning was made on November 20, 1849, the night the pioneers arrived in Manti, with the first birth in the new settlement, a girl, Alameda Washburn. The first boy, Cyremus Taylor, was born in March, 1850, to Cyremus Henry Taylor and Emily Smith.

Arriving with the first snowfall, the colonizers subsisted on the meager provisions which they brought with them and supplemented with a trip to Salt Lake City. Most members of the group had survival skills to overcome the hardships of the winter and forge the beginning of a viable community. Few of the pioneers followed the example of Seth Taft and fled as soon as trails became passable in the late spring of 1850. Local legends mock the flight of Taft despite his later success as a Bishop of the 9th Ward in Salt Lake City.

Bishop Morley exercised leadership in a most authoritarian style. Utah of the 1850s was a theocracy and Morley was the local representative responsible to the Church for the Sanpete settlement. Settlers were selected by the authorities in Salt Lake City after

Morley requested that a "call" be issued. The style of leadership, as many learned, left little room for dissent.

The earliest arrivals and those following in early 1850 were of Anglo-Saxon stock, primarily born in the United States. The initial families to arrive, twenty-seven in all, averaged 6.22 persons per family. There were also twenty-four single males without families, for a total of 192 persons. Most marriages were monogamous, only two of them were polygamous. Shortly after the first group reached Sanpete another fifty-two persons came from Salt Lake City. This contingent was composed of forty-nine males without families and one widow with two children. Thus, the total 1849-1850 settler population was 244 (counting the first birth).

Settlement Patterns: The Mormon Village

Manti was one of the many colonies established in the Southwest in order to consolidate Mormon territorial claims. Brigham Young foresaw settlements stretching in an arc through Utah, Arizona, Nevada and California. The corridor of forts was intended to link land bound Deseret with the West Coast at San Bernadino and San Diego, giving Zion access to the sea. Manti was a frontier outpost on the corridor in geographic isolation from the heaviest concentrations of settlements to the north.

The Mormon Corridor was designed to protect LDS hegemony in the area and insulate the Saints from potential attack by "Gentiles" (non-Mormons) and "Lamanites" (Native Americans). Larger settlements along the corridor, like Manti, were havens for pioneers in the event of

attack, as well as administrative and trading centers. Indian wars in the 1850s forced settlers scattered about the valley to seek refuge in the fort at Manti. Spring City, for example, was abandoned and re-settled as the "Indian deprivations" overwhelmed the settlers' capabilities to defend themselves.

Manti was a frontier outpost and a symbolic center representing the Mormon presence in south central Utah. State and church business were administered there. When county boundaries were drawn in 1849, stake divisions were identical to them. Thus the organization of the LDS Church was imposed on the county. Church organization also was reflected in the physical design of Manti proper, i.e., it was from the first a "Mormon Village."

Joseph Smith, in 1833, set forth the design of Zion to be constructed by the Saints on earth. Called the "Plat of the City of Zion," it was applied in fullest form in Nauvoo, Illinois, and in Orderville, Utah. Implementation of the plan took place in over 400 communities scattered from the Midwest to the far West Coast.

Lowry Nelson (1952) noted that the village form, and communitarian philosophy, as expressed in the Plat and later modified, eased the settlement process as it (1) provided security, (2) fostered cooperation between community members and church leaders, (3) ensured social interaction and maintenance of social institutions, and (4) made advantageous use of available land by separating residential and farming areas (Nelson, 1952:52-53).

Th[e] plan provided that all the people should live in the city, that the city should be a mile square; that the blocks should contain 10 acres cut into half-acre lots,

allowing 20 houses to the block; that the streets should be 8 rods wide and intersect each other at right angles and run north and south and east and west; that the middle tier of blocks should be 50 percent wider than the others . . . that stables and barns should be outside the city, that no lot should contain more than one house; that all houses should be set back 15 feet from the street, and some other specifications (Nelson, 1952:38).

Farmers were required to travel to fields on the perimeter of the city. In addition, "stakes" or satellite towns constructed after identical plans surrounded the core city. Such was the plan for Sanpete County, centering on Manti.

The City of Zion was to be built in recognition of the "approaching end" or the millenium. Therefore, there was a command for world-wide duplication of the plat, i.e., "when this square is thus laid off and supplied, lay off another in the same way and fill up the world in these last days, and let every man live in the city for this is the City of Zion" (Young, n.d.:3). The plan was the basis for a network of "Stakes of Zion." Nowhere, however, was the heavenly city ever to exist as planned, not in the Far West, Nauvoo, or Salt Lake City. The most ambitious attempt was at Orderville, Utah, where the plat and the religious communism of the "United Order of Enoch" were carried out unsuccessfully by the Saints.

Application of the Plat in Manti

The "Plat of the City of Zion" established the intention of the Mormons to construct coherent communities in Utah. Only in the Great Basin of Utah, after irrigation, was there found a favorable environment to fulfill most details of the plan. It depended heavily on the "intense social solidarity" of the Mormons (Nelson, 1952:40). Manti,

in street design, was a typical application of the plan, a farm village symbolizing collective religious values in action. As in other Mormon settlements, Manti residents adapted to local contingencies and topography and modified the plat. Prior to using the city design, basic human needs had to be met. The first demand was the provision of shelter: dug-out on a hillside, then a fort, and then on to conventional Mormon settlement patterns. After the Indian wars of the 1850s and 1860s subsided it was possible to lay out streets according to the grid-iron requirements of the plat.

After a time, Manti residents approximated the specifics of the Mormon settlement plan, although fort walls remained visible into the 1870s. Houses were constructed on the grid fronting the street. Backyards were shared, forming a common inner-lot. Individually and communally owned fields lay outside town. In town, each family had a garden producing leafy green vegetables. The diet was standard farm fare, vegetables and meat, occasionally supplemented with wild game and berries. Each family also had a corral for livestock. Horses were used for transportation, and cows, sheep, pigs and chickens were used for animal protein.

Despite the plat injunction that "stables and barns should be outside the city," corrals frequently were adjacent to houses. As a consequence of the garbage being dumped on inner-lots and the proximity of the corrals to houses, flies were a problem.

Sacrifices in the distribution of agricultural land were made when many new families arrived in town. Originally granted use of twenty acres of farm land, family holdings were reduced to fifteen

acres. Also, as the topography of Sanpete County contributed to irregularly shaped holdings, rectangular partitioning of choice farm land was not possible. Eventually, in the 1870s (coincident with the decline of the United Order) complicated land swaps and realignments of property rights were made (Smith, 1972:18).

Local adaptations of the plat, sanitation problems, and redistribution of land to individuals indicate (1) economic failure of crude religious communalism, (2) lack of success of the cooperatives set up in the 1870s, and (3) foresight in preparation of private land holdings in light of impending statehood. In Manti there was insufficient arable land in the early to mid-frontier period to accommodate all settlers.

Rainfall in Manti averaged about twelve inches per year and the community depended on irrigation for water. In the early years, water was available from ponds, springs and mountain creek runoff. Under the direction of the bishops, irrigation ditches were dug cooperatively, running from water sources into Manti. Ground water was an unreliable source during the hot summer months. Moreover, wells were difficult to dig for several reasons. First, oolite is not porous and deposits of stone prevented widespread well-drilling. Second, the high alkalinity of ground water made it unpalatable. Third, there was a lack of table ground water flow. Fourth, manufactured parts for wells were in short supply (as were all metals in Utah) during this period.

Each family had its own subsidiary irrigation ditch in front of or under the house to gain access to irrigation water. The "dip-bucket" method (Madsen, 1976) was used to obtain water for culinary

purposes, drinking, the weekly bath and the bimonthly washing of the laundry (Gibson, 1974).

Manti was a center of activity, a jumping-off site for other pioneering efforts, a winter stop-over spot, and an administrative hub of civil and ecclesiastical endeavors during the frontier period. The town was central to many of the important historical events occurring in the entire period of frontier growth: a refuge from Indian hostilities; a base for expansion and population growth; the locus of Church Authority in south central Utah; and a center of social and economic activity.

Colonists

Church Authorities did more than design the physical outline of pioneer communities. They often appointed specific people to staff the new outposts and "called" for volunteers. Calls routinely were issued to people when a bishop charged with constructing a new village needed help. Those with community building skills, sharpened during years of persecution and movement from one place to another, were in demand. Skilled people were necessary to the pioneering effort in every settlement. For example,

The Sanpete County 1850 Census tells a story. In Sanpete (Manti) there were two weavers, one joiner, one brushmaker, one painter, one machinist, one cloth-dresser, two stone-cutters, one mason, one collier, one sailor, three stone-makers, three millwrights, five blacksmiths, one Indian interpreter, one gunsmith, two chair-makers, four coopers, one merchant, one tailor. We must remember that in 1850 Manti was the only colony in Sanpete. A few people were scattered in the valley, but not many, because of the real fear of Indian depredations (Greaves, 1979:56-57).

These thirty-odd individuals occupied necessary roles for the survival of the pioneer settlement. They also were the forerunners of a labor force which would diversify in the frontier years. The arrival of the 1849-1850 migrants marked the beginning of the first period of community history, that of frontier settlement.

The second large group of settlers arrived on October 15, 1853. It was composed of people with a different ethnic background than the native-born and English Manti pioneers of 1849-1850. The 135 people coming in 1853 were primarily Danes. Although converts from several countries moved into the county, Sanpete was settled most heavily by Scandinavians (many of the villages were known as "Little Denmarks").

The latecomers differed from the pioneers in more than ethnic background. First, it was a much smaller group, composed of thirty-eight families and nine males without spouses or children. Families were smaller, with a mean family size of 3.32 persons. The second group was less heterogeneous in occupational mix: they were farmers sent to establish an agrarian base to the colony. They were responsible for introducing a health diet to the pioneers, centering upon a dish called the "Danish Dumpling." This thick broth, consisting of vegetables and meat stock, may very well have provided the means of survival and health to the pioneers (Antrei, personal communication). They also introduced "Danish Butter" as a staple in the pioneer diet.

Life in Manti was extremely hard for all of the early settlers. Provision for basic survival had to be extracted from the arid environment. Mulder captures some of the difficulty of the pioneering effort

and the contributions of the Scandinavians, citing an unknown English settler:

I have seen many Scandinavian families come into Manti in pioneer days with no means of support. Most of them had small trunks that contained their earthly wealth, a few clothes and some bedding. Some walked from Salt Lake City to Sanpete County. Former countrymen would take them into their homes for a few weeks. Then the new immigrant would acquire a lot, build himself a small adobe home, surround it with a willow woven fence. Soon a few acres of ground were added to his accumulations, every foot of which was utilized. Mother and father and every child in the Scandinavian home worked. None of the wheat they raised was wasted after it was threshed with the flail, the Scandinavians cleaned their wheat with hand-turned mills. They chopped their animal feed with a hand chopper so that it would go farther, and provide better animal food. There was no waste. I am an Englishman but I have always said that the Scandinavian was thrifty, honest and God fearing, and set us a worthy example (Mulder, 1975:198).

Of those arriving between 1849 and 1853, 147 were adult males with a variety of pioneering skills ranging from the leadership abilities of Bishop Morley, the military skills of the Smiths (members of the famed Mormon Battalion), to those with community building skills such as carpentry and blacksmithing. The Scandinavian migration into Sanpete County added people who had farming skills. By the middle of the Frontier Period they grew agricultural products in sufficient abundance for the community to thrive.

In the Frontier Period Manti grew despite the hardships of a rugged environment, conflict with the Utes (Walker War) and hostilities with Gentiles over polygamy (Mormon War, 1856-1858). Manti was the central pioneer encampment in Sanpete County, supplying leaders and settlers for other outposts in the county. Within five years of first

arrival, following the precepts of the plat, preparations were underway to expand Mormon settlement throughout the county.

Isolation

Until the coming of a spur of a national railroad in the Transition Period (1891), Manti was largely removed socially, geographically and politically from the influences of non-settler Gentile populations. The national railroad came to Manti and Sanpete County nearly a quarter of a century later than in northern Utah, but it had similar impact in reducing isolation.

The social and economic character of Sanpete County and Manti in the Frontier Period was shaped not by the outside world but by (1) the Church Authorities, and (2) foreign converts seeking a place to live in the new Zion. From the arrival of the pioneers to eventual participation in the larger Utah social structure and economy, Church officials directed local development. Bishops and their representatives oversaw all activities in settlement, from distribution of land to collection of foodstuffs, to arbitration and management of social relations.

Skilled workers were gained as a result of centralized planning of settlement and construction by Church Authorities in Salt Lake City. As part of the plan for Utah settlement, Brigham Young appointed bishops and dispersed new arrivals to places where they were needed most. The Authorities were faced with the logistical problem of distributing quickly thousands of people throughout Utah, almost all of whom were inexperienced with the barren Salt Lake Basin. On arrival in Utah the companies which crossed the plains first stopped in Salt Lake City, to

be divided into units by which they could be directed to (1) where particular community building skills were needed, and (2) where sheer numbers of settlers provided strength against hostilities.

Activity in frontier Utah was organized by the LDS Church. Individually, the all-male priesthood provided the mechanism for upward mobility from simple tasks to Apostleship. The Church was divided, on the basis of geography, into stakes and wards. Leaders were appointed to preside over all Church-related business. Projects large and small were administered by a president. According to Taylor,

There were presidents in charge of groups of missionaries going east from Utah or returning thither from overseas. The small band of Mormon Battalion members who went to Utah from California in 1848 had a president. So had the 39 men of the Green River Mission in 1853; the group sent in the same year to Cache Valley with Church herds; the relief expeditions to meet the handcart migration of 1856; the company sent to aid in the evacuation of northern Utah settlements in 1858; the teams of men who in 1859 built a wall around Mt. Pleasant; the Mormons who in 1865 joined freight trains as teamsters so as to earn money for their families' journey from the Missouri to Utah; and even the six men who in 1880 worked under contract in Sanpete County for the Central Pacific Coal and Coke Company (Taylor, 1966:61).

Isaac Morley, Canute Petersen, and Hans Jensen Hals all served as frontier leaders of the Sanpete (sometimes referred to as Manti) Stake of the LDS Church. Each served in community building as church and civil authorities. Part of the organizational impact of the Church on Manti influenced directly the composition of its population. That is, the decision to locate Scandinavian converts (among whom were the first twenty-eight Danish converts) shaped the county population.

The pioneers were confronted with the task of translating Mormon values into practical ways of living. Their efforts, illustrated in

economic relationships, transportation, communication, public health, social values and government, were first guided by religious precepts. Frontier dependence on the LDS Church eroded in the passage of time as Manti became less isolated from Utah and national life. Change in each is traced by historical period.

Chronology of Notable Events in Manti's History

- 1847: Mormon pioneer company arrives in Salt Lake City, July 24.
- 1847-1849: Exploration of Utah, Sanpete selected by Pratt for settlement.
- 1849: Brigham Young calls for Sanpete settlement.
- 1853: First Scandinavians recruited by PEF arrive in Manti; Manti incorporated as a city; first school board organized in Manti; forts built in Sanpete County and Manti.
- 1854-1858: Famines in Utah, excluding Manti.
- 1856-1858: Walker Wars and Mormon Wars.
- 1860: First doctor arrives in Manti.
- 1873: Economic dislocations throughout Utah.
- 1874: "Polygamy Railroad" constructed in Sanpete and Sevier counties.
- 1876: Brigham Young calls for construction of the Manti Temple.
- 1888: Manti Temple completed and dedicated.
- 1890: Close of the American Western frontier.
- 1891: Denver and Rio Grande Railroad in Sanpete County.
- 1904: LDS Church ratifies the "Woodruff Manifesto" (1890) eliminating polygamy.
- 1905: End of Scandinavian immigration.

1905: Last mission to Wyoming.

1927: Common communion cup abandoned by the Church.

1920-1929: Economic turmoil associated with the end of World War I.

1930-1948: Public health and medicine improved markedly.

1948: Manti ward membership records closed.

The Frontier Period (1849-1889)

Economics

Because of their late arrival in the fall of 1849, the first group of settlers sustained life on meager provisions brought from Salt Lake City. Thereafter the economy was started on what was dug, gathered, and grown on the local hillsides and in the river valley. The pioneer economy was collective, cooperative and agrarian.

Despite the need for putting skills to work in all spheres of life, nearly everyone farmed plots of land. The work force consisted of people with various occupations, but the immediate need was for food production. Christian Neilsen wrote in his diary about earning power in the Sanpete settlement, "of artisans, masons surpass all others, they earn (in 1856) three dollars a day, but agriculture is more important" (Mulder, 1957:210).

Throughout the 1850s farmers made up half of the Scandinavian immigrants who converted to the LDS Church. In the 1860s, one-third were farmers, and thereafter occupations listed in journals and ship manifests took on a decidedly urban, and less skilled, character (Taylor, 1966). Unlike the urban Britons who migrated to Utah, the Scandinavians had at least minimal skills to attempt living off the

land. In addition, blacksmiths, wagonmakers, wheelwrights, millers, artisans, cabinetmakers and coopers numbered among the Scandinavians. Not all were well off in their homelands, but neither were all of them impoverished. The organizational talents of the bishops of the Church acted as catalysts to put the occupational mix to work effectively.

As early as the 1850s agricultural endeavors produced surpluses, especially in grain crops, from the Gunnison and Sanpete Valleys. Excess production was sent to other areas of Utah for consumption by those unable to produce or where crops were destroyed year after year by insects and drouth. The bounty of Sanpete was obvious when crops were planted and harvested. Mulder notes that the Scandinavians developed the reputation of Sanpete County as the "granary of Utah." Consequently, the area became attractive to settlers and the population grew. One of the pioneers, Christian Nielsen, described life in Manti in 1856:

The people are like bees; when they fill up one place they swarm out and build up a new one . . . about three hundred Danish families live in this town and about seven English miles north of us (Ephraim) there are about as many (C. Nielsen in Mulder, 1957:194).

Because of the wholly agricultural economy of the early years and absence of insect plagues, Sanpete County and Manti were protected from the economic difficulties striking Utah in the 1870s. In fact, the county required people with non-agricultural skills to provide the economic support structure necessary to carry on trade.

Transportation

Transportation was primitive and difficult throughout the Frontier Period. The primary means of transportation were those used by

the first settlers: foot, ox-cart and horsedrawn wagon. Natural barriers impeded ease of movement. Consequently, the county was remote even from other parts of Utah. Mechanized transportation was introduced into Sevier and Sanpete Counties. In the Frontier Period a locally owned railway was constructed. Local stories refer to it as the "Polygamy Railroad" as it was used by husbands visiting wives scattered among valley communities.

In the Frontier Period Manti was a transportation center from which goods were taken by wagon to Salt Lake City. Mulder notes, "Farmers brought their surplus products to the cooperative store in Ephraim to Peter Christensen's place in Manti, where the freighters loaded up for the market" (Mulder, 1957:223). The teamsters had a slow and dangerous trip to Salt Lake City as it took at least ten days to deliver produce and return. Journeys to cities outside of Utah took months to complete.

Communication

Communication with other parts of Utah and beyond was limited in the Frontier Period by hardships in transportation. Letters were carried by those who moved north and south along the trails. For example, missionary parties carried letters from Saints who migrated earlier to Zion. The letters occasionally ended up in collections, such as the Danish Stjerne:

During the half century (of publication) Stjerne became a rich repository of America [sic] letters, hundreds of them, one or two every issue, their postmarks a romantic roll call of Zion's habitations, names of far places yet familiar, endeared by the knowledge of friends and kinfolk writing from their own firesides. From Sanpete Valley, itself an Indian

name and the "Little Denmarks" of the settlements, came numerous letters bearing lovely names: Springtown, Mt. Pleasant, Fountain Green, and Fairview; a biblical name like Ephraim--at first Fort Ephraim and then Ephraim City, the change speaking a whole history; a Book of Mormon name like Moroni; a historical name like Gunnison. Letters from emigrants en route were an education in United States geography . . . (Mulder, 1957:83-84).

The letters, of course, did more than present the names of new places to loved ones left behind. They described living conditions, comparing them to those experienced elsewhere, replete with tales of the Mormon Zion. Family information about ill-health or well-being dominated letters. Issues of the day, especially descriptions of the LDS Church, were discussed and debated. In addition to letters, newspapers and gazettes in English and various Scandinavian languages were distributed in Sanpete County. As the county seat, Manti was at once a center for receiving newspapers sent from Salt Lake City and one for local publications.

Education

Ability to use the newspapers varied as settlers had widely disparate degrees of literacy and fluency in English. Brigham Young made plain to the newcomers the need to speak English:

You are faint and weary from your march. Rest, then, for a day, for a second day, should you need it; then rise up, and see how you will live Be of good cheer. Look about this valley into which you have been called. Your first duty is to learn how to grow a cabbage . . . then how to feed a pig, to build a house, to plan a garden, to rear cattle, and to bake bread, in one word, your first duty is to live. The next duty--for those who, being Danes, French, and Swiss, cannot speak it now--is to learn English; the language of God, the language of the Book of Mormon, the language of these Latter Days. These things you must do first, the rest will be added to you in proper seasons. God bless you and the peace of our Lord Jesus Christ be with you (Mulder, 1957:181).

The policy of the Church demanding use of English was required (1) for theological progression, (2) to worship God, (3) as a survival skill for the next generation, and (4) for assimilation.

For those recruited by foreign missions, the first to come were often educated well. Public education in Manti in the Frontier Period was minimal as immediate living needs required cooperative efforts to secure water, stake out land, construct houses, barns and the walls of the fort. Crops had to be planted, animals tended and desert areas irrigated.

The first school board in Manti was organized in 1852-1853, although the Indian wars of the early years prohibited development of an efficient system of learning. By 1880 an elementary school education was available to all children in Sanpete County (Smith, 1972). Protestant missionaries arrived in the Frontier Period and established mission schools in the valley. A Presbyterian school, the Wasatch Academy, was opened in Mt. Pleasant and provided education to children of the few who converted and to Saints finding the teaching superior to that available in public and LDS schools. The LDS Church sponsored the Sanpete Stake Academy in Ephraim. First offering courses beyond elementary school, the curriculum later was expanded to a two-year college program. The institution was organized by Bishop Canute Petersen and renamed Snow College after Erastus Snow, apostle and missionary to Scandinavia. Public schools were located in the larger towns such as Manti, Ephraim and Mt. Pleasant.

Health

Public health in the Frontier Period was of concern to all living in Manti and to the Church which took responsibility for early government. Dirt farming in drouth-ridden southern Utah had disease associated with it. The coarseness of life on the frontier Wasatch Front was caricatured in the image of the "Sanpete Farmer": "Sanpete Scandinavians might be accused of going to bed with the pigs and the chickens, but nowhere were the animals better housed in winter or the stock better cared for . . ." (Mulder, 1957:209). Because of the spread of waterborne and airborne infectious diseases in unhealthy environments, infant and childhood mortality were high in the Frontier Period. Deaths due to infectious diseases were prevalent, especially in the winter and summer months. Medical personnel were dispatched from Salt Lake City in the Frontier Period to deal with the problems of public health in Manti.

Disease theory was little known and the Saints of the early Frontier Period would have been unlikely to subscribe to it. Focus was placed, however, on locating and securing adequate sources of water and the distribution of the medical information available at the time. Hannah Sorensen, for example, practiced midwifery throughout Sanpete County in the Frontier Period, conducted classes in obstetrics, and distributed letters on hygiene. Dr. Foster Ray Kenner, a Kentucky-born physician, came to clean up the water supply and offal from animals contaminating irrigation ditches.

Medical personnel were challenged by the untrained, mystics and

outright frauds who took advantage of ill people. Mulder notes that in the 1860s,

. . . in Manti there was a "real doctor" whose counsel was to be followed in preference to "quacks, stargazers, and similar charlatans whom a few simple-minded people and superstitious families have visited in necessity." A wise Dane, Christensen by name, more generally called "Taenkeren," the Thinker, who for some years had played doctor, fortune-teller, and astrologer, had disappeared altogether, but another called "The Little Witch," had taken his place (Mulder, 1957:256).

Public health was improved only as the knowledge of the physicians and midwives increased, distributed and assimilated by the population. With measures taken to assure sanitary conditions in town and with the water supply, public health was enlightened.

Social Values and Government

The value systems among the people who lived in Sanpete County during the frontier years were those of Mormon orthodoxy. It intermingled with private and public life as Deseret was an authoritarian theocracy led by charisma. Events associated with the life and death of Brigham Young influenced the changes occurring in every Mormon village.

Manti, located centrally to habitable areas in Sanpete County, and reached easily by those in the valley wishing to attend religious functions, became a center of ecclesiastical activity. As it was safer than other settlements located in the valley, administrative activities were centralized in the Manti Stake. Each new colony had a meeting-house as much a part of the plat as the familiar grid-iron street pattern which was omnipresent in Mormon villages.

That Manti was a center of Mormon endeavor is marked by the construction of a Temple throughout the last thirteen years of the Frontier Period. In 1876, Brigham Young "called" for the construction of a temple in Manti to mark the Mormon presence in south central Utah.

Coincident with temple construction and the death of Brigham Young (1877), the Church became more bureaucratized. Manti, for example, was organized into wards, each defined geographically and led by independent bishops. Stake and ward organization made religious life more intricate and provided a structure in which to address the needs of the Church and the membership. According to Mulder:

"We shall be called to account for every blessing we receive," Erastus Snow told the quarterly conference of the Sanpete Stake in 1878. With their own Canute Peterson presiding, the Scandinavians, who formed a large part of the audience, heard the apostle with respect. He had first brought them the gospel in the Old Country and now it was always good to hear him talk about the affairs of the Kingdom in his regular visitations. His advice, as usual, was practical: some of the brethren thought there were not marriages enough; the young men should take the daughters of Israel as wives, and not wait until some scalawag ran off with them. The Seventies should wake up to their duties and when called, not let the first thought to be to send an excuse. He wished the sisters to keep at the business of silk raising until the brethren woke up to the importance of the enterprise. And the Saints should not let cooperative institutions flag, or build up opposition establishments in their midst. Apostle Orson Hyde followed with advice to swarm out and open up settlements in other localities because their numbers were rapidly increasing and the supply of water was limited (Mulder, 1957:226).

Church and civil institutions merged and were inseparable in frontier Utah. Officials of the church also acted in public roles in the villages as mayor, sheriff and other jobs in government. Co-operative ventures, from digging irrigation ditches to constructing buildings, were undertaken. At first, the very survival of the

encampment demanded joint activity. As the Frontier Period progressed, cooperative undertakings were sponsored by the Church among Sanpete settlers. Mulder notes a passage from the diary of Bishop Hans Jensen Hals of Manti, written on January 1, 1869, stating that the residents of Manti had "begun our united business" which, by the end of the year, had \$20,000 invested with \$10 shares returning \$4 interest (Mulder, 1957:232-33). The short-lived "United Order of Enoch" was begun in 1874. Although some local farmers went so far as to deed property to the Church, the United Order was as unsuccessful in Manti as it was elsewhere.

Construction of the temple demanded a greater occupational mix than existed in Manti and individuals with construction skills were imported from wards all over Utah to assist in building the multi-story structure. As with temple construction elsewhere in Utah, local stakes and wards were responsible for organizing and effecting construction. Completed near the end of the Frontier Period, in 1888, the temple became a dominating symbol on the county skyline. The second of five temples eventually constructed in Utah, its importance cannot be underestimated.

The Frontier Period marked the forging of the community and provided its economic base, agrarian endeavor. Although life was hard, it became increasingly manageable as settlers, led by the bishops, applied skills in town-building and agriculture. The value system was decidedly Mormon, with few Gentiles ever resident in the community to challenge orthodoxy. The strength of local commitment is marked by the magnitude of funding and contributed labors for the Manti Temple. The

Manti Stake raised most of the financing and most of the volunteer labor force needed to complete the structure.

Family roles were those of the farm family, with a sexual division of labor. Amenities of life were limited as Manti was remote. Foodstuffs were more important than luxury items, the latter available only by importing them by wagon from Salt Lake City in the north or St. George in the south. Church, family, community and hard work were the foci of existence for frontier residents of Manti. Each was structured by the values, precepts and problems of the Mormon movement during its period of isolation from the rest of the country.

Summary

The isolation of the frontier and the struggle to survive and colonize etched the Mormon moral character--wariness of Gentiles, hard work, cooperative enterprise, faith in the priesthood of believers, acceptance of the "call" and allegiance to a centralized authoritarian theocracy (O'Dea, 1957:53-96). By the end of the Frontier Period, the rough pioneering endeavor in Manti had become a stable, surplus producing, agricultural community. Much had changed in addition to physical security. At first, Church Authorities directed settlement through a single leader. By 1889, the LDS Church adopted a bureaucratic form of organization. This organization was illustrated in Manti by division of local congregations into wards, the basic unit of Mormon Church organization. In addition, successful construction of the Manti Temple solidified the place of the community as an administrative center as it became the core of ritual activity in the county,

drawing people temporarily and permanently from Utah and beyond.

The Transition Period (1890-1929)

During the years 1890 through 1929 Manti experienced the changes from an isolated frontier outpost to a stable, prospering agricultural town in the Intermountain West. It was a period of innovation and change in nearly every sphere of town life. In the transition years Manti's social structure and organization were becoming complex. Internal differentiation among the population and social and economic ties of the community altered the nature of life as compared with the Frontier Period.

Economics

During this period Manti became an agricultural production center and a break in transportation from which produce was shipped readily to other parts of Utah. Surplus production occurred in dairy, grain and livestock segments of the local economy and was contributed to the loose religious socialism of nineteenth century Utah.

Production was so high as to demand more intricate marketing than the occasional teamster delivering crops to Salt Lake City. Butter, cheese, milk, flour and feed were exported to other markets by rail when the Denver and Rio Grande Railroad reached the Valley in the early 1890s. Scarce food items, like citrus crops, could be imported. Three granarys were organized in 1895 and a creamery in 1898.

The economy of Sanpete County and Manti was integrated with the larger cooperative economy of the State of Utah. Finished furniture,

not made locally for example, was imported from Salt Lake City and beyond. Agriculture gave the county a stable economy although the state suffered through the economic dislocations of the 1880s, 1890s and 1920s. Local accounts indicated that the farmers of Sanpete County were well off in the early years of the Transition Period compared with other farmers in Utah. Statehood symbolized the change from internal to external control of the economy. Utah, as a state, was integrated into the larger United States economy and subjected to economic pressures unfelt in the years of frontier isolation.

Transportation

Changes in the system of transportation affected the local economy and its relative integration with the rest of Utah. The trail bisecting the valley was to become a major highway, now Route 89. Running north and south through the heart of Manti, the artery connects it with nearby Ephraim on the north and Sterling and Gunnison to the south. The main road also connected the various settlements which made up the Mormon Corridor in Sanpete County.

Manti was affected directly by what may have been the greatest instigator of social and economic change in Utah at the end of the nineteenth century: the roadway was paralleled by a railway line. Attracted by mineral deposits in the southern part of the county, the Denver and Rio Grande Railroad speculated on a rail spur. It was used to transport both mining and agricultural goods from the county.

The railroad had profound influence on Utah and the Mormon villages. Mulder states:

Ironically, the railroad that the faithful were sure would testify to Zion's virtues itself worked a transformation of Zion from a confident, if struggling, independence to a struggling dependence. Zion, seen with the eye of faith, continued to be brightly pictured, but sober realization and rationalizations crept into the literature. Zion had known drouth, grasshopper plagues, and Indian raids; its existence had always been marginal; but by choice as well as by necessity it had been self-supporting. Land, and home industries based on what the land produced, had been the basis of Zion's agrarian beatitude. The railroad, however, made Utah Territory more intimately a part of the national economy, responsive like the rest of the country to the business cycle (Mulder, 1957:86).

The coming of the railroad to Utah affected the position of Mormon villages. Communities such as Manti which had been isolated in the frontier years were integrated with the social and economic life of the state. In so doing, dependence on events outside of the village changed radically the relationships established by the Church. Booms and busts in agricultural markets alternately enriched and impoverished farmers. Thinly capitalized business ventures opened to the vagaries of speculation. The Church attempted to control the changes, for example through cooperative farming, buying and marketing.

Communication

Improvements in transportation taking place between 1890 and 1929 were paralleled by others in communication. Newspapers, gazettes, the telegraph and the telephone were used as they became available. The Deseret News, distributed from Salt Lake City, circulated to the furthest corners of the state. Published since the pioneers' arrival in Utah, it often contained news and proceedings of the LDS Church. Local newspapers, such as the Manti Messenger, reported on happenings in the Sanpete County area. In addition, foreign-language publications

chronicled the events of the day for specialized readerships.

Newspapers were supplemented by various gazettes published monthly or irregularly. Telegraphy appeared with the railroad and introduced rapid communication to other areas.

Advancements in technology directly influenced changes in the ability of Manti residents to communicate with others living elsewhere. As with the railroad, Utah and communities like Manti lost their remote independence and became more integrated with the outside, host society. Also, changes in transportation and communication facilitated intrusion of outside influences altering life in Manti. The ability of residents to reach and get news of the world was improved in the Transition Period.

Education

Education of the local population improved during the Transition Period. Literacy in English improved as the public and private school system developed. Literacy in English was expected as a matter of church policy, i.e., immigrants must learn the language, accept the customs and act as Americans. Although the official posture of the Church was to press for assimilation, disputes, conflicts and segregation on the basis of language occurred informally in the new Zion.

Keeping good records for posterity was stressed and education and literacy were used by the Church to maintain quality. According to Mrs. P. Larsen, a missionary to Manti who served as a teacher in the 1920s, education was valued positively and enthusiastically by the children of Sanpete County farmers.

Technological adaptations and changes in transportation, communication and education impacted on the agricultural economy of Manti. The economy was well prepared to produce goods for consumption in Utah and beyond. Preparations were not made well, however, for the collapse striking agricultural economies as a corollary to the aftermath of World War I. According to John Sword Hunter Smith:

To a larger extent Sanpete County, Utah appeared to reflect the national agricultural picture. It experienced both the war boom and the subsequent depression. However, it must be considered as belonging to the category of farming areas that survived the decade (1920s) without undue distress; in fact it should be considered poorly off only by comparison with urban areas (Smith, 1972:29).

In the transition period farming in Sanpete County changed from simple production of staples such as grain to diversified farming. Dairy farming, alfalfa growing, poultry, beets, cabbage, garden peas and fruit all were added to the production capabilities of "Utah's Egypt." Produce was shipped to Salt Lake City and also to national and international markets. Cabbage, cauliflower and green vegetables were shipped to the Midwest and East Coast. Livestock was bought and sold in Europe and Latin America by Sanpete County ranchers.

Cattle and sheep raising tied Sanpete County closer yet to the outside economy in the 1920s and allowed it to survive the periodic agricultural ups and downs of the decade. "Sheep," according to J. S. H. Smith, "were the foundation of county prosperity during the Twenties, injecting fairly large amounts of cash into community circulation" (Smith, 1972:37).

The French-bred Rambouillet sheep were introduced to the cooperatively owned flocks during the Transition Period. Both family

farmers and those with large ranches in Sanpete County found the sheep to be excellent breeding stock. The Rambouillets were interbred with other sheep to produce animals yielding high quality wool and meat. Markets for the sheep extended beyond the United States as farmers of the areas visited Russia, Germany, France and Latin America to purchase and sell sheep.

Because of diversified agriculture, the Sanpete County economy weathered the tumultuous twenties. Further aiding the local economy to withstand economic pressure was the use of cooperatives. Poultry, eggs and breeding stock were sold through cooperative ventures, thus allowing local farmers and ranchers to compete as corporate units rather than as isolated, independent farmers. The cooperative endeavors were accepted readily by local people in light of the Mormon history of communitarianism and Scandinavian heritage of cooperation.

Local manufacturing in Sanpete County and Manti in the Transition Period supported the agricultural sector of the economy. Such businesses as granaries, creameries, and meat and vegetable processing, however, did not fare as well as the production of raw agricultural products from 1890-1929.

Health

During the transition period folk remedies (Riley, 1978) yielded to more sophisticated medicines as they became available (Brown, 1976; 1977). Communion practices in the Mormon Church also changed, having, perhaps, some effect on public health (Smith, 1972).

Communicants no longer sipped from a common chalice, but from individual servers.

Public health reforms were in progress between 1890 and 1929. At the direction of Brigham Young, Dr. Foster Ray Kenner had come earlier to Manti to deal with the problems of public health, especially to clean up the contaminated water supply. In 1889 the Manti Irrigation Company was formed to substitute a system of pipes for open ditches (this task was not finished until the 1930s).

Qualified physicians also arrived during the transition from frontier outpost to agricultural community. From 1890 to 1920, Drs. George Sears, Lucien Sears, and the brothers Hosford (one specializing in "female disorders") practiced full-time in Manti. Before 1890 and after 1920 only one physician resided in town. Some polygamous wives were trained in medicine formally and supplemented the work of the male physicians (Hyrum Plaas, personal communication).

Infectious diseases from polluted water sources spread from person to person, afflicting the Manti population. Animals and insects, in addition, spread disease. As one local person recalled,

Crickets were not the only pest the early settlers had to contend with--I remember rattlesnakes, grasshoppers, tarantulas, scorpions, mice, frogs, lice, mosquitoes, bedbugs, and flies, flies, flies. I remember seeing the back porch covered with flies; the walls, ceilings and screen door were black with the creatures. They would filter through the old screen door which hung loosely on its hinges As the nights became colder, the kitchen was filled with flies. The ceiling was black, windows were a favorite roosting place, and partly opened cupboards invited them inside. When a drawer was opened a cloud of the pesky things greeted the opener in the face. They spilled over into the living room and bedrooms. It was impossible to sleep after daylight; babies and sick people had to be covered with mosquito net (Nelson, 1981:34).

Not until public health measures cleaned up the water and sewage disposal system, and horse corrals moved out of town, and insecticides were developed did the infectious diseases begin to decline.

The arrival of trained physicians in Manti exemplified a qualitative change in the character of the newer immigrants. Many were highly educated, and brought to the community skills other than those associated with extracting a living and produce from the ground. For example, men with business skills and women capable of teaching school were no longer rarities. The traditional Mormon emphasis on the benefits of education was reinforced by dramatic improvement in health as a result of the work of qualified medical personnel.

In the Transition Period, however, infant and childhood mortality were still quite high. Waterborne diseases declined while airborne infectious diseases were predominant. Chronic degenerative diseases appeared among the leading causes of death. The pattern of death was somewhat different from that of the Frontier Period. Deaths happened more frequently in the winter and summer quarters than in the spring and fall. The number of deaths occurring in the summer declined. Initial decreases in waterborne infectious diseases were due to slight improvements in public health and gradual replacement of folk remedies with reasonably effective medical therapies as they became known.

Social Values and Government

When John D. Lee remarked of the High Council in the winter of 1846-7 that "we never take up any thing that Pres. Young lays down," and when George Q. Cannon said in his funeral oration in 1877 that Young "has been the brain, the eye, the ear, the mouth and hand for the entire people," they were acknowledging the Mormons' heavy debt to one man, who was their supreme authority for thirty years (Taylor, 1966:58).

Changes in the LDS Church, beginning as early as 1877 and flowing through the Transition Period, affected social life in Manti. The Church, responding to intrusions of outsiders brought by the railroad, attempted to minimize the participation of Gentiles in Utah life. The Church became more conservative and bureaucratized.

In July, 1877, the familiar ward organization of the Mormons was crystallized in Manti with the formation of the north and south wards. New forms of record-keeping were introduced. Government of the stake became more complex as local wards took responsibility for temple construction. In the transition years, religious organization became more complex as issues of the day were argued heatedly in the Church and in the courts. The issues, polygamy and the "Word of Wisdom," signaled change.

Polygamy

For many, the Mormon practice of plural marriage illustrated most clearly separateness of the group during the latter half of the 1800s. Announced and glorified to the general membership and to the world in 1852, the doctrine and practice produced conflict and vilification within and outside the Church. Over the course of the transition years antibigamy laws, federal intervention in the form of Johnston's Army, and the exposes in the popular press forced retrenchment and accommodation on the leaders of the Church.

Polygamy was an accepted practice among many residents of Sanpete County and Manti. The Scandinavian population there subscribed to it with greater frequency than the native-born. Mulder notes:

Of 722 men in W. H. Lever's History of Sanpete and Emery Counties, Scandinavian centers, 12.6 percent were polygamists. Of 522 Scandinavian men in Esshom's Pioneers and Prominent Men of Utah, 147, or 29 percent, were polygamists, involving 325 Scandinavian women and 40 non-Scandinavian women; besides, 101 Scandinavian women were married as plural wives to men of other nationalities. Most of these polygamists--102 of them--each had two wives; 32 had 3 wives; 7 had 4, and 6 had 5 or more, the Scandinavians in numbers, as in age, following the typical pattern of polygamous unions. The list shows a higher percentage than the Ephraim census because it names leaders and prominent men, who set the example. Plural marriages were even higher among the Yankee leadership: 38 percent of the 1220 American men named in Esshom; among the English, 28 percent. The average for the foreign born was 27 percent, putting Scandinavian plural marriages slightly higher. Altogether some 15-20 percent of the 5000 families noted in Esshom appear to have been polygamous (Mulder, 1957:240).

It would be expected that estimations of polygamy based upon the Esshom collection would be biased because (1) families of "prominent men" were the only ones included, and (2) questions of accuracy and completeness of coverage of the families included.

The abandonment of polygamy announced in the "Woodruff Manifesto" (1890), and approved by the general membership of the Church (1904), ended open Mormon-Gentile hostilities. To recoup financial losses incurred during the struggles with the environment and with opposing groups, and to solidify the economic stance of the Church, policies were fostered whereby church officials from bishops to the president assumed leadership roles in local, regional, and more especially, national enterprises.

The "Word of Wisdom"

Values and behavior of the membership were affected also by changes experienced by the Church. Adherence to the "Word of Wisdom,"

prohibitions on use of caffeine, tobacco and alcohol, replaced polygamy as a test of commitment and a sign of "worthiness" for progress in the Church hierarchy and toward "exaltation."

Among the largely Danish population of Sanpete County the imposition of the Word of Wisdom (and abandonment of polygamy) was not accomplished easily. Throughout the transition period the Scandinavian farmers there used tobacco, coffee, alcohol and "valerian tea." Some Danes were known to drink beer at festive occasions to the disgruntlement of the conformists to the Word.

In the era of national prohibition of alcohol, Sanpete County residents engaged in moonshining. An apocryphal story of the prohibition years noted by J. S. H. Smith was that "Bootleggers almost had to wear badges so they wouldn't sell to each other" (Smith, 1972: 68). Local newspapers of the 1920s suggest illegal activity in the alcohol trade (making, selling, transporting and consuming it) was high in Sanpete County.

Throughout the transition years, unlike the Frontier Period, the Church no longer could enforce uniform reactions to positions that it took. Within the bureaucracy, voices of dissent were raised. At the local level in Manti, members chafed at the imposition of the Word of Wisdom and debated openly religious and secular issues.

Summary

The Transition Period in Manti was one of social change, economic development and expansion resulting from internal and external factors. The railroad, changes in the economy, abandonment of

polygamy, and technological innovation, altered life there from the Frontier Period. In the early years of the Transition Period it was a time of population growth; as the community developed, the population matured. The nature of in-migration to the community changed in the Transition Period: new arrivals, whether native or foreign-born, came from urban backgrounds. The level of migration diminished and waned as the Church was saddled with the debts of previous immigrants. The Perpetual Emigration Fund no longer functioned, terminated by Congress along with Deseret. Various migration schemes were tried, but the Church, for economic reasons, could only sponsor those paying their own way from Europe. By the end of the Transition Period, migration was internal rather than international in scope. Church authorities feared continued immigration would bring too many converts and over-tax water supplies and arable lands.

From a condition of free access to Utah and solicitation of converts by the Church, migration of foreign Saints was hindered by a suspicious federal government attempting to regulate polygamy and a Church wary of expending natural resources. Parties of immigrants were detained, individual records examined closely by the government. But Utah and the LDS Church had changed over the years and little effort was put up to fight the federal efforts to hinder immigration.

According to Mulder:

The legislation aimed at drying up the main tributary to Utah's unorthodoxies had simply hastened what changing social and economic conditions were already accomplishing. Zion, once preached with so much intensity and conviction and expressed in a great program of immigration, was no longer a closed society (Mulder, 1957:301).

In the Transition Period, Utah was opened up to the Gentile world. Cooperative merchandising, the United Order of Enoch, creation of schools to counteract Protestant missionary activities, the battle over polygamy, and issues associated with immigration left the Church in debt and unable to prevent accommodations with the outside world. The railroad, statehood and advancements in technology destroyed the isolation that buffered Zion and allowed a theocracy to thrive in the Great Salt Lake Basin. By World War I and shortly thereafter, Utah was able to concern itself with issues of national import and drop parochialism and retrenchment as necessary tools of survival.

National concerns were debated in small Mormon villages previously untouched by little other than federal investigators seeking to eradicate polygamy. By the end of the Transition Period even the residents of Sanpete County subscribed to the growing xenophobia spreading across the United States.

A community of immigrants was concerned with who would be allowed to enter the country. Local newspapers in the 1920s, for example, were:

. . . concerned with the problem of "alien slackers." They gave considerable space to the new-born American Legion's campaign against those immigrants who, as citizens of neutral nations, had declined to complete naturalization proceedings to avoid the draft. Ironically, the bulk of these alien slackers were Scandinavians--but not one word of this appeared in the Sanpete press (Smith, 1972:61).

There were no organized attempts to sponsor immigration by the LDS Church by the end of the Transition Period, but the residents of Sanpete County had opinions about who should be let into the country. Acceptable were Scandinavians, Swiss, Germans, Dutch and, curiously,

Japanese. Those who fit the cultural heritage of most who lived in the county or who could contribute (the Japanese immigrants were productive farmers) were to be welcomed.

Finally, during the Transition Period in Manti nearly every social and economic institution was touched by the opening of Utah to influences other than those controlled by the LDS Church. Institutions, specific religious beliefs and practices, and the quality of life changed. Instead of dependency on the Church, rural communities scattered about the Great Salt Lake Basin became integrated with the national scene. Events that took place continents away impinged heavily on previously remote village life, as in the purchase of livestock or economic depression after the first World War.

The Modern Period (1930-1948)

Economics

The modern phase of history began for Manti in 1930. That Manti was no longer isolated totally from the larger Utah and American societies was reflected in the impact of the Great Depression of the thirties on local business and associated abandonment of the area by large numbers of residents. In the Modern Period Manti experienced the same cycles of economic boom and bust as other rural farm areas of the West, particularly those that produced wool, chickens and alfalfa. Young people went to the cities, leaving behind an aging population.

In the Modern Period farms were mechanized, tractors replaced horses, and agriculture in the Valley became less labor intensive. The flail, for example, was replaced with intricate, power-driven farm

implements. The poultry industry (both eggs and chickens) was expanded to supplement grain, dairy, vegetable and livestock production. Better roads were constructed, old ones paved. Highlighting economic changes, light industry moved into the valley.

Federal programs of the Depression era aimed at stimulating employment and developing the rural areas of the country reached into Manti. These efforts were outside the direct control of the Church. WPA projects such as roadbuilding and public health activities were designed to aid the local economy and improve living conditions. Rural electrification projects altered town, home and farm. Septic tanks, dubbed locally as "Roosevelt monuments," replaced unsanitary outhouses. The water system, after years of construction, was completed.

Agriculture as an occupation and industry went into decline. The cities drew people away from their farms, offering more jobs and better pay. Farm laborers and their sons and daughters sought work in Salt Lake City as it experienced urbanization and industrialization. As when migration was organized by the Church, whole families moved out of town as units. This time they moved out of the small Mormon villages permanently, leaving those too old to find employment or the few needed to work the farms.

Transportation

Automobiles and trucks traveled the highways. While youth, and their families, left town other communities in Sanpete County and adjacent Sevier County grew. Richfield to the south became the major break in transportation in the area as roads from all directions met

there, and a bypass, Highway 91, cut off the northern communities, such as Manti. Commercial enterprises found Richfield more attractive than the older communities in the area. The economies of Ephraim and Mt. Pleasant to the north of Manti diversified more than did that of the first settlement in Sanpete County. Consequently, the population of Manti, unlike the situation in the first two time periods, declined.

Communication

Isolation was further diminished in the Modern Period with the infusion of material changes into Manti. Technological advances were adopted as they became available. Expansion of telephone and radio communication reduced isolation. Coupled with ease of travel (by automobile or bus, and access to air facilities), contact with the outside world was not difficult.

Education

Public school education through high school was available to all children of the county in the Modern Period. Consolidated high schools were constructed in the larger communities like Manti, Ephraim and Mt. Pleasant. Many students, their manual labor no longer needed on mechanized farms, went on to the two-year college program at Snow College in Ephraim or sought higher education at the Church-sponsored Brigham Young University or at the other state-supported colleges and universities. Many learned advanced agricultural techniques useful locally, but many never returned after learning skills better suited to urban life.

Health

In the Modern Period public health measures taken earlier produced results. Infant and childhood mortality fell in the years 1930-1948. Chronic and degenerative diseases associated with aging supplanted infectious diseases as leading causes of death. In the 1930s electricity replaced the kerosene lamp. Refrigerators rendered obsolete the sawdust, iceblocks, icehouses and iceboxes of earlier years. No longer were polluted reservoirs, such as nearby Funk's Pond and Alec's Pond, "harvested" in January and February. By 1938 pipes were laid completely, springs tapped and new wells dug. By 1939 a dependable, uncontaminated water supply flowed in Manti. Insecticides were used to control infestations that contributed to the spread of disease.

As modern medical therapies were introduced people benefited from longer life. Deaths no longer were concentrated in the winter and summer months. Environmental, man-made causes of death and degenerative diseases lack seasonal rhythm. Changes in the pattern and causes of death from the Frontier through the Modern Period were a consequence of improved public health, i.e., introduction of sanitary water sources, reduction of infectious and parasitic diseases, and acceptance of modern medicine.

Social Values

The Church experienced changes, also, in the Modern Period. Church activities were distributed broadly in the county as other communities, more advantageously located on the new highway, grew rapidly. Gunnison and Richfield to the south and Ephraim and Mt.

Pleasant on the north outstripped Manti in population growth. Local ecclesiastical activities were decentralized. Manti, due to inactivity, even lost the stake genealogical library to the Mt. Pleasant congregation.

Gentiles, with competing value systems, appeared, although few resided in Manti proper. Nearby Gunnison attracted outsiders because of mining and Ephraim developed its agricultural base further than did Manti.

The visible symbol of religion in Manti was the temple. During this period it increasingly became the center of religious activity in Manti. It also symbolized further erosion of local control and outsiders and services for outsiders affected the town and the people living there. The presence of the temple set Manti apart from other Mormon villages in the county. Mormons from all over the world passed through religious rituals and took part in solemn rites and joyful celebrations. Only the most devout participated in temple ceremonies, rites which could be performed nowhere else.

Adjacent to the Manti Temple is the Manti cemetery. Burial "in the shadow of the Temple," alongside one's eternal family, was the aim of many Mormons. Even people who moved out of Manti chose to be buried in the local cemetery.

Religion in Manti in the Modern Period extended into civil government. Members of the local church hierarchy continued to occupy the highest positions of civil authority. Mayors, sheriffs, town clerks, and town sextons concurrently held ecclesiastical positions. In the early years leadership was invested in designates of the Church

Authorities in Salt Lake City. In modern times they were elected, but there was no one else to run against them.

Summary

In the 100 years between 1849 and 1948, Manti changed from a frontier outpost to a stable agricultural community. Life became more complex and the people who resided there changed also. Life in Manti modernized, the community became less dependent on the Church and integrated into the United States' society. Occupations in the economy diversified beyond agriculture. Education and public health improved. The Church also changed during the century.

The religious heritage of the community was as obvious in the Modern Period as in the Frontier. Manti was settled as an intentional community on the Mormon Corridor. It was created, designed and peopled by the Mormon Church. Local lore aside, it fit into the plans of the LDS Church to establish territorial integrity of the Mormon Kingdom of Deseret when the area was in dispute between the United States and Mexico.

In 1849, when the pioneers arrived in Manti, Utah was a theocracy. The first companies of colonizers were sent by the Church. The settlement of Manti followed the typical pattern of colonization in Utah:

The process by which these colonies were planted and nurtured demonstrates the manner in which the Mormons attempted to translate their early ideals into concrete institutions and patterns of social organization, both during the Gold Rush period and later. A three-phase sequence was involved: (1) preliminary exploration was undertaken by companies appointed by the church; (2) a colonizing company was appointed to found the settlement; and (3) the company was expected to

pattern its community institutions after those of Salt Lake City--which, in turn, were patterned after those of Winter Quarters, Nauvoo, Far West, and Jackson County. Mormon colonization, in contrast with much contemporary colonization of the far western frontier, was the directed movement of an entire new community according to plans carefully worked out by church authorities rather than the result of the spontaneous and independent movement of individuals (Arrington, 1958:89).

Manti was unexceptional in the religious basis to its founding. It was exceptional since from the beginning it was a religious and civil bastion in south central Utah. In the three major periods of its history Manti and the population residing there were influenced by changes in the LDS Church which allowed for reduced isolation and greater participation in the larger Utah and American societies. As time passed, so did the population which resided in Manti. So did the emphasis on cohesive community building by the Mormons.

CHAPTER III

METHODOLOGY

Introduction

This chapter discusses the methodology used for data collection and offers an assessment of the quality of the data. Family reconstitution, a technique often used in historical demography, is discussed, taking into consideration the logic and technique underlying collation of nominative information and ultimate production of statistics.

Practical and theological justifications for Mormon record-keeping are examined. Throughout their history, and imbedded in sacred texts, the Mormons produced records that preserve history and which are required for performance of religious rites. The specific reasons Manti was selected for study and the records available are presented. The data sources used, i.e., cemetery records, ward membership lists, annual genealogical reports, pioneer lists, and various public documents, are described. The manner in which they were used to accomplish the complete family reconstitution is reviewed. The variables produced from the data sources are listed, including a rationale for inclusion and coding of items.

Problems in the Manti family reconstitution effort are delineated and measures taken to alleviate them are presented. Coverage always is an issue with genealogical records. The quality of historical records used and extent of coverage on specific items show

that it is reasonable to proceed with statistical analysis. Finally, there is a brief outline of the logic of computer processing accomplished for this study.

Family Reconstitution

Family reconstitution was used to reconstruct the Manti population. The technique has been used extensively with French, English and German parish registers (Henry, 1968; Fleury and Henry, 1956; Wrigley, 1966, 1969; Hollingsworth, 1969; Knodel, 1973). Family reconstitution is a simple technique by which data collected from registers of births or baptisms, marriages and deaths are assigned to appropriate individuals and families, and then aggregated for community study.

Family reconstitution is a central element of the genealogical method in use for centuries. Only recently has it been applied with frequency to American populations by sociologists, demographers and historians. It is a helpful way to organize and analyze demographic information about small, localized populations.

Logic and Technique of Family Reconstitution

The logic and technique of family reconstitution are straightforward. In comparison with traditional forms of demographic research it is a costly process. It is a time consuming process since every piece of information requires verification by comparison with public documents, if possible, or cross-listings in other documents. It is,

also, an exhaustive exercise in judgment by which entries extracted from non-traditional data sources are put to demographic use.

The nominative technique of family reconstitution is distinguished from the aggregative technique. The latter is used to estimate, crudely, ". . . global figures of population, births, deaths, marriages, household size, migrants, etc. . . ." (Drake, 1972:61). The nominative technique is used with a small portion of the population to calculate age-specific events instead of demonstrating the crude rates of nuptiality, fertility or mortality for a general population in a given year. If the number of observations is sufficiently large, age-specific information on events may be collapsed into cohorts, enabling assessment of change over extended periods of time (Mendels, 1970:1067).

A number of problems and shortcomings of family reconstitution are recognized in the literature. These include (1) accurate and complete records are not found with frequency, especially for American populations, (2) names are not recorded with consistent spellings, (3) often there is overlap of the same surname within a population, (4) migration usually is not amenable to exhaustive analyses and family reconstitution is selective of those who do not migrate, (5) given statistical limitations, generalization is limited, and (6) family reconstitution is a tedious, time-consuming task. Hollingsworth pointed out, though, that the various difficulties are alleviated with closed populations. He defined a closed population in historical demography as ". . . a social or religious group (which) keeps its own genealogical data just because of its sense of separatedness"

(Hollingsworth, 1969:199). The Mormons are an example of such a closed population.

Mormon Records

As populations spread westward beyond the Mississippi River in the 1800s, life was different from former frontier areas of the Middle West and East. Distances between sites of habitation were greater, environments more hostile. Outposts and towns often were constructed hastily and abandoned just as rapidly. When resources were spent, people moved out quickly. They sought not only the natural wealth of the West, but also areas suitable for human habitation. Indigenous populations frequently resisted newcomers.

Linked to the transiency of life in the American West is the general inadequacy of information about people who pioneered remote areas. The West of the 1800s and early 1900s is known only from fragments of records from frontier outposts, mining towns and trading centers. Often records were maintained sporadically. People rarely had the skills or the time to record information on demographic events. Even in stable settlements, records were lost or destroyed in the passage of time. Although local conditions varied from town to town and county to county, an anomaly in comparison to the situation found in much of the West is the relative stability of human settlements in Utah. Only hesitantly, due to centralized planning, fulfillment of theologically based community design, and cohesive community-building efforts, were Mormon colonies abandoned. A parallel exception in the

North American experience is the broad record-keeping activity of the Utah Mormons.

Justification for Keeping Records

Long before arriving in Utah in 1847, Mormons kept records on individuals and families. The records subsequently proved useful for demographic and historical analysis. As Mulder notes:

Having a literal faith in the books of which man shall be judged, the Mormons have been from the first a record-keeping people. The Prophet Joseph Smith, who himself kept a journal which formed the basis of a documentary history of his Church, advised his elders to keep daily accounts: "For your journals will be sought after as history and scripture. That is the way the New Testament came, what we have of it, though much of the matter was written by the apostles from their memory of what had been done, because they were not prompt in keeping daily journals" (Mulder, 1957:311).

Keeping accurate genealogical information is an integral component of the theology of the Church of Jesus Christ of Latter Day Saints. Several sources of demographic data are produced by the Mormons: ward membership lists, annual genealogical reports made by Church elders, and "family group sheets."

Records are compiled by Church officials and members as part of religious obligation as well as interest in completing genealogical tasks. The scriptural justification in Mormonism for genealogical endeavor and keeping "records" impacts on the activities of a large proportion of the Church membership. The scriptural justification for keeping records abounds in the sacred literature of the Church. For example, the plates of Nephi included a genealogy. In the Book of Mormon an injunction to keep records is found: "And I also command you that ye keep a record of this people as I have done, upon the

plates of Nephi, and keep all these things sacred which I have kept, even as I have kept them . . ." (Alma, 37:2-3). And from the Doctrine and Covenants (D & C):

It is the duty of the Lord's clerk, whom he has appointed to keep a history, and a general church record of all things that transpire in Zion, and of all those who consecrate properties, and receive inheritances legally from the bishop . . . (D & C 85:1).

And again, let all the records be had in order, that they may be put in the archive of my holy temple, to be held in remembrance from generation to generation saith the Lord of hosts (D & C 128:9).

Also, record-keeping is a required element of specific LDS beliefs and rites such as "salvation for the dead" and "baptism for the dead" (D & C 128:4), to support the notion of the eternal nature of the family (D & C 130:2, 131:2, 132:29, 132:55), and the concept of "celestial marriage" (D & C 49:15, 131:2, 132:19). In belief and practice Mormons have valued record-keeping. No other North American group can boast of the same volume and quality of genealogical records produced and maintained by the general membership. (For a more detailed discussion of Mormon rites and practices see O'Day, 1957.)

Selection of the Town

Manti was selected from among several Mormon villages since:

- (1) sufficient nominative records were available to permit family reconstitution;
- (2) records covered an uninterrupted period of 100 years (some covered 126 years) thus allowing computation of generational statistics;
- (3) complete access to records was assured;
- (4) vital events occurred in sufficient frequency to be acceptable for

study; and (5) the community is homogeneous on a socially significant variable, religion (Drake, 1972).

The community contains a population sensitive to the maintenance and use of genealogical and historical materials. Records of Manti residents are detailed, complete, voluminous and accessible for study. Virtually any public record and many LDS records are obtained simply by asking the appropriate townspeople or using the LDS Genealogical Library. Conventional checks used by historical demographers and genealogists when assessing data quality show records were more than adequate in coverage and completeness.

Because of the number of records available, their quality, and their accessibility, the population of Manti can be studied using the data collection techniques of historical demography. In comparison to eastern populations, little is known of the demographic experiences of western pioneers and their descendants. Consequently, populations of the American West are studied infrequently by historical demographers. Much of what is known about early settlers of the West is based on guesswork, myth and romanticism. The lack of data arises from the transiency of human settlement in western territories and states in the 1800s and from the manner in which records were kept in most places. Manti and other Mormon villages in Utah are exceptional.

Data Sources

The following sources were used to gather nominative information on the individuals and families resident in Manti for some portion of the period under study: prior to 1877, data were taken from an

unpublished list of pioneers extracted from the Diary of Christian Munk (compiled by Albert Antrei), who served as chief scribe for the community; Record of the Sanpete County Court, 1877 to 1892; Records of the Manti Cemetery (two volumes, covering the years 1849 through June, 1977, when observation ended); Annual Genealogical Reports by the Elders of Manti Stake; Record of Membership, Manti South Ward, Manti Stake, 1877-1941; Record of Membership, Manti North Ward, Manti Stake, 1877-1941; and Record of Membership, Manti Central Ward, Manti Stake, 1923-1948. Except for the cemetery records, maintained from shortly after first encampment, public documents were unavailable for the earliest years.

The several data sources were used to reconstruct the population from settlement to mid-1977. Given restraints of some of the data sources, analysis was restricted to the 100 year period 1849-1948. In this section, the nature of cemetery records, ward records, and annual genealogical reports is discussed in detail. The lists of pioneer settlers and other public documents are also reviewed briefly.

Cemetery Records

The records of Manti Cemetery contained 3,824 entries in two volumes; the first entry was for Jerome Bradley, a child. Maintained since the inception of the town, the cemetery records detailed deaths in Manti between November 19, 1849, and close of observation in 1977. An official ledger kept by the town sexton, the records constituted legal documentation of deaths not provided by Church reports. All entries were transferred to family reconstitution forms after

photocopying. In addition to being a starting point for the family reconstitution, burial records were a first rate, legitimate source of genealogical data. Records used in the study were all grade A or B in estimates of reliability of historical data sources (Durand, 1977:254-55).

By genealogical convention civil records of a legal nature take priority over non-governmental records. Thus, the nearly 4,000 entries in Manti burial records constituted a rich source of names and specification of relationships among people who had died, e.g., parents and children, and facilitated linking individuals with families.

Although not strictly "Mormon" records, the cemetery ledgers were kept by and for members of the LDS Church. Church and state roles in Utah often merged. Isaac Morley, for example, was a Patriarch of the Church and also acted as the Manti Postmaster. Civil institutions in Zion prior to statehood in 1896 were mere formalities, for the Church exercised complete control (O'Dea, 1957; Nelson, 1952).

Death certificates of those buried in the cemetery were accumulated throughout the year, held until winter (when other activities were curtailed by bad weather), then recorded by hand, alphabetically by surname. The sexton, who was responsible for burial of the deceased and upkeep of the cemetery, also compiled the burial records.

Information on the dead included name, sex, nationality, dates of birth and death, place of birth, death and usual residence, names of father and mother, cause of death, attendants at time of death, occupation and specifics about burial site and container. Too

incomplete for statistical analysis was information on nationality, attendants at death, occupation and specifics about interment.

Ward Records

Membership lists of the three wards in Manti comprise the bulk of data used in the family reconstitution. These records differ substantially from what is considered the principal source of genealogical information on Mormons, the family group sheet, which is completed by church members detailing their genealogies. Family group sheets are filled out as part of the duty expected of all Mormons, i.e., discovering and verifying information on ancestors for at least four generations back. The retrospective data once gathered are used as part of religious rituals. A completed family group sheet is roughly equivalent to a family reconstitution form with a major exception: the former does not respect locality.

Ward records, in contrast to family group sheets, are not aggregations of various materials from various sources and localities, but are areally based, linked to a specific subdivision of the Church and its membership during a specific time. Ward membership lists are not post facto data sources, but are records of the active membership. The lists, then, are similar to parish records in Europe. Unlike family group sheets, the extremely devout are not selected out inordinately. The lists are limited in coverage to residents of a single ward. Shifts in ward membership were noted in the lists of sending and receiving congregations. When individuals moved from one ward to another they were obligated to join the ward congregation at the new

site as once a member of the Church a person remained so unless excommunicated. Ward clerks noted dates of departure and arrival. As with burial records, ward membership lists were maintained continuously. The ward clerks noted names of all members, added births and immigrants and subtracted any who left town, died, or were excommunicated. The record of membership for the three wards in Manti was obtained through the Genealogical Library of the LDS Church. Several reels of microfilm were rented and material transcribed into ledgers. From them information was transferred directly to standard family reconstitution forms.

Manti Wards

Manti South and Manti North wards were organized on July 4, 1877; Manti Central was organized from the existing wards on August 8, 1923. The wards maintained separate church buildings and covered the entire political unit defining the city. Ward congregations reflected residential concentrations of members and boundaries were outlined by the streets laid out in the gridiron configuration of the Plat of the City of Zion. Records for each ward were grand ledger books with entries made periodically to show changes in family composition and the vital events experienced by individual members.

The records for each ward were housed independently and sent to Salt Lake City. At a later date the entire collection was microfilmed by the Genealogical Society and opened for distribution through the branch library system. The format of ward membership lists varied somewhat over time and from ward to ward.

Manti South Ward. The ward included those residing south of 2nd South Street and into the countryside on the south and west and to the mountains on the eastern side of the city. Three distinct forms of ledgers were used by clerks in the South Ward.

First, the membership lists covering 1877 to 1915 followed the format of entering information on each individual (grouped by nuclear family) periodically as events occurred. Family surname was used as an indexing device. The records were exhaustive and repetitive, detailing events from date of birth to date of migration.

Second, the records for 1915 to 1922 show the introduction of a universal numerical assignment system to each nuclear family unit. Every family was given a unique identification number assigned by authorities in Salt Lake City.

Third, after 1922 a streamlined version of the latter format was introduced. To save space and reduce repetition, the amount of ecclesiastical information was limited and space allocated for "Remarks" was diminished. Demographic items remained the same. Also, instead of spanning two pages in a ledger, the later entries were compiled in a highly concentrated area on a single page pre-printed form. Ward clerks continued to make several entries on a single family. As young people married, new numbers were assigned by head of household.

Manti North Ward. The ward was composed of those people living north of 1st North Street, with boundaries extending to the countryside on the west and north and to the mountains to the east. Two record-keeping formats were used in the North Ward.

The first, covering the years 1877 to 1922, was identical to the earliest used in the South Ward. It merely was used longer, i.e., until all books were filled. The second was identical to the last used in the South Ward and covered the years after 1922.

Manti Center Ward. Manti Center Ward was made up of those members living within the city and south of 1st North Street, four blocks south of the Manti Temple, and north of 2nd South Street. Running through the core of the central business district, it included all residents of the three blocks east and west of Main Street.

Organized in 1923 from the membership of the existing wards (especially the North Ward), the records used in the Center Ward corresponded identically to the latest used in the other two wards. The formation of the third ward illustrates how new congregations were formed in the LDS Church. As the population attained sufficient size, a new congregation was mandated to accommodate all wishing to participate in religious activities and social occasions.

Specific Items in the Ward Records

The Mormon ward clerks recorded dates of demographic events for individuals grouped by families. As long as members of a family resided together, formal records for all members were kept together. When offspring married or moved, records were kept on the new household. The Mormon family was patriarchal and patrilineal and records were kept by male surname.

Typically, the membership list contained the following information for husbands, wives, children and single residents of Manti. For husbands: name; full name of father; name of mother including maiden name if known; day, month and year of birth; if United States born, town, county and state of birth; if foreign born, minor subdivision and country of birth; ecclesiastical information (baptism, blessings, dates of passage through stages of the priesthood, excommunication); day, month and year of arrival if not born in Manti; day, month and year of any out-migrations or returns; day, month and year of marriage(s); name(s) of spouse(s); day, month and year of death. For wives: the same information was recorded for married women; if married previously, maiden and married names; polygynous unions were treated as individual family units (occasionally, a young polygamous wife was listed with children of an existing union, especially if the younger wife had not borne children or did not have children by the union listed). For children: the same information was recorded for each child; upon marriage male children appeared in the records as new heads of households. For unmarried residents, widows and widowers, missionaries fulfilling religious obligation, adopted children and illegitimate children each person was listed alone with as much demographic information as possible recorded (these persons were most likely to have missing information). As expected, not all of the information was known to each of the ward clerks recording data. Hence, it was useful to have other sources supplementing the ward membership lists.

Annual Genealogical Reports

LDS Church elders compiled yearly status reports on the Mormon population residing in each ward in each stake. The reports provided nominative information on vital events occurring within each jurisdiction.

The elders detailed information, by name, on: (1) marriages, name(s) of spouse(s), date of marriage; (2) births of children, parity, day, month and year of birth, name of father and mother and birthplace; (3) deaths, date of death, notation if the deceased was a child, cause (although data were sparse), place of birth, age at last birthday, and marital status at death; and (4) divorces of members, date of divorce, and person divorced.

The annual genealogical reports detailed the events by single years summarized by ward, thus differing from the ward membership lists. Wards included were located in Axtell, Centerfield, Chester, Ephraim, Fairview, Fayette, Fountain Green, Freedom, Gunnison, Indianola, Manti, Mayfield, Milburn, Moroni, Mt. Pleasant, Spring City, Sterling and Wales. These wards comprised the Manti (or Sanpete) Stake.

For Manti, the events in all three wards were compiled and submitted to the elders of the stake. As was the case with ward membership lists, the annual genealogical reports were forwarded to Salt Lake City and later microfilmed. The report for 1906 was missing, the only gap in all of the records used in the family reconstitution.

Pioneer Settlers and Other Public Documents

Another data source used was a list of names of the pioneers of 1849-1853. Compiled by Albert Antrie it contained the names of people known to have settled in Manti (Antrei, 1973). He made the list from references found in the Diary of a Christian Monk and the cemetery records. The list merely contained names, grouped into families and single persons (most of the latter being males).

County and municipal records, other than burial records, were scanty for the period 1849-1877. County marriage records were not available for the earliest years of settlement and the city did not keep marriage records.

In 1877, coincident to the beginning of centralized ward and stake record-keeping by Mormons, the justices of the peace (usually the bishops) began to keep some marriage records. Many of the justices left, however, often taking records with them or, prior to leaving, storing them in unknown places. A series of fires also reduced the volume of public data on marriage for the period 1877 to 1892. Undoubtedly the public furor over polygamy made the Mormons hesitate to record multiple marriages officially. Also, efforts to hide polygamy (for example, false floors or "polygamy traps" in the floors of houses) were taken by Mormons in Sanpete County.

In addition to the lack of some kinds of records the passage of time contributed to the loss of records. The history of the ledgers of a Dr. Franklin, who practiced in nearby Ephraim, illustrated the happenstance associated with record survival even in the Mormon West:

He kept ledgers for the span of years covering 1898 through 1903 . . . for some reason, the ledgers were placed on the backstairs when they were boarded over and made into a pantry. Whether this happened by design or accident will probably never be known. The fact that some of his mining deals could not bear close scrutiny may have been the motivation behind the odd placement of the record of these deals. Or, perhaps, the fact that he did strike it rich on Mt. Baldy in January of 1903 caused him to be so busy that he forgot his records. Perhaps it was as simple as the owners not knowing what else to do with them. Whatever the reason, they lay in that rotting, hidden staircase until rural renewal in the form of remodeling freed the records . . . (Ockey, 1979:4).

Information recorded on marriage license applications and certificates was limited in Utah. Since little information was available, it was decided to exclude the official marriage records from study. Since there was questionable coverage in any event, they were of little use. Also, other county documents, i.e., probate records, were not examined. The only data taken from other sources were a few dates of marriages noted in the record of the county court. These events were noted and transcribed, then placed on the family reconstitution forms (FRFs) of the appropriate couples.

Summary of Data Sources

The information contained in the various church and civil record-keeping systems made it possible to accomplish a family reconstitution of the Manti population. The data sources used were exhaustive in coverage. As such, they constituted a unique source of information on a Western rural community which evolved from a frontier outpost to a stable agricultural community surviving into the modern era.

Variables

After information was transferred from the original data sources to FRFs a code scheme was created for automated data processing. For ease of record-keeping, the FRFs were compiled on the basis of family units, a family defined as husband, wife and children born to that union. FRFs also were made for single-person units, single parent and children units, and adults who could not be linked nominatively with a specific family.

Two sorts of variables were available from the FRFs: (1) those observed directly, and (2) those generated through algorithms created in a Statistical Package for the Social Sciences (SPSS) program. Variables of the first sort have to do with demographic characteristics of specific individuals and families, i.e., dates and places of events such as birth, marriage, death and migration. The second set of variables allows calculation of ages at which events took place. Table 1 details the items compiled and decision rules maintained in order to produce basic demographic information on individuals and families.

Information on the variables for children was the same as for adults, with additional items coded. These included rank of birth (parity), age at marriage and name(s) of spouse(s). Such information proved useful in the nominative association of individuals and in linking generations.

TABLE 1
ITEMS CONTAINED ON FAMILY RECONSTITUTION FORMS
AND RATIONALE FOR INCLUSION

Item	Rationale
Household identification number	Each family unit or unattached individual was assigned a unique number, following the alphabetical listing of the FRF file
Sex	The sex of each person was noted, based on name usage, label in the records, or other reference
Basic relationship	Married males, spouse present, were identified as household heads; single persons, male or female, also were noted as household heads
Month of birth	Actual month was coded, January (01) to December (12); public documents were given priority
Day of birth	Coded 01 through 31
Year of birth	Last three digits of actual year coded; births spanned the 1700s through the mid-1900s
Place of birth	Native and foreign-born coded
Country of birth	Country names were coded, names current at date of birth used
Native-born by state	States and District of Columbia were coded
Utah births, county and town	Civil districts in Utah coded
Type of marriage	Monogamous and polygamous marriages were coded
Rank of marriage	Rank was assigned on known dates
Imputed reason for move	Specific reasons for in- or out-migration (e.g., death of spouse) were coded
Rank order of move	Total number of moves coded for each person in the family

Issues in the Family Reconstitution of Manti

The reconstruction of the Manti population presented a variety of problems illustrating many of the difficulties associated with doing such a study on an American population:

1. Accurate and complete records often are available for the isolated, remote community, those distant from the direct effects of industrialization. Manti is such a community, although in the Modern Period elements of technological change (especially in public health, transportation, communication and education) touched on every community member.

2. In most American settlements, residents were recruited from a variety of ethnic backgrounds, leading to inconsistencies in spelling of names arising from Anglicization, ignorance, or faulty spelling on the part of record-keepers.

3. Mormon missionaries were active among Scandinavians who followed naming conventions leading to overlapping first names and surnames.

4. Migration in the American West was continual with individuals and entire families migrating from place to place frequently. Fortunately, efforts were made by the LDS Church to document such movement.

5. Much of the information on populations of small localities in the United States is selective, i.e., comprehensive records usually are unavailable and the question of generalizability on the basis of data derived by family reconstitution techniques always is moot. Manti

may be representative of a variety of communities: Mormon, southwestern, agricultural, and those dependent on irrigation.

6. Mormon records are voluminous, presenting problems of managing time and effort, i.e., the sources are so many that lengthy blocks of time must be devoted to mechanical tasks of data collection, coding, and collation prior to analysis.

Problems were minimal with records on the Manti population, since records identified intergenerational linkages by referencing full names of individuals and their parents. Thus, linkage of children to proper sets of parents was easy. As women who bore children were listed several times in the various ledgers (at least every time a child was born), the likelihood that correct associations between husbands and wives, parents and children could be made was high. Difficulties remained for childless women.

The rule of reason and access to several data sources was used to overcome the problem of identical names. Also, the Mormons settled Manti and constructed it with planning in mind. People came into the community, and left, as family units. Records, then, were created on all family members, often including more than one generation. Merging church and civil records helped to reduce possibilities of misidentification and contributed to comprehensive coverage in the reconstitution of the population.

Coverage and Unknowns

Frequently, the quality of data sources constitutes a major barrier to the demographic study of historical populations. This is

particularly true of American frontier populations, whether they be in the East, Midwest, or West. Moreover, when records are available their mere antiquity casts doubt upon their utility for statistical purposes. As David Loschky notes, ". . . it is not true that old registers, like old whiskies, improve with age" (Loschky, 1967:461). The problem with old records is uncertainty. Quality and extent of coverage always are in question when historical documents are used to study human populations.

Family reconstitution, based on registers, genealogies and supplemental lists of persons resident in a community, is a useful tool in the study of demographic variables. Nonetheless, family reconstitution provides information only on those individuals and families for whom there are records. Church clerks, cemetery sextons and country doctors on the American frontier, for example, were not trained to collect data in the manner of contemporary social scientists. Also, the objective of the elders of the LDS Church in data collection was not the same as the student of fertility, mortality and migration. As a consequence of the differences in attention to detail, unknowns occurred in the records.

An "unknown" arises when an item of information (for example, the marital status of a deceased person, which ought to be noted on the burial certificate) is not given. The frequency of such unknowns varies greatly (Henry, 1968:63).

Unknowns on a single variable cause reduced coverage. When analysis calls for combination of several variables, results based on data containing unknowns leads to misinformation.

The coverage of information gained through genealogical methods

and sources varies, often depending on factors outside the control of the researcher. For example, not all demographic events were recorded, some took place in other locales, and the effect of migration out of a community is to reduce known information. Also, the interest and skills of scribes, clerks and sextons affected accuracy and completeness of coverage. Further, interest of Church Authorities in particular demographic items changed over time (for example, Mormon leaders became concerned with fertility and family size after the turn of the century).

Table 2 presents data on number and percentages of unknowns for selected characteristics of husbands and wives. The number of unknowns provides a measure of under-recording of events for all marriage ranks and for couples in which females were once-married.

Information on events experienced by women were covered better in the records than that on husbands. This sex difference in coverage arises from: (1) the emphasis placed on the family by the Church; (2) the biological fact that women bear children and, consequently, more entries occur in the records for them than for males; and (3) men in the American West were more mobile than women, often leaving a community before complete information was recorded in any registration system. Also, traditions, such as women returning to the homes of parents to bear children, allowed increased opportunity for more complete records on females.

Table 2 illustrates some of the breadth of coverage for selected variables. An examination of the table reveals that unknowns are not systematic from variable to variable. Husband's year of first marriage

TABLE 2
NUMBER AND PERCENTAGE OF UNKNOWNNS ON SELECTED CHARACTERISTICS
OF MARRIED COUPLES AND FOR COUPLES IN WHICH
WOMEN WERE ONCE-MARRIED, MANTI, UTAH

Variables	Married Couples ^a		Once-married Women ^b	
	No.	%	No.	%
Husband's birth year	718	30.2	201	13.6
Wife's birth year	646	27.2	47	3.2
Husband's marriage type	676	28.5	110	7.5
Wife's marriage type	635	26.8	64	4.3
Husband's first marriage date	1625	68.5	886	60.2
Wife's first marriage date ^c	341	14.4	134	9.1 ^d

^aN = 2374.

^bN = 1473.

^cBased on the substitution of the year of birth of the first child in the event that wife's year of marriage unknown, if the marriage occurred elsewhere, or there were no records of the marriage date.

^dBased on the substitution of the year of birth of the first child in the event that the wife's year of marriage unknown, if the marriage occurred elsewhere, or there were no records of marriage date. Effectively, the unknowns drop in number for once-married women from 841 (57.1 percent) to 134 (9.1 percent) using this procedure.

for all married couples and for couples in which females were once-married contained the highest frequency of unknowns (1,625 and 886, respectively).

A remarkable feature of Table 2 is the improvement in coverage when limited to couples in which the female spouse was first or once-married. Improvement is gauged by the relative decreases in frequency and percentage of unknowns. Coverage is better on each of the variables, but especially for those impinging on knowledge of fertility behavior. For example, the most startling improvement appears on year of birth of spouse. The reduction was from 646 of 2,374 females with unknown year of birth to 47 of 1,473 (or from 27.2 percent unknown to 3.2 percent unknown). Coupled with data on the year of first marriage of the wife, an excellent opportunity to study a population at risk over time using good quality data arises for the Manti population. The decline in number of unknowns appears to be due to more records consulted, since multiple events were involved.

Coverage of year of first marriage in Table 2 reflects the manner in which a surrogate measure may be derived from another variable. The raw information on once-married women produced 841 cases with an unknown actual marriage date. This lack of coverage occurred since marriages outside of Manti were not recorded often, lack of access to credible marriage records, unsystematic record-keeping of marriage dates, and hesitancy on the part of LDS ward clerks, in the heat and aftermath of the polygamy debate, to keep public records on marriage. A substitute measure of the year of first marriage is found with the date of birth of the first child of the union in question.

Using birth date of first child, and subtracting nine months, a surrogate date of first union is produced. By following this procedure unknowns are reduced from 841 to 134. The improvement in coverage is achieved as a byproduct of coverage on year of birth of the first child. On the basis of the reduction of unknowns on wife's year of first marriage, and our understanding of the Mormon evaluation of record keeping, more confidence may be placed in the measurement of age of first marriage.

Confidence in the data is buttressed by another measure of unknowns. A 10 percent simple random sample with replacement was taken of families in which one or more children had an unknown year of birth. Of the 318 families selected only twelve (3.8 percent) had at least one child with an unknown date of birth. As the unknowns are so few, the data are of high quality for fertility analysis, especially with focus on birth interval questions. These unknowns were due to the occurrence of births outside Manti prior to in-migration of the family, temporary absence of the family or mother during which period a child was born, or a failure in record keeping. The random sample was taken of all cases, irrespective of fertility history of the couple. The number of unknowns discovered was negligible.

Louis Henry developed certain techniques to deal with the problems of unknowns and how they impinge on coverage in historical demography. He notes the number of children with unknown date of birth affect our knowledge of fertility gained by family reconstitution:

Because fertility varies with duration of marriage, the proportion of losses resulting from births taking place outside is not exactly equal among the persons enumerated, to the fraction

of conjugal life spent away from the locality. The difference is small and, in the last analysis, we may assume that the proportion of children with unknown date of birth among those who appear on the list estimates the order of magnitude of least of the overall proportion of losses due to absence, underregistration or omission at extraction (Henry, 1968:71).

Other statistical techniques have been developed to address the problem of unknowns, although the final test of data must be qualitative. Henry suggested that birth interval information and how well it is covered tell much about the overall quality of the data, on all variables. By manipulating the Manti data, it is possible to reject them as incomplete or accept them for further statistical analysis. Three conditions were confronted when coding Manti data on what events occurred in the population: (1) events took place and the exact dates were known; (2) events did not take place by the close of observation; and (3) events took place or could have, but it was not known when (or, usually, where) the events occurred.

When condition (1) took place, appropriate dates of events routinely were recorded, using the conventions described for each variable. Condition (2) included several sorts of events: (a) those which did not occur, but were inevitable (death); and (b) those events which might have occurred, but not necessarily (marriage for the sixth time). Condition (3) showed lack of coverage in the records and ranged from problems related to collection, housing and church processing of information or difficulties in the civil record-keeping system. Each eventuality presented different problems in coding and data processing.

The LDS Church has kept such elaborate records, with extreme

attention to detail, that a type of unknown occurred not discussed in historical demography literature. There was information on the event occurring, but it was not known when it took place. Many of the unknowns in variables in the Manti population were of this sort.

Table 3 shows the frequency distributions of birth intervals under different conditions. The similarities of frequencies and proportions indicate that the distributions of birth intervals were so similar as to allow pooling of the results. Assuming that death of infants affects birth intervals, increasingly stringent requirements (specifications of when children died, for example) were applied in data processing. The number of unknowns did not rise inordinately, although the number of cases under each condition fell. Successive stringency and multiplication of variables to be included served to delete cases while there was constancy in the proportion of unknowns from subsample to subsample.

Under each condition the number and proportion of unknowns remained relatively small, 75 (3.1 percent), 75 (3.5 percent), 73 (3.2 percent), and 26 (2.8 percent), respectively. In no instance did the number of unknowns threaten the quality of the data on birth intervals, one of the most sensitive variables in a historical demographic study. Even when demands for information were most stringent, i.e., having known date of birth and death for first and second parity children living for at least one year each, unknowns were a very small proportion of the cases.

TABLE 3

FREQUENCY DISTRIBUTIONS OF BIRTH INTERVALS UNDER INCREASINGLY
STRINGENT CONDITIONS, MANTI, UTAH, 1849-1948

Interval ^a	Case One ^b		Case Two ^c		Case Three ^d		Case Four ^e	
	No.	%	No.	%	No.	%	No.	%
14/less	563	23.6	554	25.7	584	25.4	212	22.6
15-20	236	9.9	203	9.4	223	9.7	89	9.5
21-26	421	17.6	365	16.9	390	16.9	148	15.8
27-32	372	15.6	317	14.7	347	15.1	147	15.6
33-38	184	7.7	150	6.9	168	7.3	67	7.1
39-44	130	5.5	112	5.2	119	5.2	54	5.6
45-56	55	2.3	51	2.4	51	2.3	20	2.1
57-62	39	1.6	40	1.9	40	1.7	17	1.8
63/more	225	10.4	222	10.3	205	10.7	108	11.4
Unknown	75	3.1	75	3.3	73	3.2	26	2.8
Total	2386	100.0	2152	100.0	2300	100.0	939	100.0

^aIntervals in months.

^bSelected if first child and second child born survived one year.

^cSelected if first or second child born had an unknown date of death.

^dSelected if first or second child had not died by close of observation.

^eSelected if first and second child born, among those who died, lived at least one year.

Unknowns Over Time

Unknowns cannot be understood completely without consideration of their impact over time. Table 4 presents birth intervals referenced by date of birth of once-married women.

TABLE 4
BIRTH INTERVALS BY WIVES' YEAR OF BIRTH

Interval ^a	1786-1849		1850-1889		1890-1929	
	No.	%	No.	%	No.	%
14/less	192	26.1	643	23.7	398	29.3
15-20	69	9.4	250	9.2	189	13.9
21-26	120	16.3	503	18.5	219	16.1
27-32	115	15.7	422	15.6	128	9.4
33-38	48	6.5	237	8.7	71	5.2
39-44	34	4.6	143	5.3	60	4.4
45-50	24	3.3	82	3.0	48	3.5
51-56	10	1.4	87	3.2	42	3.1
57-62	16	2.2	57	2.1	34	2.5
63/more	75	10.1	219	8.1	105	7.7
Unknown	32	4.4	71	2.6	65	4.8
Total	735	100.0	2714	100.0	1359	100.0

^aIntervals in months.

The first group of women, those born between 1786 and 1849, represented those mothers born prior to settlement of Manti who lived during the period of frontier settlement, if not longer. Within this group were women who were among the first to join the LDS Church, their daughters, and immigrant converts. For this group there were thirty-two unknowns, or 4.4 percent of the total births. As all of these

women were migrants to Manti, unknowns could be a consequence of fertility events happening elsewhere and no record made in the Manti LDS data sources or other local documents. The second group, born between 1850 and 1889, was born during the period of frontier settlement and through the social and economic transition from a frontier settlement to an active, self-supporting (even exporting) agrarian community. Among the 2,714 births to these women, there were seventy-one (2.6 percent) for which birth interval information was unknown. During the time period involved, LDS record-keeping improved and the County of Sanpete and City of Manti were organized, introducing systematic private and public record-keeping of vital events. The results of the frequency distribution indicate that the data for the years 1850-1889 were quantitatively largest and qualitatively best in comparison to the other time periods. Unknowns, in proportion but not in frequency, rose for birth interval information for women born between the years 1890 and 1929. Sixty-five, or 4.8 percent, of the births had unknown birth intervals (or contained coding or keypunch errors). Calculation of Z-scores based on a comparison of the birth interval data on once-married women indicates that there were no significant differences among the three distributions in regard to unknown information.

Computer Data Processing

Nominative linkage is a process used in historical demography to reconstruct families and, indirectly, to analyze processes occurring within the population. (Much of the information presented here appeared

in "A Note on the Use of SPSS Control Cards to Create Selected Algorithms for Manipulation of Data Obtained from Family Reconstitution Forms," Historical Methods, by Donald W. Hastings and Jerry N. Harrison, 1979.) Nominative linkage is one of the first steps the historical demographer must take in producing a data set amenable for study. A second step is the manipulation of data through computer processing.

Nominative linkage of individuals and families in the Manti population was accomplished with relative ease. As the Mormon records linked nuclear family units and the researcher was required only to note additions (births, adoptions, marriages) and subtractions (death and out-migration) to or from the population, it was unnecessary to use computer processing to link family members with families. Therefore, computer control cards contained in the SPSS were prepared to alter and process data derived from family reconstitution forms for statistical analysis.

Information from FRFs was coded and then transferred to punch cards. A set of cards was prepared for husband, wife and each child. A single record contained data pertaining to the husband, his wife (or wives) and any children born to that union or adopted. Since the number of children for any husband-wife unit ranged from zero to fourteen, the data file produced (on magnetic tape) would have been comprised of records of variable length. SPSS cannot process such variable length records. To generate a data file comprised of records of the same, or fixed, length, a blank record for each "missing" (non-existent) child was created by using a simple FORTRAN routine and inserted following husband-wife records or the last child's record. For instance, a

husband-wife unit with six children required eight additional blank records be inserted following the sixth child's record; a husband-wife unit with seven children required seven additional blank records, and so on. Job Control Language (JCL) was then used to transfer data from punch cards to magnetic tape. Cards proved unwieldy to use due to their number, twenty-six boxes (2,000 cards per box) of cards prior to generation of blank spaces for squared records. The entire data file was contained on a single, large magnetic tape, each family record in the file containing a fixed length equivalent to forty-seven Hollerith punch cards.

Algorithms

SPSS control cards were used to produce logical statements (algorithms) that provided useful demographic information from the raw data, age at death, age at first out-migration as well as cross-tabulations. The age algorithm will be used to illustrate the logic of the SPSS computer program.

To compute age, one needs information on year and month of birth, identified as HBIRYR and HMOD for the husband in the program. If there was information missing, "no information" (coded 99 on month variables and 999 on year variables), or the event had not occurred by the end of the observation period (called "non-event" and coded 88 on month variables and 888 on year variables), the algorithm assigned an arbitrary MISSING VALUES code. The algorithm made little effort to use cases for which only partial data were available, although it is possible to generate useful age information from surrogate measures.

The procedure for calculating age was to subtract year of death from year of birth. An IF statement determined whether husband's month of death (HMOD) and husband's year of death (HYRD) were non-events. If the condition were true, the statement set year of death (HYRD) equal to zero. Also, the statements determined if month of death was a non-event and set the month value to zero if the condition were true. Another statement determined if the values constituted "no information" and again if true, set the values to zero. Month of birth and year of birth were treated in the same fashion, i.e., determination if they were non-events or if information was missing. MISSING VALUES were used to eliminate cases with values of zero from statistical calculations.

If there was valid information a COMPUTE statement asked that month of birth (HBIRMO) be subtracted from month of death (HMOD) and the answer stored in a holding variable called HMODIF. An ASSIGN MISSING statement asked the computer to check the record to determine if either HMOD or HBIRMO were equivalent to zero and if zero value had been flagged as unusable through the operation of a MISSING VALUE statement. If that condition were true, HMODIF was assigned a value of 999. This was followed by a COMPUTE statement which asked that year of birth (HBIRYR) and the remainder be assigned to a temporary variable labeled HYRDIF. A final COMPUTE statement was used to calculate age. It performed the following operations: it took the year difference between year of birth and death and multiplied that value by twelve to obtain year difference expressed in months. The difference in months between month of birth and month of death, in HMODIF, was added to the

value for year difference expressed in months. The sum was then divided by twelve to convert back to years and the answer rounded, accomplished by the RND function of SPSS logic.

Information on dates of death and birth, unfortunately, were not always available. An additional IF statement calculated age under the assumption that information was available on year of birth but not on date of death, although it was known that death occurred. It assumed the last year of observation (1948) to be equivalent to a person's year of death. Further statements were used to control for withdrawals from the population due to out-migration, to eliminate observations when information was unsuitable on year of birth and death had not occurred, and elimination of observations when information was available on year of death but not on year of birth. The same logic obtained for all time-related variables. Other variables were identified through straightforward coding and extracted from the VARIABLE LIST.

On the basis of directly observed variables, it was possible to create algorithms within SPSS programming that generated the ages at which events occurred, e.g., age at marriage, age at termination of marriage, and age at death, among others. Two contingencies had to be overcome in the programming to deal with (1) incomplete information, and (2) events which did not occur within the span of years covered to specific individuals. In the case of the former, if an event was known to have happened, 9's were coded. Thus, if someone were married, but no actual date could be attributed to that event, the 9 code was used for "unknown." The code was used, also, for totally incomplete

information on all variables. In the second case, it was found that individuals varied widely in experience of specific events. For example, not all males married six times. For the non-existent events, such as sixth marriage if it did not occur, 8's were coded. Thus, it was possible to obtain information on an age and sex specific basis on:

- (1) events which occurred and for which there was a known date;
- (2) events occurring and dates were unknown; (3) events which could have occurred but which did not; and (4) events for which there was no information whatsoever.

CHAPTER IV

FINDINGS

Introduction

This chapter covers the composition of the reconstituted adult population and some of the dynamics of mortality, fertility and migration in each of the major periods of community history. Some data from territorial and decennial censuses also are presented.

General mortality patterns are presented briefly. Based on previous research which used aggregate analysis rather than nominative linkage, it is obvious that the Manti population experienced an "epidemiologic transition." Comparison of death register and family reconstitution coverage of infant death indicated that the latter strategy improved our knowledge of mortality. In the mortality transition, life expectancy increased due to changing patterns of infant mortality and a shift in the structure of cause-of-death that affected all ages and sexes in the community. Public health measures taken contributed to improvements in longevity.

Fertility was examined at length. General topics included household size, children born, age at first marriage, duration of first marriage, birth intervals, and completed family size. Some of the findings of other studies of Mormon fertility also were considered. A fertility transition occurred with births in the late Frontier and early Transition Periods increasing, followed by declines

in the Modern Period (although data were incomplete for the last group of women).

Mormon patterns of migration, arrivals to and exits from Manti, are reviewed briefly, as are age at exit of married adults and their children. There was a transition in type and volume of migration and ethnic characteristics of migrants over the three time periods. At first, migration was governed by the Church and families moved in companies of tens and fifties. In the Transition Period, as the economy of the state and Manti changed, in-migration took on a different character, with fewer foreign-born and a lower volume of movement. Families no longer moved in organized groups and more individuals moved without their complete families. By the modern period, in-migration virtually ceased as a source of population growth. Out-migration increasingly was governed by social and economic conditions rather than ecclesiastical decisions. Out-migration increased markedly beginning in the second decade of the twentieth century.

Composition of the Population

This section presents general information on nativity (place of birth), era of birth, and types of family relationships among adults in Manti. With the focus on family units, with spouses present, there were roughly equal numbers of adult males and females.

Nativity

Most of the settlers arriving in Manti in November, 1849 were native-born Americans. Many had been followers of Joseph Smith in upper New York and the Midwest. Prior to arriving in Manti, the

group assembled in Salt Lake City and were selected from among members of the first companies to cross the plains to Utah. Many subsequent Manti settlers were foreign-born converts who had "gathered" in Zion. Table 5 shows the nativity of the 4,748 married adults in the re-constituted population.

TABLE 5
NATIVITY OF MARRIED ADULTS BY SEX

Nativity	MALES		FEMALES		TOTAL	
	No.	%	No.	%	No.	%
Native-born	1214	51.1	1294	54.5	2508	52.8
Foreign-born	442	18.6	434	18.3	876	18.4
Unknown ^a	718	30.2	646	27.2	1364	28.7
Total	2374	100.0	2374	100.0	4748	100.0

^aExcludes those born at sea and some born in transit to Utah who may or may not have been native-born.

The number of native-born is high given the span of years covered in the records as many individuals were born in Utah, if not in Manti itself. Ignoring unknowns in Table 5, 74.1 percent of the adult married population were native-born. Another 876, or 25.9 percent, were foreign-born. These numbers mask the overall impact of the largest ethnic group to settle in Manti, the Scandinavians. There is virtually no difference in nativity by sex, reflecting the Mormon

migratory practice of families moving as units rather than as individuals and operation of data processing procedures that selected out married couples.

To examine nativity more closely, country and region of the world of birth were examined. These data reflect the activity of the Mormon Church in colonizing the arid Intermountain West. Also, it would be misleading to focus exclusively on the American-born group; to do so would neglect the cultural diversity that contributed to the ethnic character of the Manti population. Table 6 presents the country of birth, by sex, for the adult married population of Manti.

People from twenty-one different countries settled in Manti, an out-of-the-way spot for most Americans. For the Mormons, however, Manti was a strategic point, a place to be colonized, held, and developed as a stronghold on the Mormon Corridor. The ethnic mix of Manti residents reflects the planning of the Church Authorities in sending people where most needed. The bulk of the foreign-born arrived in the Frontier Period, resulting from the activities of the Perpetual Emigration Society and the Apostle Erastus Snow.

Skills needed in Manti were integrated with general plans of Utah settlement. Initially, settlers required abilities to survive in a hostile environment. Later, agriculturalists were required to stimulate crop production. Still later, people capable of construction using native materials had to be recruited for the community.

The colonization effort of 1849-1850 was staffed by people who had survived the travails of the Mormon trek across the Great Plains. They were survivors, the hearty, capable of withstanding traveling

TABLE 6

COUNTRY OF BIRTH, BY SEX, ADULT MARRIED RESIDENTS OF MANTI, UTAH

Country	Males		Females		Total	
	No.	%	No.	%	No.	%
Austria	3	.1	1	.0	4	.1
Belgium	1	.0	0	.0	1	.0
Canada	2	.1	11	.5	13	.3
Columbia	1	.0	0	.0	1	.0
Denmark	219	9.2	219	9.2	438	9.2
England	87	3.7	73	3.1	160	3.4
Finland	2	.1	0	.0	2	.0
France	2	.1	0	.0	2	.0
Germany	15	.6	15	.6	30	.6
Holland	2	.1	6	.3	8	.2
Ireland	11	.5	6	.3	17	.4
Mexico	5	.2	1	.0	6	.1
New Zealand	1	.0	0	.0	1	.0
Norway	14	.6	24	1.0	38	.8
Russia	1	.0	0	.0	1	.0
Samoa	2	.1	0	.0	2	.0
Scotland	22	.9	18	.8	40	.8
Sweden	14	.6	27	1.1	41	.8
Switzerland	38	1.6	31	1.3	69	1.5
Yugoslavia	1	.0	1	.0	2	.0
United States	1198	50.5	1290	54.3	2488	52.4
At sea	2	.1	1	.0	3	.0
Unknown ^a	727	30.8	634	27.1	1361	28.7
Total	2374	100.0	2374	100.0	4748	100.0

^aUnited States and Unknown totals vary somewhat due to uncertainty of possession of territory and nature of evidence in the records.

long distances on few rations. They learned how to live off the land, even in subfreezing temperatures. The weakest had died long before reaching a small outpost like Manti. The adults who finally settled in Manti would be expected to lead long lives and be capable of building a new community even in adversity. The trek across the plains provided a learning experience, one encompassing encampment along the way, delays due to outbreaks of diseases such as cholera, avoidance of contact with Gentiles, and formation of trade with Indians. The experience of the trek limited the numbers who arrived ultimately in Utah and shaped the attitudes of survivors of, for example, the hand-cart companies.

The second group to arrive in Manti was recruited by the Perpetual Emigration Society. According to Arrington:

In the spring of 1849, when so many plans were made for the development of the Great Basin, the First Presidency and Twelve discussed ways and means of "bringing companies of mechanics and artisans from the British Isles to the Valley." Specifically wanted were iron manufacturers, metal workers, textile manufacturers, and potters. Church missionaries and agents were requested to "search out" such persons, band those of similar trades together, and have them "emigrate immediately . . . in preference to anyone else." Each company should be equipped with "machinery, tools, and materials for operating in all useful branches of industry . . . that a good foundation should be laid against the time that others of the poor shall go" (Arrington, 1958:97).

Skill levels needed at first in Manti were primitive in comparison with those sought in Salt Lake City. The second group of settlers fulfilled the local necessity for people with agricultural skills. The group also contributed ethnic diversity to the population since most were Danes. That people with specific skills were distributed where needed

by the Church about Sanpete County was evident in group placement of migrants. Smith, for example, noted,

Coal mining became, for a period, a significant contributor to the Sanpete County economy in the 19th Century. Coal deposits were worked at Fairview and Sterling as well as the town of Wales. The enumerator's report for the 1850 Census, actually taken in April, 1851, notes the presence of a number of persons from Wales, carefully distinguishing between North and South Wales. The men from South Wales, expert miners, were immediately available to begin operations when coal was discovered in 1855. Soon other Welsh immigrants were being directed to this community, originally known as Coalbed, which flourished until technical difficulties made the mining unprofitable (Smith, 1972:21).

Temple construction, spanning the late 1870s to late 1880s in Manti, demanded stonecutters, masons, and persons with refined engineering abilities. In addition, mining, agriculture, and allied businesses required new kinds of skills. Many of the foreign-born filled the varied labor requirements. Construction of temples in Utah was an activity used by the Church to provide an economic start for recent immigrants. Local stakes and wards in which temples were built were given administrative and supervisory responsibilities for construction. Small industries were created and local economies diversified as a result (for a complete discussion of the impact of temple construction in Utah see Arrington, 1958:337-341).

Table 7 shows that the foreign-born who came to Manti were from the area of heaviest nineteenth century Mormon recruitment, Northern Europe. Scandinavia and Great Britain were the birthplaces of most foreign-born converts, followed by Central Europe, the Americas, the Low Countries, Eastern Europe, and Micronesia. The 519 Scandinavians came to Manti largely as a result of the missionary efforts of Erastus

TABLE 7
FOREIGN-BORN BY WORLD REGION AND COUNTRY
OF BIRTH

Region and Country	Number	Percent of Total
Scandinavia	519	58.6
Denmark	438	49.5
Finland	2	.2
Norway	38	4.3
Sweden	41	4.6
Great Britain	226	25.2
England	160	18.1
Ireland	17	1.9
Scotland	40	4.5
Wales	9	1.0
Central Europe	105	11.9
Austria	4	.5
France	2	.2
Germany	30	.3
Switzerland	69	7.8
The Americas	20	2.3
Canada	13	1.5
Columbia	1	.1
Mexico	6	.7
West Indies	1	.1
Low Countries	9	1.0
Belgium	1	.1
Holland	8	.9
Eastern Europe	3	.3
Russia	1	.1
Yugoslavia	2	.2
Micronesia	3	.3
Samoa	2	.2
New Zealand	1	.1
Total	885	100.0

Snow, Apostle and representative of the Perpetual Emigration Society. By occupation, they were mainly farmers. Those from Great Britain, recruited heavily from urban areas, had different sorts of skills, e.g., laborers, shopkeepers and medicine. Those from Micronesia were the sons and daughters of missionaries. Many from Canada and Mexico were descendants of polygamists who had fled from the United States to avoid persecution.

Scandinavia, Great Britain and Northern Europe were the places of origin of 97.1 percent of the foreign-born married adults who lived in Manti. Scandinavia contributed 58.6 percent, with Denmark the leading country of birth for 438 persons or 49.5 percent of the immigrants. England was second most frequent with 160 persons or 18.1 percent of the total.

The immigrants gave rural Sanpete County and Manti an ethnic character not unlike the cities of Nebraska, Iowa and Illinois. The organization of immigration by the Church, and the gathering of the Saints, brought disparate elements to reside in Manti.

Time of Birth

Table 8 shows the decade of birth for the adult married population of Manti. The earliest year of birth, that of a male, was 1780. Many (622 or 18.4 percent) were born before the town was founded, i.e., between 1780 and 1849. The births of the oldest even preceded the founding of the Church in 1830. Almost half (1,637 or 48.4 percent) were born between 1850 and 1889. Another third (1,123) were born between 1890 and 1939. The final three decades of the nineteenth

century were the ones that ranked highest in numbers of persons born. In rank order, (1) 1890-1899, 495; (2) 1880-1889, 490; and (3) 1870-1879, 484.

TABLE 8
DECADE OF BIRTHS OF ADULTS BY SEX, MANTI, UTAH

Decade	Males	Females	Total	Percent
1780-1789	4	1	5	.1
1790-1799	11	1	12	.4
1800-1809	17	15	32	.9
1810-1819	44	25	69	2.0
1820-1829	94	53	147	4.3
1839-1839	92	57	149	4.4
1840-1849	102	106	208	6.1
1850-1859	162	141	303	9.0
1860-1869	176	185	361	10.7
1870-1879	230	254	484	14.3
1880-1889	250	240	490	14.5
1890-1899	211	284	495	14.6
1900-1909	154	204	358	10.6
1910-1919	82	127	209	6.2
1920-1929	25	32	57	1.7
1930-1939	2	2	4	.1
Total	1656	1727	3383	100.0

Those born between 1780 and 1849 were early followers of Joseph Smith or their sons and daughters. They experienced the religious awakening that spread across upstate New York and were subject to ideas from many groups in the "Burned Over District." Many experienced persecution and traveled with Smith from place to place. The foreign-born, especially the Scandinavians born between 1780 and 1849,

experienced religious persecution, particularly after converting to Mormonism, and economic upheaval in their homelands. They, and native-born Americans, crossed the Great Plains, and gathered in Utah to build the Kingdom of God. Utah was a haven safe from Gentiles and distant from state-imposed religions. Many of the oldest, those born in the 1850s through the 1880s, lived through a period during which Utah and the Mormon Church changed. Indian wars, the polygamy debate, economic and social attacks on the Church, the replacement of charismatic leadership by bureaucratic control, and merging of the Utah economy with that of the host society led to change.

Most of the people born during the Transition Period were born in and around Manti, unlike their parents. Those born after 1890 experienced further social change and went through times when basic tenets of the Church were changed. Polygamy, for example, was abandoned, followed by new emphasis placed by the Church on bearing children, completing genealogies, and adherence to the "Word of Wisdom."

Up to 1859, with one exception, males outnumbered females in births by each decade. After 1859, each decade showed more females born than males. The sex difference reflects changing economic conditions: as time passed and as usable agricultural land was filled, young males moved out of Manti before or just after marriage. Patterns of marriage, then, need to be examined.

Family Relationships: Marriage Type and Marriage Rank

Since the mid-nineteenth century the Mormon practice of polygamy riveted the attention of critics writing exposés, the curious, and

academics interested in variant marriage forms in the United States. Yet polygamy was not the predominant marriage type practiced in Manti, consistent with the whole of Utah. As Table 9 clearly shows, monogamy was the most frequent marital type recorded for once-married women, although a substantial proportion of the unions could not be categorized. The data in Table 9 show that, estimating conservatively, approximately 8 percent of the unions were polygamous while 62.9 percent were monogamous, the remainder unknown (a later, less conservative estimate, reveals approximately 11 percent of the marriages were polygamous).

TABLE 9
MARRIAGE TYPE BY SEX, MANTI, UTAH

Marriage Type	Males		Females	
	No.	%	No.	%
Monogamous	1494	62.9	1544	65.0
Polygamous	185	7.8	195	8.2
Unknown	695	29.3	635	26.8
Total	2374	100.0	2374	100.0

A conservative approach was used to categorize marriages since the records used did not contain primary information on date of marriage, and computer data processing was restricted to once-married women. Moreover, Scandinavian naming practices and the presence of

numerous childless women who could not be linked nominatively to spouses made some attributions of marriage type tenuous. The frequency of polygamy is understated here, also, as it was the practice among polygamous Mormons in Sanpete County to maintain separate households for each wife, often in different communities. Few of the homes in Manti could house multiple wives and many children. There remains one large "dormitory style" structure which was used by a huge polygamous family. In fact, those homes surviving today are quite small in size. In addition, to counteract federal enforcement of anti-polygamy legislation, direct action was taken in Manti to disguise such unions.

For Table 9, a union was categorized as polygamous only if (1) there was a clear record of it being so, e.g., overlapping marriage dates in the absence of an event terminating an earlier marriage, and/or (2) a record of childbirths existed indicating that a male had several spouses simultaneously. Preferably, both conditions were met. For the polygamous, multiple spouses ranged from two to six. Reconstitution data revealed the largest family was a male with five wives and forty-six children. The range of children born to polygamous women was the same as for monogamous, i.e., from zero to fourteen.

Although divorces were permitted by the Mormons, no serious efforts was made to measure their frequency for the Manti population. The data sources used rarely referred to divorce. No attempt was made to gain access to civil proceedings on marital dissolution. Future studies might look at Temple divorce to ascertain if patterns reported for Salt Lake City are similar for Manti.

Marriage Rank

From information on rank of marriage it is noted that the majority of persons married one person for life in Manti. Like most other Americans, the Mormons practiced serial monogamy, with a single spouse replaced after death or divorce. The frequency of polygamy, though, was difficult to measure with certainty. In addition, many polygamous families moved to Mexico and more remote areas of the Southwest after the LDS Church abandoned polygamy in the 1890s. Consequently, information on marriage rank should be interpreted with caution. Table 10 presents marriage ranks for males married to women in Manti.

TABLE 10
MARRIAGE RANK OF MALES

Marriage Rank	Number	Percent
First	1204	50.8
Second	176	7.4
Third	29	1.2
Fourth	13	.5
Fifth	3	.1
Sixth	4	.2
Unknown	945	39.8
Total	2374	100.0

Of those with known rank, 1,204 or 84.3 percent were first marriages. Only 225 or 15.7 percent were ranked second through sixth marriage. For 945 unions, marriage rank of the males could not be

ascertained. Women married less frequently than men, a maximum of three times rather than six. Also, few of the women married more than once.

Population Size

After settlement in November 1849, the population of Manti began to grow. Its growth continued until the 1920s, first through immigration and later through natural increase. Manti eventually became the largest site of Mormon habitation in south central Utah. It reached a maximum population size of just over 2,400 in the second decade of the twentieth century. After World War I the economy could support few of those born there and an impetus for out-migration arose. Table 11 presents the decennial population of Manti.

TABLE 11
MANTI POPULATION, 1860-1940

Year	Manti Precinct	Manti City
1860	NA	916
1870	NA	1239
1880	1801	1748
1890	2022	1950
1900	2425	2408
1910	2437	2423
1920	2412	NA
1930	2268	NA
1940	2240	NA

Source: Territorial and Federal Census Reports.

Manti was created by the Mormon Church in the Frontier Period. Immediate growth was a result of additional in-migration. Continued growth could occur only if the young people of marriageable age remained in town. The population reached its apex in size in the transition years. As the economy declined in the late Transition and Modern Periods, it could not support all the youth needing jobs. The land could not support all who wished to farm and the economic turbulence following the first World War, plus the attraction of jobs in urban areas, and deaths of the elderly, led to population decline.

Mortality

It is clear from earlier research that Manti passed through an "epidemiologic transition." It is almost a truism in population studies that declines in mortality are accompanied by increases in fertility. The history of Western society and the current "population explosion" in the developing countries are good examples of the consequences of rapid natural increase. This section reviews two elements of the mortality transition in Manti as it passed from a pre-industrial frontier outpost to a stable agricultural community with the technological accoutrements of modern societies. General mortality patterns and infant mortality are indicative of the mortality transition and harbor elements of fertility change.

General Mortality Patterns

For the period studied by Levison (1870-1940) age specific death rates (ASDRs) for the Manti population show the patterns attendant to a

population undergoing a decline in mortality, i.e., "high infant mortality rates, declines in ASDRs to lows at ages 10-19, and steady increases at the older ages" (Levison, 1981:88). For the decennial years 1910-1940 the curve shape of modern mortality patterns appeared, while in the previous years ASDRs were highest for the very young and the elderly. By the close of observation age-specific death rates and life expectancy conformed to modern patterns.

As time elapsed in Manti the death patterns also changed. In the Frontier Period, airborne and waterborne infectious diseases contributed to high mortality, especially among infants and children. In this period deaths were most frequent in the winter and summer months. Lack of uncontaminated water sources facilitated the spread of illness. Little could be done to contain infectious diseases. Medical knowledge and technology were limited to folk remedies of varying efficacy.

The Transition Period presented the opportunity to confront problems of public health, especially to deal with diseases linked to contaminated water. Infant and childhood mortality, though, remained high. For the first time chronic and degenerative diseases appeared among the chief causes of death. Although deaths occurring during the summer season declined, winter deaths still happened frequently. Manti benefited directly from measures to provide clean water and the adaptation of new medical remedies and techniques as they became available. Medical personnel, even specialists, arrived in Manti during the transition years.

The Modern Period is marked by declines in infant and childhood mortality, increasing age at death for the overall population. The

chronic degenerative diseases supplanted infectious diseases as leading causes of death. Also, seasonality of death ceased to be an issue as cause-of-death structure shifted to degenerative disease and man-made causes, e.g., accidental death by automobile.

Age at death rose in Manti over the three historical periods. Life was hard in the Frontier Period and first efforts were devoted to eking out a living. Conditions were harsh and infants and those with infectious diseases were subjected to the highest risks of dying. The transition years saw improvements in longevity as the conditions of life were affected by technological advancements and diffusion of knowledge. In the Modern Period length of life in Manti differed little from other rural areas in the United States. Table 12 shows age-specific death rates and life expectancies for the Manti population from 1870-1940.

In the first column of Table (12) life expectancies at birth are presented. The values for the total population are higher and more erratic than normally would be expected, particularly for 1870, 1890, and 1900. The inconsistencies in these values as compared with values for 1880 and 1910 through 1940 undoubtedly are due to under-reporting of death. The values for 1880 and 1910 through 1940 are reasonable estimates in that they show a trend of increasing longevity and the values are within the range reported elsewhere (Levison, 1981:89).

Infant Death

One of the most notable changes in the death pattern in Manti was in infant deaths. As a percentage of all deaths, infant deaths declined steadily in each historical period. The most vulnerable interims, i.e., the first month of life and the succeeding eleven months, exhibited declining proportions of all deaths over time. As deaths of infants shifted to later ages, it is suggested that the

TABLE 12

AGE-SPECIFIC DEATH RATES (ASDRs) AND LIFE EXPECTANCIES (e^0_x) FOR TOTAL POPULATION
AND BY SEX, MANTI, UTAH: (DECENNIALY) 1870-1940

Year	e ⁰ x	Age Level										
		0	1-4	5-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
		Total Population										
1870	59.39	78.8	23.6	4.2	2.8	3.6	5.8	4.2	3.8	13.6	32.0	210.0
1880	45.48	122.6	30.4	16.4	6.7	5.2	23.6	6.6	20.7	16.8	33.2	84.0
1890	59.13	69.2	15.8	5.8	4.8	5.1	5.4	7.8	8.8	17.5	45.6	100.0
1900	57.59	60.1	10.4	3.7	3.6	7.2	8.3	10.0	13.8	26.0	55.0	114.5
1910	46.23	74.7	15.3	6.7	5.8	9.4	14.4	18.9	27.6	55.8	125.5	341.8
1920	56.50	69.4	7.8	2.6	3.1	6.1	9.0	9.4	15.6	32.0	71.5	196.3
1930	62.64	54/0	5.8	1.7	2.2	3.1	4.0	6.4	11.0	25.5	59.3	294.5
1940	65.16	40.1	2.5	1.2	1.3	2.3	3.9	6.1	13.7	28.0	65.6	178.1
Males												
1870	62.82	81.9	24.0	3.3	2.9	3.0	3.7	2.8	5.7	11.0	22.8	115.3
1880	49.93	130.6	33.1	15.9	6.3	5.9	6.7	5.9	10.9	16.7	40.0	105.0
1890	58.82	76.2	18.2	5.9	5.0	3.9	5.0	8.7	8.9	18.2	51.8	110.0
1900	54.17	65.5	10.8	3.2	4.4	8.6	10.6	12.4	17.9	34.6	61.4	114.0
1910	44.40	81.6	16.2	7.1	6.5	10.4	15.2	20.5	31.4	62.8	1378.8	376.0
1920	55.02	77.2	8.2	3.3	3.2	6.1	9.0	10.5	18.3	36.4	73.1	182.0
1930	60.60	59.5	5.9	1.7	2.7	3.4	4.3	7.3	15.2	28.8	63.7	312.0
1940	62.96	44.8	2.9	1.5	1.6	2.8	4.8	7.0	17.7	31.3	72.1	158.7

TABLE 12 (Continued)

Year	e ⁰ x	Age Level										
		0	1-4	5-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
		Females										
1870	59.68	75.6	23.2	5.2	2.7	4.3	6.5	6.5	1.8	5.2	20.0	269.2
1880	54.16	114.5	27.7	14.6	2.2	4.4	9.5	7.5	12.0	17.0	26.7	70.0
1890	60.32	62.1	13.3	5.8	4.9	6.6	6.1	6.7	8.7	16.7	39.3	92.5
1900	61.75	54.3	10.4	4.2	2.9	5.9	5.8	7.2	9.1	17.8	48.5	115.0
1910	48.47	67.5	14.3	6.3	5.1	8.2	13.4	17.1	22.8	48.6	107.5	376.0
1920	58.25	61.3	7.4	1.9	3.0	6.0	8.9	8.1	12.5	27.2	70.0	208.3
1930	65.37	48.2	4.1	1.6	1.9	2.7	3.6	5.4	6.4	21.4	54.7	280.0
1940	67.97	35.0	2.1	1.0	0.9	1.8	3.0	4.9	9.4	24.1	59.6	175.5

Source: Catherine H. Levison, Donald W. Hastings, and Jerry N. Harrison, "The Epidemiologic Transition in a Frontier Town, Manti, Utah, 1849-1977," American Journal of Physical Anthropology, 56 (1981), 83-93.

causes of death also shifted from exogenous to endogenous causes. Perinatal mortality rose in the passage of time as a consequence of the predominance of diseases affecting infants disproportionately and the high fertility pattern of the population.

Infant mortality rates in historical populations are among the most difficult for which to account. Deaths went unrecorded; stillbirths and miscarriages were confused. Those buried in family plots were not entered in the civil registry of deaths. Therefore, official ledgers contain undercounts of infant deaths.

Table 13 presents infant death rates in Manti calculated using the death registers and the family reconstitution data, respectively. Rates calculated were comparable for the Frontier and Transition Periods, while the rates in the Modern Period were not. Close of observation for the family reconstitution was in 1948, while the death register information spanned the years 1849 to mid-1977. Of the 549 infant deaths recorded in the Manti Cemetery burial records, 145 were in the Frontier Period, 268 in the Transition Period and 136 in the Modern Period. A total of 632 infant deaths were noted in the family reconstitution, although a shorter period of time was covered. Infant mortality rates for the two comparable time periods were higher based on the family reconstitution data than on burial information alone.

Although the results improved with additional data from the family reconstitution study, this finding should be interpreted with caution. It is assumed that even the reconstitution did not capture all of the infant deaths and that the problems of undercounting remained, i.e., some infant deaths went unrecorded in any document.

TABLE 13

INFANT DEATHS BASED ON BURIAL RECORDS AND FAMILY
RECONSTITUTION EXERCISE BY HISTORICAL PERIOD

	<u>1849-1889</u>	<u>1890-1929</u>	<u>1930-1977^a</u>	<u>Total</u>
	No.	No.	No.	No.
Births	1652	3759	710	6121
Infant deaths, burial list	145	268	136	549
Infant deaths, FRF	206	337	89	632
Infant death rates:				
Based on burial list	8.78	7.13	19.15	8.97
Based on FRF	12.47	8.97	12.54	10.33

^aFRF data covered years through 1948.

Despite the Mormon penchant for listing all souls born in the Church membership lists, whether or not those children died as infants or were "premature" at the time of their deaths, it is assumed that not all deaths were noted. Also, some of the total births recorded occurred in places outside Manti, thus subjecting the denominator values in Table 13 to undue upward pressures. The trends noted in infant deaths from the burial lists are confirmed, if anything, by the additional data from the reconstitution exercise.

A comparison of infant deaths based on the burial lists and the family reconstitution shows that the latter data are more complete. The data sources used were incomplete due to deaths along the trail, births that were forgotten after children died, burial in plots outside the city cemetery and deaths that occurred among those who out-migrated. The values, however, were close to state and other rural area values

reported elsewhere. In the Frontier and Transition Periods, infant deaths increased from 145 to 206 and from 268 to 337, respectively, by using FRF data. Modern Period data were not comparable. Table 13 also shows improvement in infant mortality in each period. That is, in comparison to the total number of births in each period, the rate of those dying in the first year declined. For example, children born in the transition years were subjected to lesser risks of dying than those born in the Frontier Period.

Infant deaths were concentrated among low parity births, especially the first. As Table 14 shows, infant deaths occurred disproportionately among the first order births.

TABLE 14
INFANT DEATHS BY PARITY AND PERIOD, MANTI, UTAH

Parity	1849-1889		1890-1929		1930-1948	
	No.	%	No.	%	No.	%
1	89	43.2	96	28.5	32	52.5
2	32	15.5	50	14.8	15	24.6
3	20	9.7	45	13.4	7	11.5
4	20	9.7	39	18.9	3	4.9
5	12	5.8	30	11.6	1	1.6
6	9	4.4	24	11.7	2	3.3
7	7	3.4	21	7.1	1	1.6
8	9	4.4	18	5.3	0	0.0
9+	8	3.9	14	4.2	0	0.0
Total ^a	206	100.0	337	100.0	61	100.0

^aThere were 632 total infant deaths, including 28 (4.4 percent) for which either parity, or, more likely, year of birth and death, could not be determined.

In the Frontier Period eighty-nine (43.2 percent) of the infant deaths were to first order births. Interestingly, in the Transition Period the proportion of first order infant deaths fell to 28.5 percent. Infant deaths by parity in the Transition Period show a much more even distribution among the parities than in the Frontier Period. As infant mortality is related to age of mother, parity, death, health care and diet, positive changes were occurring. This suggests that each child born experienced more equal chances of survival (or death) due to altering causes-of-death. As women of the Modern Period had not completed their childbearing years, the numbers presented in the table for them are regarded as tentative. In all, 35.9 percent of the infant deaths occurred to first parity births, 16.1 percent to second order births, 11.9 percent to third order births, and 10.2 percent to fourth parity births. The remaining 25.8 percent occurred to the higher parities or were unknown.

The pattern of infant death over time suggests that more children survived and the population would be expected to grow. Whether needed or not, more children survived the first deadly twelve months of life. As more lived to adulthood, social and economic institutions were subjected to new pressures. Pressures were exacerbated, also, by adults living to older ages.

Cause-of-Death

Table 15 shows rank orders on cause-of-death by major classification for the three historical periods. It presents the transition of death structure from infectious and parasitic causes to the

TABLE 15

RANK ORDERS OF CAUSE-OF-DEATH BY MAJOR CLASSIFICATION FOR FRONTIER,
TRANSITION AND MODERN PERIODS: MANTI, UTAH

Cause-of-death ^a	Frontier		Transition		Modern	
	1849-1889		1890-1929		1930-1977	
Infectious/parasitic	1	(159)	3	(124)	9	(14)
Diseases of respiratory system	2	(93)	1	(256)	9	(80)
Congenital abnormalities/ certain conditions originating in perinatal period	3	(57)	4	(116)	5	(71)
Diseases of the digestive system	4	(46)	5	(92)	7	(28)
Injury and poisoning	5	(26)	7	(75)	2	(146)
Diseases of genitourinary system	5	(26)	6	(79)	6	(32)
Diseases of the nervous system and the sense organs/mental disorders	5	(26)	8	(68)	8	(22)
Diseases of circulatory system/diseases of the blood and blood forming organs	8	(24)	2	(228)	1	(472)
Complications of pregnancy, childbirth and the puerperium	9	(23)	10	(15)	10	(3)
Endocrine, nutritional, and metabolic diseases	10	(12)	11	(9)	10	(3)
Neoplasms	11	(2)	9	(42)	3	(87)
Diseases of skin and subcutaneous tissue, diseases of musculoskeletal system and connective tissue	12	(1)	12	(3)	12	(1)
Total	639		1457		1658	

^aMajor classifications, unknown, included in totals.

Source: Catherine H. Levison, Donald W. Hastings, and Jerry N. Harrison, "The Epidemiologic Transition in a Frontier Town, Manti, Utah, 1849-1977," American Journal of Physical Anthropology, 56 (1981), 90.

diseases linked to the aging process. Quoting Levison at length:

While the incidence of cases on some causes are quite small (a detailed listing of causes is available upon request), the data presented [in Table 15] show that changes in the cause-of-death structure over time follow the "delayed" model as outlined by Omran (Omran, 1971, 1974, 1977).

In the frontier period, the four leading causes-of-death in rank order were infectious/parasitic, diseases of the respiratory system, perinatal conditions/congenital abnormalities, and diseases of the respiratory system. In the transition period, diseases of the respiratory system became the major cause-of-death, largely due to the influenza epidemic of 1917-1918. Diseases of the circulatory system, especially heart, jumped from eighth place in the frontier period to second. Infectious/parasitic diseases declined to third. Perinatal conditions/congenital abnormalities and diseases of the digestive system fell respectively to fourth and fifth.

Between the transition and modern period, the rank order of causes-of-death changed. The leading killer became diseases of the circulatory system. Injuries/poison/accidents rose from seventh to second place; cancer jumped from eleventh to third. Infectious/parasitic diseases dropped to ninth. The transition from a pattern of dying from infectious and parasitic diseases to one of chronic degenerative disease and man-made environmental hazards paralleled changing standards of personal hygiene (e.g., weekly to daily bathing, flower-based to lye-based soap), improved sanitation (e.g., outhouses to septic tanks and ditched to piped water) and the introduction of disease-specific therapies (e.g., home remedies to antibiotics).

The transition in leading causes-of-death is reflected in the changing age-specific structure of mortality. Initially, there was a decline in communicable diseases which had afflicted newborns and young children. As deaths to children dropped, life expectancies at birth rose and there was an increase in the number of persons surviving to adulthood. As a consequence of an aging population, degenerative diseases associated with older ages became prevalent (Levison, 1981:90-91).

Issues in the Study of Mormon Fertility

Polygamy and family size traditionally are analyzed in studies of Mormon fertility. Regardless of the model of fertility behavior adopted, the religious values of the Mormons must be taken into

account. Fortunately, extensive study may be done due to comprehensive record-keeping by the LDS Church membership. Church statistics were kept in Utah from 1847. Civil records also were kept from pioneer days. Because of the availability of data sources and the interesting quality of Mormon beliefs about marriage, family size and birth control, demographers have detailed with increasing accuracy fertility trends and processes within Mormon populations.

Marriage and Polygamy

The Mormons proposed changes in the institution of marriage, and practiced them, as did other nineteenth century utopian groups in America. The Mormons advocated plural marriage. Since the mid-1800s, when LDS Church leaders publicly announced the practice, academic and lay questions about polygamy, as well as its implications for fertility performance, have attracted interest. Contrasted with earlier rhetorical polemics of the late nineteenth and early twentieth centuries, recent work has addressed the interplay of officially maintained values and Mormon behavior concerning birth control. Part of this research focuses on ascertainment of measurements of fertility, to establish more detailed sampling schemes and, most recently, application of non-census based data collection techniques to uncover more complete and accurate information.

Part of the interest in marriage and polygamy was generated by the large family size reported for Mormons in the past:

As Hastings, Reynolds, and Canning, O'Dea and others who have studied the Mormons have emphasized, a combination of theology and cohesive social organization provides strong motivation and support for Mormon parents to have large families.

According to what many Mormons accept as official doctrine of the Mormon Church, there are many "spirits who yet await the opportunity to take on mortality and come to earth." Since all these spirits must be born into the world, it is the responsibility of Mormon parents to provide the opportunity by begetting children and properly caring for them until they reach maturity. Past and present Church officials condemn family limitation and regard the high birth rate of Mormons as the best indicator of the Church's prosperity (Pitcher et al., 1974:143).

In America the Mormon practice of plural marriage occupied a unique place among religious groups with popular appeal (Ivins, 1956; Smith and Kunz, 1976; Thornton, 1979). Although the LDS Church formally renounced the practice in 1890, its implications for understanding fertility differentials within the Mormon population have demanded continuous interpretation. Despite formal disavowal polygamy created conflict inside and outside the Church. Subsequent fertility performance, at least continued positive evaluation of high fertility behavior, cannot be understood without analyzing polygamy.

Family Planning

Beyond the practice of polygamy and preaching about the stories of large family size, the Mormon Church of the late nineteenth and early twentieth centuries railed against birth control. The "official" position of the Church Authorities, in contrast with lay attitudes and practices, continued to be pronatalist and hostile to family limitation (Hastings et al., 1972).

Despite the content of "official" positions, there are disparities among females in age at first marriage, marriage patterns, completed family size and other fertility related issues. Study after study documented the process of secularization and diminishing

differential fertility between Mormons and non-Mormons (DeHart, 1941; Hastings, et al., 1972; Spicer and Gustavus, 1974).

The present descriptive study uses genealogical data derived from family reconstitution to discuss fertility. Its methodology is similar to other research recently performed (Pitcher, 1974; May, 1976; Skolnick et al., 1978). It goes beyond these efforts by inclusion of both ecclesiastical and civil data sources. It does not rely on family group sheets as the primary source of information. The purpose is simple: to identify factors impinging on the fertility behavior of Mormons resident in a single Utah community and assess if changes in fertility conformed to changes contained in the demographic transition.

Studies of Mormon Fertility

"Time was when in the popular mind, Mormonism meant only polygamy" (Ivins, 1956:229). The practice of polygamy and the debate within and outside the LDS Church clouded the academic study of Mormon fertility. Mormonism of the twentieth century does not conjure up the image of polygamy in the popular mind, but large families, positive family values and rejection of birth control do come to mind.

Ivins wrote on polygamy attempting to dispel some of the popular myths about the marital practice. He went further into the issue of fertility and explored the characteristics of LDS families. Making use of Esshom's genealogical study of pioneer families, Ivins noted,

While polygamy increased the number of children of the men, it did not do the same for the women involved. A count revealed that 3,335 wives of polygamists bore 19,806 children, for an average of 5.9 per woman. An equal number of wives of monogamists, taken from the same general group, bore 26,780 for an average of eight. This suggests the possibility that

the overall production of children in Utah may have been less than it would have been without benefit of plurality of wives. The claim that plurality was needed because of a surplus of women is not borne out by statistics (Ivins, 1956:229).

By 1941 the focus on Mormon fertility shifted from polygamy and associated myths and truths to an assessment of changing Mormon fertility patterns. William DeHart, for example, concluded that the birth rate in the State of Utah was affected by both religious and socioeconomic factors. Significantly, DeHart found that the birth rate in Utah "is following national trends" (DeHart, 1941:827). He continued:

As cities in Utah increase in size, the birth rate falls consistently. With an increase in the plane-of-living, there is a corresponding decrease in the birth rate; this decrease is not very evident, however, in this Intermountain Region until the factor of religion is controlled (DeHart, 1941:827).

Other, later studies document declining Mormon fertility and parallels with national trends (Spicer and Gustavus, 1974). Caution should be exercised in non-census based studies, as often they rely on family group sheets or vague family recollections that are not areally based or, in the case of the latter, frequently lack documentation. A typical statement in the literature on Mormon fertility and the genealogical data sources is:

The data for this study were collected through the use of family genealogical histories. The Mormon people have been very active in genealogical research because of their religious beliefs concerning the importance of the inter-generational family unit, and as a result have compiled many remarkably complete and accurate family histories (Pitcher, 1974:145).

Or,

A criterion for entry into the LDS file is that a descendant

has become a Mormon, which in addition to possible socioeconomic biases in the conversion process, reflects also the demographic bias that a member connecting an ancestor to his descendant survived to marry and to reproduce. Also the more children a person had, the greater the probability that he would produce a descendant who would be able to complete the family record and enter it into the genealogical file (Skolnick et al., 1978:6).

The family group sheet, a historical record of family genealogy, is an essential document used by families for religious purposes, e.g., in identification of past family members and in rites such as baptism for the dead. Studies based on Mormon family group sheets point to large family size and prolific fertility performance by Mormon women. It is suggested that the very completeness and accuracy of this rich data source contribute to a potential source of bias: would the devout or descendants of the Mormon pioneers have more accurate, more complete family histories than the less devout? Would focus on completed family group sheets distort the image of the demographic experience of the Mormons? Also, do recollections of family histories (such as Frank Esshom's, Pioneers and Prominent Men of Utah, 1913) lead to erroneous conclusions about Mormon fertility in the nineteenth century?

Data in this study do not come from family group sheets. They are taken from records kept at the time the people studied were alive or when they died. Family group sheets and family histories were used merely to check, when the opportunity arose, the completed family reconstitution forms. When such checks were made, family group sheets and family histories exhibited gaps, misassignment of individuals to families, and placement of individuals within the correct patrilineage but the wrong nuclear family. For example, in a check on the descendants of Alameda Washburn, the first child born in Manti, with

her living descendants indicated that the Esshom collection linked people incorrectly.

Household Size

Households in the nineteenth century often consisted of nuclear or extended families plus boarders. Over time the mean household size, no matter the composition or type, of the American family decreased. That is,

In 1790 the average size of American households was 5.8 while in 1973 it was 3.0 The importance of children to this figure is evident when we realize that in 1790 there were an average of 2.8 children under 16 per private household, while in 1970 the average was 1.0. To look at it slightly differently, in 1790 35.0 percent of households in the United States had 7 or more people, while in 1970 this was true of only 5.1 percent The figures for the seventeenth century are quite similar, though they are based on censuses for individual colonies. Mean household size was 5.4 and the mean number of children was 3.2 in New York (Gordon, 1978:57).

Census-based data lend support to the notion that family size and household size decreased over time in the United States. Susan Bloomberg, for example, reported that both urban and rural households in Southern Michigan reflected a decline in average size from 1850 to 1890 (Bloomberg et al., 1971:30). While the average household size in the United States was 5.6 persons in 1850, it declined steadily to 4.9 persons by 1890. The State of Michigan showed a similar decline, while rural southeastern areas of the state dropped from 5.4 persons per household in 1850 to 4.8 persons in 1880.

Michigan was not the only locality or rural area to show declining household size in the nineteenth century. Although non-census based family reconstitution data for localized United States

populations are rare, some studies do exist. They point to declining family size and variability in timing of the decline. For example, Daniel Scott Smith reported that completed family size in Higham, Massachusetts between 1841 and 1860 was 3.2, was well below the national average (Smith, 1976:181-182).

The definition of the household in family reconstitution has taken several meanings: (1) children ever born to a married couple; (2) the nuclear or extended family that co-resides; and (3) the nuclear or extended family plus boarders. For purposes of this study household refers to the nuclear unit, including husband, wife and all children born (or adopted) by the couple. Adopted children were excluded from statistical analysis. Household size refers to the number of persons in the family at death of one of the spouses, at exit of the family from the community, or at close of observation.

Problems of definition arise when discussing the Mormon family of the nineteenth century. Polygamy cannot be ignored, yet efforts were made to disguise its presence, officially and unofficially. To minimize the problem, polygamous unions were treated as single households in this analysis. This procedure, also, most accurately reflects residence patterns in Manti and Sanpete County where polygamous families rarely resided together in a single household. It also allows examination of fertility history of each married woman, not of several "sisters" together. Also, the Manti ward membership records were collected following such a procedure.

The Mormons Have Been Noted for Their Large Families

Religious and economic factors can be used to explain high fertility levels, i.e., large numbers of children in Utah families. The factors also may be used to explain the decline in the number of children born to Mormon women and to falling average household size. The LDS value system supported families in their decisions to bear children despite secularization. The frontier endeavor required large numbers of children (to replace those who died, for workers in agricultural and ranching ventures, or simply more bodies for physical protection). With a transition to stable conditions, economic reasons for high fertility diminished. According to DeHart, the reasons for large families on the Mormon frontier actually are hard to sort out:

The Mormons have been noted for their large families, but whether this is a result of religious influences or simply a derivative of frontier conditions and other socioeconomic factors has not been clearly demonstrated (DeHart, 1941: 818-819).

The question raised by DeHart, open since 1941, still has not yet been resolved. The picture of the Mormon family of the nineteenth and early twentieth centuries is of the large family, despite changing economic conditions and changes in religious practices. Family size continues to be a focus of fertility research on the Mormons:

The demographic perspective has numerous points of contrast with religious factors. One of these is the contemporary interest in the relationship between religious beliefs and family size. Recently, research workers have investigated the impact of race, foreign birth, income, urbanization, occupation, education, migration, and other factors on the relationship between religion and family size. As a result of these studies it has become quite clear that religion is an important factor in determining completed family size (Pitcher et al., 1974:143).

Household Size in Manti

Table 16 shows the total household size for Manti families, by migration status of the female spouse. There were 2,330 families for which household size and migration information were available. For twenty families it was impossible to determine exact family size due to uncertainty of assignment of specific individuals with a specific family; for example, children had identical names with adults, thus assignment to a set of parents was impossible because of missing information or, in a few cases, simple key entry errors. Of the 2,330 families, 1,013 (43.5 percent), contained women who did not leave Manti, or, if they had moved into town, never left. A majority of the families, 1,317 or 56.7 percent, contained female spouses who left the community at least once.

The 2,330 families account for over 11,000 individual family members resident in Manti between 1849 and 1948. The average family during that one hundred year span was 4.77 persons (not dissimilar to national figures). Excluding childless couples (378 or 16.2 percent), the average family size was 5.3 persons. The number of persons per nuclear family unit ranged from two to sixteen. Of all the families, 70.8 percent were made up of five persons or less.

Several factors account for the preponderance of families with few children or none at all: (1) it was a very migratory group overall; (2) childlessness was accentuated by the large number of couples who married and immediately or shortly thereafter left town; (3) immigration of elderly female converts who had borne children elsewhere and for whom there was no local record; and (4) the practice of

TABLE 16
HOUSEHOLD SIZE OF MANTI FAMILIES BY MIGRATION STATUS OF WIVES

Household Size	Non-migrant Females		Migrant Females		Total	
	No.	%	No.	%	No.	%
2	155	15.3	223	16.9	378	16.2
3	195	19.2	456	34.6	651	27.9
4	151	14.9	212	16.1	363	15.6
5	117	11.5	144	11.9	261	11.2
6	78	7.7	79	6.0	157	6.7
7	75	7.4	77	5.8	152	6.5
8	66	6.5	32	2.4	98	4.2
9	56	5.5	29	2.2	85	3.6
10	42	4.1	27	2.1	69	3.0
11	31	3.1	20	1.5	51	2.2
12	21	2.1	10	0.8	31	1.3
13	15	1.5	3	0.2	18	0.8
14	5	0.5	3	0.2	8	0.3
15	6	0.6	1	0.1	7	0.3
16	0	0.0	1	0.1	1	0.1
Total	1013	100.0	1317	100.0	2330	100.0
Unknown	5		15		20	
Mean	5.41		4.28		4.77	

polygamy, combined with an ethic which prescribed marriage for everyone (many women married but bore no children because they married after the childbearing years).

There was a difference in mean family size between those who moved and those who did not. The average family size of movers was somewhat smaller than for those families of women who never left. Migrant families averaged 4.28 persons per household versus 5.41 persons per non-migratory households. That is, there was an average difference of 1.13 persons per household for those who did not move versus those who did. Because of computing and coding procedures, it was impossible to sort out household size by historical period.

Some of the difference between migrants and non-migrants is accounted for by the large proportion of small families that moved out of Manti. Many of the migrant families (51.5 percent) consisted of childless couples (16.9 percent) or contained only a single child (34.6 percent). The high proportion of childless migratory families hints that the local economy could not support all the new families as they were created through marriage. Jobs needed to support young families were sought elsewhere. This compares to only 34.5 percent of the non-migrant families of the smallest sort; 15.3 percent were childless while only 19.2 percent contained a single child.

There also were higher numbers and proportions of large (ten or more members) families which stayed in Manti. That is, there were 120 (11.8 percent) such families among the non-movers and only sixty-five (4.8 percent) among those who moved. The ward records noted family moves as well as individual moves. The proportion of families

numbering two through five members among non-migratory families was smaller (618 or 61.0 percent) than among the migrants (1,035 of 1,317 or 78.6 percent). Among the total number of families, 70.9 percent (1,653 of 2,330) were of families numbering two through five.

Subtracting childless family units, the family size of those who did not move averaged 6.02 persons per household. When the same was done for migrant families, the mean household size rose to 4.74 persons per family. The reported household size did not reflect members who were boarders, transient family members, or polygamous units residing in common, of which there were few.

The mean household sizes compare favorably with the mean household sizes for the United States and rural and urban areas of southern Michigan reported by Bloomberg (Bloomberg et al., 1971). Table 17 compares the reported average household size in the United States, Michigan and Manti.

It should be noted that the Michigan data included boarders and non-family members resident with families at the time that decennial censuses were taken. Manti data contained only related family members, tallied once for the entire family. Obviously, the Manti families would have had higher mean household sizes if boarders were counted, or if transient laborers, who worked in the fields at harvest time or on temple construction in the Frontier Period, were counted.

Children Born

Table 18 presents the number of children born after the founding of the town to once-married women who resided in Manti by birth cohort.

TABLE 17

AVERAGE HOUSEHOLD SIZE, UNITED STATES, MICHIGAN AND MANTI, UTAH

Place	1850	1860	1870	1880	1890
United States	5.6	5.3	5.1	5.0	4.9
Michigan	5.5	5.3	4.9	4.9	4.6
Southern Michigan					
Detroit	5.2			5.0	
Village and town	5.0			4.4	
Rural	5.4			4.8	
	<u>Migrants</u>	<u>Non-migrants</u>	<u>Total Population</u>		
Manti	4.28	5.41	4.77		

Sources: Susan Bloomberg, Mary F. Fox, Robert M. Warner, and Sam Bass Warner, Jr., "A Census Probe Into Nineteenth Century Family History: Southern Michigan, 1850-1880," Journal of Social History, 5 (Fall 1971), 26-45; Manti family reconstitution.

TABLE 18

NUMBER OF CHILDREN BORN TO ONCE-MARRIED WOMEN BY BIRTH COHORT

Birth Cohort of Children	Children Born	
	No.	%
1849-1889	1652	27.3
1890-1929	3759	62.1
1930-1948	635	10.5
Total	6046	100.0

The data do not show the number of children ever born because of the mobility of the population and associated information loss: women, men and families moved in and out of the community, making children ever born a difficult statistic to calculate with certainty. Children were born, and some died, elsewhere. Others arrived with their parents when the entire family migrated into the valley. Of those noted, most were born in Manti.

Few of the once-married women spent their entire lives within the community. Following Mormon migratory patterns, the first groups of settlers arrived as intact families. Some women had already completed their childbearing years on arrival, others had yet to enter them. The Frontier Period of settlement was followed by continued immigration in the Transition Period. Again, many women arrived with families already begun. It was also during the Transition Period that many left, taking their children with them. Table 18 shows that most of the children (3,759 or 62.1 percent) were born in the transition years of 1890-1929. Of the 6,046 born, 1,652 (27.3 percent) were born during the frontier years of 1849-1889. Only 635 (10.5 percent) were born in the Modern Period of 1930-1949. The pattern of births shown in Table 18 suggests that women who entered their primary childbearing years in the Transition Period produced the most children. This also shows that the fertility pattern of the demographic transition held true for Manti: falling mortality rates were accompanied by continued high fertility, followed by declining fertility in the Modern Period.

Table 19 presents the number of children born to once-married women in Manti by birth cohort of mothers. It provides further

TABLE 19

NUMBER OF CHILDREN BORN TO WOMEN WHO LIVED IN MANTI,
BY MOTHERS' BIRTH COHORT

Mothers' Birth Cohort	Mothers	Children	Mean
Pre-1849	174	753	4.33
1850-1859	99	457	4.62
1860-1869	131	597	4.56
1870-1879	217	1024	4.72
1880-1889	198	748	3.78
1890-1899	257	755	2.94
1900-1909	182	420	2.31
1910-1919	114	186	1.63
1920-1929	26	35	1.35
Total	1398	4975	3.56

confirmation of the transition model. Overall, the birth cohort of 1870-1879, beginning their childbearing early in the Transition Period, produced the largest number of children, 1,024, with a mean of 4.72 children per woman (including childless women). Mean number of children was unadjusted for migration status of women. Although smaller in number of women and number of children born, the preceding two birth cohorts, 1850-1859 and 1860-1869, produced about the same average number of children as the 1870-1879 birth cohort. Those women born in the late Transition Period produced the least number of children as they had just entered the childbearing years. Those women born in 1880-1889, 1890-1899, and 1900-1909 had, in the main, completed their reproductive cycles by close of observation and demonstrate declines in the mean number of children (3.78, 2.94 and 2.31, respectively) consistent with

national trends, but well below those reported for other Mormon populations by researchers using family group sheet data (Bean, n.d.).

The overall mean number of children born to all of the once-married women in Table 19, 3.56, places the mean household size, since only intact families were included, at 5.56, a not unreasonable estimate of household size for other rural areas in the United States and Utah. The reasons for declining performance are open to speculation. The reproductive years of the three birth cohorts producing the most children span years of change in the State of Utah, the Mormon Church and in Manti. They were times of intense debate within the Church: polygamy, race suicide and the position of the Church on birth control and the family, for example, were objects of wide discussion. By the end of the Transition Period, the Church abandoned polygamy, directed Mormons to bear large numbers of children, and elucidated positive evaluation on large family size. The birth cohorts following 1870-1879 show a trend toward smaller numbers of children born. Although Table 19 presents unadjusted data, it shows that the pattern of childbearing in Manti paralleled the decline experienced in Utah and the nation. The women bearing children later than those born between 1870-1879 experienced a different world: the Church was more secure than in the past, less subject to violent eradication, the rural, agricultural economy accepted technological change, making intensive labor with a need for many hands untenable, and the economic turmoil occurring as a result of integration with the national marketplace produced pressures to bear fewer children and for youth to abandon the farms and follow urban life styles.

Table 20 shows the distribution of the number of children born to once-married women in Manti by period of birth of the mothers. There is very little difference in the distributions between the women born prior to 1849 and those born between 1849 and 1889. The similarity suggests that fertility patterns of the frontier years were carried over into the Transition Period. Because all women born in the last period, 1890 to 1929, did not have the opportunity to complete their childbearing during the years under observation, the number of women at the higher parities is small. In terms of frequencies of lower order births, women born between 1890 and 1929 were well underway in childbearing. Three trends appear in Table 20: (1) the number of large families decreases; (2) childlessness increases; and (3) more births were concentrated in parities one and two.

Factors Affecting Fertility and Knowledge About Fertility

Household size and changes in household size over time can be misleading if used alone in discussions of fertility, especially if data used are of a historical nature. Among the factors affecting fertility in a non-contracepting population, or one beginning to control fertility, are age at first marriage, duration of first marriage, birth intervals, and patterns of mortality and migration. Depending on the variable, fertility can be increased or decreased. For example, if age at first marriage rises, fertility, production of children, should decrease because of shorter periods of exposure to the risk of pregnancy. Each of these factors can be explored thoroughly through an analysis of family reconstitution data.

TABLE 20

DISTRIBUTION OF CHILDREN BORN TO ONCE-MARRIED WOMEN,
MANTI, UTAH, BY THE PERIOD OF WOMEN'S BIRTH

Children	Pre-1849		1849-1889		1890-1929		Total	
	No.	%	No.	%	No.	%	No.	%
0	29	13.8	116	15.6	78	12.3	223	14.0
1	30	14.2	100	13.4	244	38.5	374	23.6
2	27	12.9	81	10.9	125	19.7	233	14.7
3	22	10.5	99	13.3	86	13.6	207	13.1
4	23	10.9	63	8.5	38	6.0	124	7.8
5	17	8.1	74	9.9	25	3.9	116	7.3
6	14	6.7	56	7.5	12	1.9	82	5.2
7	17	8.1	46	6.2	10	1.6	73	4.6
8	8	3.8	40	5.4	9	1.4	57	3.6
9	8	3.8	28	3.8	5	0.8	41	2.6
10	5	2.4	23	3.1	0	0.0	28	1.8
11	5	2.4	8	1.1	1	0.2	14	0.9
12	1	0.5	6	0.8	0	0.0	7	0.4
13	4	1.9	2	0.3	0	0.0	6	0.4
14	0	0.0	1	0.1	0	0.0	1	0.1
Total	210	100.0	743	100.0	633	100.0	1586	100.0
Total children	835		1841		1299		4975	
Mean children	3.98		3.82		2.05		3.14	

Many additional variables or factors affecting fertility cannot be explored by using historical materials. For example, biological questions, e.g., postpartum amenorrhea or measurement of menstrual cycles, which affect fertility directly, cannot be addressed through the membership records of a church or through burial lists. The factors observed directly are discussed.

Age at First Marriage

Manipulation of the age at first marriage by historical populations is an early indicator of attempts at fertility control in the absence of other forms of contraception. Fluctuations in the age of first marriage, then, may reveal whether a population attempted to control fertility.

In societies in which there is little control of contraception within marriage this is one of the most important variables bearing upon reproduction rates. Indeed, it is sometimes asserted that a lowering of the age of first marriage for women largely accounted for the rapid rise of population in England in the second half of the eighteenth century. The mean age at which women bore their last child in European communities with little or no control of contraception was usually about forty, and for some years before this their fecundity declined rapidly. It is clear therefore that a mean age of first marriage of 22 in these circumstances will give rise to twice as many births in completed families as a mean age of, say 29 or 30 (Wrigley, 1972:53).

Age at first marriage in America shows no clear pattern in the literature (Gordon, 1978:170-173). It is apparent that age at first marriage in the United States varied by location and by composition of local populations. There is, however, little agreement on the overall pattern.

Data on date of marriage was a variable of limited coverage in

the various sources used for this study. Several factors contributed to the relative lack of marriage information: (1) Mormons who migrated to Manti frequently came long after marriage ceremonies had been performed in other locations, e.g., in Europe or in the Midwest prior to the creation of a Mormon enclave in the Intermountain West; (2) because of attempts to disguise polygamy, records were not kept for easy use by outsiders; (3) some Manti marriage records were destroyed by fire; (4) marriage records for Sanpete County often did not list the town of residence of the couple involved; and (5) local practices, e.g., collection boxes were placed at the intersection of trails from remote areas for residents to "drop" official documents, which was not always done or the papers were never retrieved.

This is not to say that records were completely absent or that measures of age at first marriage were unavailable for Manti. For the period after 1892 date of marriage was recorded in the ward membership ledgers. Also, a surrogate measure, based on the date of first birth of a child to a couple, could be calculated. Assuming a non-contracepting population, nine months were subtracted from the birth date of the first-born child to estimate age at first marriage.

Table 21 presents the mean age at first marriage by birth cohort of once-married women who resided in Manti. The overall mean age for the 1,402 women was 22.94 years. Excluding those born prior to 1849, for whom there was little information, and those born between 1920 and 1929, who were just entering the years in which they would marry, the mean age of first marriage falls to 22.5 years. Table 21 shows

variability by birth cohort but a consistent trend downward in average age of first marriage except for the 1860-1869 birth cohort.

TABLE 21

MEAN AGE AT FIRST MARRIAGE, ONCE-MARRIED WOMEN, BY BIRTH COHORT

Birth Cohort	Number	Mean Age at First Marriage
1786-1849	172	26.48
1850-1859	103	23.65
1860-1869	132	24.97
1870-1879	217	23.49
1880-1889	198	23.19
1890-1899	257	21.64
1900-1909	183	20.96
1910-1919	114	20.51
1920-1929	26	17.87
Total	1402	22.94

The high age of first marriage for the oldest birth cohort is explained by: (1) most of the women who came to Manti in the early years were already married (and for many no record of marriage date existed in the local listings); (2) European patterns of first marriage revealed older age of first marriage than native-born Americans; (3) the American pattern took hold in Manti only slowly; and (4) those who were born in the early years and married in Manti for the first time were well along in years.

There was little difference by sex in age at first marriage. For the three historical periods, males were .24 years older than their first-married wives for those born in 1786-1849, 1.91 years older for

those born between 1850 and 1889, and 2.87 years older for those born between 1890 and 1929. The age difference was older consistently; for the whole 100 years it was 2.5 years. For women, age at first marriage fell over time. As Table 22 shows clearly, age at first marriage fell when comparing women born prior to settlement through the Transition Period. The mean age of first marriage of once-married women, whether calculated by decade or by major historical period, compared favorably with other studies of Mormon age at first marriage.

TABLE 22
MEAN AGE AT FIRST MARRIAGE, ONCE-MARRIED WOMEN, BY HISTORICAL PERIOD

Birth Era	Number	Mean Age at First Marriage
Pre-settlement	172	26.48
Frontier	650	23.72
Transition	580	21.03

Age Patterns of Polygamous Unions

In a simple nominative process it was possible to identify 260 polygamous unions (not restricted to once-married women, so the number was slightly higher than reported by computer runs) within the Manti population. An examination of age differences between husbands and wives by order of marriage showed differences from the monogamous unions and the general once-married female population. Table 23 shows

the age patterns observed between husbands and wives and among wives for the polygamous unions identified nominatively.

TABLE 23
AGE PATTERNS OF POLYGAMOUS UNIONS, MANTI, UTAH

	Union Number						Total
	One	Two	Three	Four	Five	Six	
Marriages	105	105	33	12	4	1	260
Females of unknown age	26	37	9	6	2	0	80
Male-female age difference	2.3	11.9	15.3	14.5	28.5	35.0	8.5
Number females older than males	16	4	3	1	0	0	24

On the average, polygamous husbands were 2.3 years older at their first marriage than their first wives, a difference not unlike that of all husbands and wives in Manti. The similar age difference suggests that entry into marriage, whether polygamous or monogamous, followed a uniform regimen. The age difference, however, was suppressed by the large number of women who were older than their husbands. Subsequent to the first marriage, age differences widened markedly between husbands and wives. Second wives were an average 11.9 years younger than their husbands, third wives 15.3 years younger, fourth wives 14.5 years younger, fifth wives 28.5 years younger, and the single case of a sixth wife, 35 years younger. The

overall mean age difference between the 105 polygamous males and their spouses with known age was 8.5 years. Husbands ranged up to sixty-one years older than their wives. Of the women with known ages, 13.3 percent were older than their husbands. Sixteen of seventy-nine (30.4 percent) of the first wives were older than their husbands, ranging from one to sixteen year older.

Local lore reveals a variety of reasons for the discrepancy between male and female age differences at the higher order polygamous unions: (1) older males, established in the Church leadership, were to set examples for younger members; (2) frontier economics demanded a continuous supply of children to work the farms; (3) "adoption," i.e., older males took in young females as partners when no other local support was available to them; and (4) women unlikely to marry were taken into polygamous unions to unite them with families for life in the hereafter. Occasionally, men took older women as spouses, also to bind them to eternal family relationships.

Table 24 shows the birth cohort of polygamous husbands and wives. It shows that polygamy decreased dramatically among those born after announcement of the Woodruff Manifesto (1890). A majority of those with known date of birth for both sexes were born prior to the founding of Manti and were among the oldest residents. Of the husbands, 57.4 percent were born between 1786 and 1849 and 51.1 percent of the wives were born in that interval. Of the total, 53.4 percent were born in the pre-settlement era. Most polygamous spouses were born prior to 1860. From Table 24 it appears that few born after 1860 engaged in polygamy, although there was a slight total rise among males born in

the birth cohort 1870-1879 and among women born between 1890 and 1899. The decline in the cohorts after 1860 may be explained by the polygamy debate, federal efforts to enforce anti-polygamy legislation, the abandonment of the marriage form officially by the LDS Church, attempts to hide polygamous unions made successfully by those involved, and the out-migration of polygamists to other, more remote, areas of the Southwest and into Mexico.

TABLE 24
DECADE OF BIRTH OF POLYGAMISTS, MANTI, UTAH

Birth Cohort	Husbands		Wives		Total	
	No.	%	No.	%	No.	%
Pre-1849	58	57.4	92	51.1	150	53.4
1849-1859	21	20.8	30	16.7	51	18.4
1860-1869	6	5.9	19	10.6	25	8.9
1870-1879	12	18.9	18	10.0	30	10.7
1880-1889	2	1.9	8	4.4	10	3.6
1890-1899	1	1.0	10	5.6	11	3.9
1900-1909	1	1.0	2	1.1	3	0.1
1910-1919	0	0.0	1	0.6	1	0.0
Total	101	100.0	180	100.0	281	100.0
Unknown	4		80		84	

The actual frequency of plural marriage within the Manti population was difficult to assess. Of the total reconstituted marriages, these 260 polygamous relationships account for about 11 percent of the total number of unions (as compared to 8 percent of the marriages of once-married women). Undoubtedly this represents an undercount of the

the true number and proportion of such marriages. It is apparent, however, that the marriage form was concentrated among the oldest members of the community. It went into decline as the Church abandoned its extraordinary attempt to alter traditional marital patterns. With additional data, such as those available in probate records or property taxation lists, it may be possible to supplement family reconstitution information and re-estimate the true frequency of polygamy among Manti residents.

Age at First Marriage, Duration of First Marriage and Children-born

In the Modern Period marriages in Manti followed the general age pattern of Americans with wedlock in the late teens and early twenties. First marriages tended to be long lasting for those who survived into the Modern Period, often in excess of thirty years. Most marriages were terminated by death of one of the spouses.

Table 25 presents combined data on children-born, mean age at first marriage, and mean duration of first marriage for once-married women in Manti. Because of the need for several data points for this table, the number of women is smaller than that in other tables, i.e., there were only 501 women for whom there was complete information on all variables included. As this number was relatively small, no breakout by birth period was made. The women bore 2,380 children, an average of 4.75 per woman. Subtracting childless women, the average rises to 4.92 children per woman.

From Table 25 it is apparent that the women who bore the most children married at the youngest mean ages and their marriages lasted

longest. Low parity women, defined as the childless and those with less than five children, tended to have the highest mean age of first marriage and shorter marriages in comparison with those with five or more children. Childless women (3.39 percent) and women with ten or more children (7.75 percent) made up a small proportion of the total population for whom full information was available. The data suggest that these women were following a regimen of natural fertility in that the larger number of births occurred among those who married at the youngest ages. Women who married later did not bear as many children and their marriages did not last as long as those who married young.

TABLE 25

CHILDREN-BORN, MEAN AGE AT FIRST MARRIAGE, MEAN DURATION OF FIRST MARRIAGE, ONCE-MARRIED WOMEN WHO MARRIED IN THE REPRODUCTIVE YEARS, MANTI, UTAH

Children-born	Mean Age at First Marriage	Mean Duration First Marriage	Number	Percent
0	32.15	18.91	17	3.39
1	23.38	12.80	58	11.58
2	24.95	26.22	61	12.18
3	25.70	25.88	67	13.37
4	27.31	32.09	56	11.18
5	21.39	27.19	53	10.58
6	21.00	31.06	45	8.98
7	23.24	25.34	51	10.18
8	21.43	34.66	31	6.19
9	21.23	32.43	23	4.59
10	19.38	41.63	20	3.99
11	21.64	34.96	7	1.39
12	19.50	37.42	6	1.19
13	19.00	35.50	5	0.99
14	18.00	35.50	1	0.19
Total	24.43	27.27	501	100.00

The high mean age of first marriage of childless women and their low representation in the sample reflect two characteristics of Mormon populations: (1) nearly every adult marries; and (2) those who marry bear children, i.e., bring new souls into the world. This is supported by the low average duration of marriage of women who had but a single child. These were women who, in the main, died at young ages or married late and did not have the opportunity to have more children.

For those who first married during the reproductive years and for whom there was complete fertility data, some differences appeared. The mean household size for these women was 6.71 at termination of marriage. Excluding the childless, it was 6.92. Marriages were considered terminated by the death of either spouse or divorce. This household size would not appear to be inconsistent with other rural populations of the time.

Birth Intervals

Birth interval information is one of the most completely covered variables in the family reconstitution data set. As Mormons positively evaluated bringing new souls into the world and efforts to compile accurate information on individuals for religious purposes took place, a wealth of information on children born to the families in Manti was kept. Birth interval data can be used to determine the pattern of childbearing by women, the presence or absence of subfecundity, and whether or not a population used any type of birth control.

The women who lived in Manti often bore children prior to arriving and many also gave birth after the period of observation.

Table 26 provides birth interval information on 4,808 children who were born during the years 1849 through 1948. It excludes those born prior to and after the 100 years studied. The table further separates the births by birth cohort of mothers, 1786-1849, 1850-1889 and 1890-1929.

TABLE 26

BIRTH INTERVALS FOR ONCE-MARRIED WOMEN BORN IN 1786-1849,
1850-1889, AND 1890-1929, MANTI, UTAH

Birth Interval ^a	1786-1849		1850-1889		1890-1929		Total	
	No.	%	No.	%	No.	%	No.	%
14/less	192	26.1	643	23.7	398	30.0	1233	25.6
15-20	69	9.4	250	9.2	189	13.9	508	10.6
21-26	120	16.3	503	18.5	219	16.1	842	17.5
27-32	115	15.7	422	15.6	128	9.4	665	13.8
33-38	48	6.5	237	8.7	71	5.2	356	7.4
39-44	34	4.6	143	5.3	60	4.4	237	4.9
45-50	24	3.3	82	3.0	48	3.5	154	3.2
51-56	10	1.4	87	3.2	42	3.1	139	2.9
57-62	16	2.2	57	2.1	34	2.5	107	2.2
63/more	75	10.2	219	8.1	105	7.1	399	8.3
Unknown	32	4.4	71	2.6	65	4.8	168	3.5
Total	735	100.0	2714	100.0	1359	100.0	4808	100.0

^aIn months.

The mean birth interval for the 4,808 births was 24.8 months. This mean excludes the 168 births for which no information was available on the birth date of children and the 399 births that took place at intervals much longer than five years. The latter were not included as they consisted mostly of births to women who had entered the population at late ages, were married long before coming to Manti, and who

had borne children elsewhere. That is, it is suspected that the records of births to these women were incomplete. Travel in the nineteenth century was difficult and many children did not survive long treks. Frequently no record of birth or death was kept and only partial information, therefore, was available for those excluded.

By time period, the mean birth intervals were 24.05, 25.57 and 23.64 months for women born in 1786-1849, 1850-1889 and 1890-1929, respectively. There were no apparent patterns indicating that the women included varied from a regimen of natural fertility. As calculations included information about the first interval, for which a surrogate measure was employed, it is felt that the mean intervals reported are comparable to those reported elsewhere. May, for example, reported that for women who lived in Kanab, Utah, the average birth interval in 1874, excluding the first birth, was 28.5 months (May, 1976:182).

Subfecundity, or bearing children in intervals longer than about five years, declined for the women of each birth cohort. Of the women born between 1786 and 1849, 10.2 percent were subfecund, 8.1 percent of those born between 1850 and 1889 and 7.1 percent for 1890-1929. Overall, 8.3 percent gave birth to children at intervals of longer than five years.

As the pattern of childbearing produced children apparently without the influence of birth control, age at marriage became an important determinant of ultimate household size. Unpredicted by the demographic transition model, age at first marriage fell over time.

The 4,808 children for whom birth interval information was available because (1) their mothers were once-married, (2) they were born during the years 1849 and 1929, and (3) data were available, constitute 79.52 percent of all children born to all women, of whatever marriage rank, who resided in Manti. Those women bore a total of 6,046 children, 1,652 of whom were born between 1849 and 1889, 3,759 who were born between 1890 and 1929, and 635 who were born between 1930 and 1948, the close of observation.

Taking into account both marriage and parity changes the image of fertility patterns among the women who lived in Manti. Including the long intervals excluded in Table 26, the mean birth interval was 31.78 months. By time period, the mean birth interval for those women born in 1786-1849 was 33.7, for 1850-1889 it was 31.53, and for the final period, 1890-1929, 31.27 months. The mean interval for the first group of women was influenced by lengthy intervals between the first through fourth births, all averaging in excess of forty months between births. It is suspected that migration patterns affected the results as many women arrived in Manti well after family formation had begun.

For the first two periods, marriage information was of poor quality and for many of the women a surrogate measure of the interval between marriage and first birth was used. It is unknown whether keying date of marriage to nine months prior to the birth of the first child unduly influenced the measurement of the first interval. It is interesting to note that the interval between marriage and first birth (see Table 27) for those once-married women born in 1890 through

1929 of 17.83 months on the average compares favorably to that reported by Smith and Kunz of 17.7 months for monogamous women and first wives of polygamists (Smith and Kunz, 1976:476).

For patterns of birth intervals by parity, women born in 1786-1849 had standard intervals up to the fifth birth, followed by somewhat stable intervals through the tenth. Short intervals (about two years) were revealed for the tenth through twelfth births. The few (three) remaining births averaged 71.33 months.

TABLE 27

MEAN BIRTH INTERVALS BY EVENT, 1786-1849, 1850-1889, AND 1890-1929,
ONCE-MARRIED WOMEN, MANTI, UTAH

Interval	1786-1849		1850-1889		1890-1929	
	Mean	No.	Mean	No.	Mean	No.
Marriage-first	11.49	135	11.19	512	17.38	467
First-second	45.05	115	37.58	477	35.62	317
Second-third	44.46	98	39.08	413	37.37	203
Third-fourth	41.52	89	36.63	331	38.23	118
Fourth-fifth	36.26	70	34.04	279	50.15	80
Fifth-sixth	29.55	60	35.29	211	33.09	45
Sixth-seventh	36.91	44	33.58	159	71.83	30
Seventh-eighth	35.88	32	32.26	111	36.06	18
Eighth-ninth	31.39	23	39.85	71	51.80	8
Ninth-tenth	36.07	15	39.29	38	26.00	2
Tenth-eleventh	23.40	10	30.09	20	33.00	1
Eleventh-twelfth	24.20	5	31.11	9	-	-
Twelfth-thirteenth	71.33	3	26.75	4	-	-
Thirteenth-fourteenth	-	-	Twins	1	-	-

The pattern of birth intervals for those women born between 1850 and 1889 was more even than that for the preceding group. Also,

the intervals revealed were less lengthy through the eighth birth. For the ninth through twelfth births intervals were longer, indicating delay in the production of children. The five remaining births occurred at shorter intervals than among those women who were born earlier, i.e., at an average of 26.75 months.

The pattern of birth intervals for the women born in the last period was similar to their immediate predecessors, with three points at which birth intervals were much longer. The interval between the fourth and fifth birth rose to an average of 50.15 months, the interval between the sixth and seventh birth rose to 71.83 months and the interval between the eighth and ninth births rose to an average of 51.8 months.

The three changes in the pattern of childbearing for the group of women born between 1890 and 1929 must be interpreted carefully as they had not completed the childbearing years by close of observation.

Completed Family Size

Of the women who lived in Manti during 1849 and 1948, 878 died for whom there were sufficient records to explore completed family size at their deaths. Of the 878 women, 288 (32.8 percent) died during their reproductive years. Another 590 (67.2 percent) survived beyond the end of the childbearing years of 15-49. Those who died at the younger age period did so at a mean age of 36.6 with a mean family size at their deaths of 5.66 persons. Those who died after completing the childbearing years died at a mean age of 71.5 years, with a mean family size of 5.92 persons. Overall, the mean age of death for these

women was 60.02 years, leaving a family composed of 5.57 persons.

Childlessness varied between those who died prior to completion of the childbearing years and those who survived them. Of the former, 11.5 percent were childless while a higher proportion, 15.8 percent, of those who lived through the reproductive years had no children. Overall, 14.4 percent of those who died were childless.

Those women who died left families which, for family size, were not unlike their rural counterparts in other areas of the country. Data derived from family reconstitution of civil and church records revealed smaller completed family sizes than reported for family group sheets or in the Esshom collection. A bias in the former may be toward the devout and, as demonstrated previously, errors existed in unverified recollections of which specific individuals belonged to pioneer families. May reported in a similar study of females in Kanab, Utah, 1874, that completed fertility of 81 women was 8.65 (May, 1976:182). It is unknown whether the completed fertility for the Kanab population would differ if a longer period of time were studied.

Migration

Mormon history is replete with the stories of movement from one location in the United States to another. In the early years the entire Church moved en masse from New York to the Midwest and then on to Utah. Moves, especially the latter, were organized and overseen by Church Authorities. As Arrington noted,

In 1844 and 1845, when removal from Illinois seemed more certain and necessary, church officials, particularly Joseph Smith and the Council of Fifty, advanced a number of proposals

to facilitate and finance the inevitable westward movement (Arrington, 1956:39-40).

The exodus from Illinois was a prodigious effort in which the entire Mormon population, save splinter groups, crossed the Plains to freedom and safety.

For the third time in little more than a decade the hapless Saints were forced to make preparation for departure from their Stake in Zion. Time was given them to settle their affairs, sell their property and reorganize their shattered government. The Prophet's family broke away from the main body, repudiated polygamy on the grounds that Joseph had neither preached nor practiced it, and led a small minority of the Saints over into Iowa to create the Reorganized Church of Jesus Christ of Latter Day Saints, which had remained small and independent. . . . The main body of Mormons, after a bitter struggle among the leaders, agreed to accept Brigham Young as the successor to the Prophet and to follow him on the long journey to their permanent Zion beyond the mountains. A third very small faction went first to Wisconsin and then to a group of islands in Lake Michigan with James Jesse Strang, one of the most eccentric of all those who claimed the mantle of Joseph Smith. Ignorant, poor, and credulous, these people conceded complete dictatorship to Strang, accepting polygamy, communism, and eventually even his claim to be their king. The Kingdom of Saint James was short-lived, for again the angry non-Mormon neighbors attacked the Saints, and the twenty-five hundred subjects of a murdered monarch were dispersed (Tyler, 1944:106).

Settlement of the new territory of Deseret by the main body of Mormons was executed with care and planning. Colonies were established in the barren landscape and foreign migrants dispersed where needed.

Mormons were moved to and about Utah in groups, e.g., settlement parties were organized in groups of tens and fifties to explore and construct colonies along the Mormon Corridor. "Calls" were issued to specific families to staff settler companies throughout the Great Basin. The Bishop in Sanpete County, Isaac Morley, elicited such a call from Brigham Young. Settlers were dispatched from Salt Lake City in 1849.

Migration and Manti

Migration contributed to the ethnic character of Manti, the composition of its work force, and illustrates that migration can occur under theocratic auspices, as well as under the influences of kinship and labor market forces. Although the record of migration in and out of Manti contains many unknowns, a transition from Church directed group movement to family and individual movement governed by economic and kinship auspices took place. Characteristics of the migrants changed along with the type of migration.

In the Frontier Period Manti benefited from the need of the Church to establish outposts which would be strong in the face of hostilities from Indians. The difficult task of constructing a community on the high plains of the Great Basin required hearty pioneers. The early years presented migration overseen by the Church. Obvious examples of theocratic migration are the 1849-1850 colonization, the arrival of the Scandinavians in 1853, and the infusion of people with construction skills in the 1870s and 1880s to build the Manti Temple.

The pioneers established a frontier outpost to serve as the center of a network of agricultural communities throughout Sanpete County. Those sent to forge a completely new settlement were followed by people capable of working the natural advantages of the land to the benefit of all of Utah, i.e., through agricultural production. Wards throughout Utah, as the Frontier Period came to a close, contributed laborers to aid in the construction of the temple from 1876-1888. In each instance specific people were sent (often with their

families) to the community to aid in the solution of local problems.

In the first half of the Transition Period migration into Manti subsided. The activity of the PEF ceased and the manufacturing areas of Salt Lake City and Provo attracted the few foreigners who came. As the economy improved locally in the second half of the Transition Period, in-migration picked up. Individuals and families, seeking employment opportunities and relief from the economic dislocations that struck Utah in those years, looked to the solid agricultural economy of Sanpete County or for help from relatives who lived there.

With the economic collapse of the Great Depression and the start of World War II, migration into Manti virtually ceased. In the Modern Period local conditions were no better, if not worse, than those in the large cities. All sectors of the local economy were depressed, land was scarce for new agricultural ventures, and the local economy was eclipsed by cities located more advantageously to routes of transportation.

Arrival and Exit from the Population

Migration data on the Manti population arose from the habit of ward clerks noting the dates of arrival and exit of people into or out of town. Data for the earliest years of settlement were scanty but not missing completely. Unquestionably, the records are incomplete but they do imply some of the tempo of migration in and out of Manti.

Data in Table 28 were keyed to families containing once-married wives. Of this group, there was complete information on date of arrival for 1,125 persons, representing about one-fourth of all of

the adults who had resided in town. Single persons and those without spouses present were excluded.

TABLE 28
DECADE OF ARRIVAL BY SEX, MANTI, UTAH, 1849-1948

Decade	Males		Females		Total	
	No.	%	No.	%	No.	%
1849-1859	131	22.6	75	13.8	206	18.3
1860-1869	21	3.6	14	2.6	35	3.1
1870-1879	21	3.6	13	2.4	34	3.0
1880-1889	10	1.7	6	1.1	16	1.4
1890-1899	30	5.2	20	3.7	50	4.4
1900-1909	75	12.9	72	13.2	147	13.1
1910-1919	113	19.5	119	21.8	232	20.6
1920-1929	109	18.8	132	24.2	241	21.4
1930-1939	60	10.3	85	15.6	145	12.9
1940-1949	10	1.7	9	1.7	19	1.7
Total	580	100.0	545	100.0	1125	100.0

The pattern of migration by decade into Manti was clear. The first decade was that in which the pioneers arrived. As with settlements elsewhere, males out-numbered females (131 to 75). The next forty years were ones of limited migration of people into Manti, with adult males again outnumbering females. The next fifty years reflected, for Manti, voluminous increase in numbers of immigrants and then decline to the level of the late 1800s. Another change occurred during the last fifty years: females outnumbered males (417 to 367).

In terms of the three major historical periods, the Frontier Period had 291 (25.9 percent) of the migrants with known date of

entry, the Transition Period had the large number of 670 (59.5 percent), and the Modern Period the least number, 164 (14.6 percent). Migration by decade and by period showed changes in the community that many other farm villages in Utah experienced as the LDS Church bureaucratized and the controls it exerted over localities loosened.

Migration into Manti in the early and temple building years was governed, organized and directed by the Church from Salt Lake City. Large areas had to be explored, colonies and strongpoints constructed, and elementary details (the provision of food, water and shelter) had to be addressed. The pioneer effort is best described as Church directed.

The upsurge of in-migration into Manti beginning about the turn of the century was linked to the changes in the economies of Sanpete County and Manti. The area became known as "Utah's Granary" in light of the huge production from the agricultural sector. Businesses associated with agriculture, e.g., milling, creameries, and suppliers, were founded. In addition, the agricultural boom linked to World War I reached into the county and more acreage was brought into production (Smith, 1972:27). Along with the economic problems of the Depression era, migration into Manti subsided.

Seasonality of Migration

The fourth quarter of the year (October through December) was the period of heaviest in-migration into Manti. Of the total, 41.7 percent of the migrants with known date of arrival came during this quarter. It was followed by near uniform numbers of in-migrants for

the other three quarters of the year. Of the total, 440 people arrived first in Manti in the fourth quarter (the totals for the three months of the quarter nearly were identical also: October, 147; November, 149; and December, 144). Numbers for the fourth quarter were inflated by the arrival of the pioneers in the month of November. July-September was the second most frequent season of first arrival (215 or 20.4 percent of the total), followed by the January through March season (206 persons and 19.5 percent of the total), and the spring season with 194 persons and 18.4 percent of the total (see Table 29).

TABLE 29
SEASONALITY OF IN-MIGRATION OF ADULTS INTO MANTI, BY SEX

Season	Males	Females	Total	Percent
January-March	101	105	206	19.5
April-June	93	101	194	18.4
July-September	107	108	215	20.4
October-December	244	196	440	41.7
Total	545	510	1055	100.0

There were some seasonal differences of arrival in Manti by sex. The harvest months marked an imbalance of more males than females (244 to 196), while in each of the other seasons slightly more females than males made their first arrival. This suggests that

the opportunity for work in the agricultural valley or in temple construction attracted men. Also, rivers and streams were passable during the months of heaviest in-migration, whereas spring rains produced quagmires that not only hindered movement but harbored disease and death. Summers were hot, dusty, and rivers engorged with run-off from thunderstorms. Winter was a season of heavy snowfall and bitter cold, making travel nearly impossible.

Exit from Manti

Although the volume of in-migration was high, Manti lost as many adults as it had gained to removal from the population. Data on exit from the population was minimal for the Frontier Period, but it was clear that for the Transition and Modern Periods equal numbers exited as entered. Table 30 shows the data on out-migration for the decades 1890 through close of observation.

Except for the first decade, females outnumbered males in leaving Manti for other places. Of those who left, 53.8 percent were females and 46.2 percent were males. Perhaps females married out of the community, or sought jobs elsewhere. Comparing decade of arrival and decade of out-migration, Manti benefited little in terms of growth. In total, twenty-six more adults arrived than left from 1890 to 1949, although this might be a reflection of the quality of the data on known dates of arrival and exit.

As with in-migration, the transition years of 1890-1929 were the most volatile in terms of activity. Of those who moved out, 651 (80.6 percent) did so during those years, followed by 157 (19.4

percent) in the modern years of 1930-1949. Undoubtedly, much of the out-migration was linked to economic conditions, the need for jobs was high and opportunities few in Sanpete County. As in- and out-migration nearly balanced, the Manti population was dependant on natural increase as a source of growth. Migration patterns that led to family out-migration and loss of youth entering marriage or in the early years of childbearing robbed the community of sources of natural growth.

TABLE 30
DECADE OF OUT-MIGRATION, ADULTS, MANTI, UTAH, 1890-1949

Decade	Males		Females		Total	
	No.	%	No.	%	No.	%
1890-1899	17	4.6	13	2.9	30	3.7
1900-1901	55	14.7	72	16.6	127	15.7
1910-1919	115	30.8	123	28.3	238	29.5
1920-1929	118	31.6	138	31.7	256	31.7
1930-1939	60	16.1	80	18.4	140	17.3
1940-1949	8	2.1	9	2.1	17	2.1
Total	373	100.0	435	100.0	808	100.0

Age at Exit

For 976 people who moved out of Manti it was possible to calculate age at exit from information on birthdate and date of removal. Of the 976, 438 were males and 538 were females. The number

of out-migrants nearly matched the number of people with known date of arrival, indicating that the two migration flows were balanced.

Table 31 shows the mean age at exit by decade and sex for those people who left. The table reveals declines in average age at exit for both males and females. There were differences by sex in the pattern of out-migration by decade of birth. Of those born in the earliest years of community history, or before, few left after arrival. Those who did so moved out at old age, averaging 56.7 years for those born prior to 1850 and 51.1 years of age for those born between 1850 and 1859. Thereafter, a steady decline in mean age at exit occurred.

The upsurge in out-migration occurred after the closing of the frontier, or, in local terms, shortly after the onset of the Transition Period. Land had been parceled out, irrigation lines and ditches expanded to maximum capacity, and new, more efficient, agricultural techniques, machinery and products were tried. The result was a surplus of labor. Those in search of work had little choice but to move out, taking their families along. Those born in the last three decades of the transition years (651 persons, or 66.7 percent of the total) made up the majority of the migrants. The decade 1890-1899 contained 246 (25.2 percent) persons who moved, followed by 1880-1889 with 220 (22.5 percent) and 1870-1879 with 185 (18.9 percent).

For males there was declining age at out-migration each decade, with the single exception of 1860-1869, whose members left at a slightly older age than those born in the preceding decade. Average age at exit dropped from an average of 59.2 years to the low twenties (although the process was incomplete for those born during the

TABLE 31
MEAN AGE AT EXIT BY DECADE OF BIRTH AND SEX, MANTI, UTAH

Sex	Decade of Birth									Total
	Pre- 1850	1850- 1859	1860- 1869	1870- 1879	1880- 1889	1890- 1899	1900- 1909	1910- 1919	1920- 1929	
Males	6	21	57	88	116	90	54	5	1	438
Mean age	59.2	43.5	46.2	40.6	34.9	29.1	26.0	22.5	17.5	38.2
Females	6	14	47	97	104	156	86	27	1	538
Mean age	54.2	56.1	48.2	40.3	32.5	29.0	25.0	21.9	17.5	33.6
Total	12	35	104	185	220	246	140	32	2	976
Mean age	56.7	51.1	47.1	40.4	33.8	29.6	25.5	22.0	17.5	34.1

transition years and the average age at exit would rise) by the close of observation.

Of the men, most out-migrants were born in 1880-1889 (116 or 26.5 percent) followed by those born in 1890-1899 (90 or 20.5 percent) and 1870-1879 (88 or 20.1 percent). Mean ages at exit were 34.9, 29.1 and 40.6 years, respectively, for each birth cohort. The ages indicated that men well along into adulthood were abandoning Manti. As all were married, or had been, and most had children, the size of the population suffered. The mean age at exit for all males was 38.2 years.

Women followed a pattern similar to men in declining age at exit. Ages fell from the mid-fifties to the low twenties, with the same reservation about the mean age of exit for those born latest. There were some differences between men and women in age patterns of out-migration. For those born before 1850, women were slightly older than male out-migrants, but the numbers were small (six). Thereafter, with the single exception of those born between 1890 and 1899, women were slightly younger than male migrants. This reflects Mormon marriage patterns and the practice of families moving together rather than as individuals. Decade of birth reveals a pattern different for females than males, although the same three birth cohorts predominated in numbers of out-migrants: (1) 1890-1899 (156 or 28.9 percent); (2) 1880-1889 (104 or 19.3 percent; and (3) 1870-1879 (97 or 18.0 percent). Mean ages at exit for women were 29.9, 32.5 and 40.3, for each birth cohort, respectively.

Out-migration affected the growth of the Manti population.

The movement of adult married persons out removed those in the child-bearing years. Migration, then, acted as a suppressor to the size of families there. The effects of migration on our knowledge of population processes is profound. Migration, also, is a nemesis of sound interpretation of data gathered by family reconstitution. Dean May, for example, showed the effect of migration upon his study of Kanab:

Having stopped the reel on a frame of Kanab in 1874, let us now start up the mechanism and set the scene in motion. As we do so the population we have been studying begins immediately to disintegrate. By 1880 only 32 of our 82 re-constituted "families" were left in Kanab. By the end of the mothers' childbearing cycle only 8 of the 82 remained in the locality. Their dispersal so fragments the group that Kanab has little further meaning as a concept to aid us in understanding the population, and it becomes necessary to see the group not as a congregation united in time and space, but as discrete families, some beginning their family cycle early, some late, united only by the fact that in 1874 in Kanab their lives happened to touch (May, 1976:181).

That migration helped to shape the population in Manti was apparent among the children who were born in the town or who were brought there after birth: they, too, did not remain for all of their lives. This was shown in the low mean ages of exit (death, out-migration, or close of observation) of the children. Those born during the frontier era, no matter the place of birth, of whom there were 1,373 with migration information, were removed from the population at a mean age of 43.7. This suggests that they left the population as adults in the midst of family life cycles, with families underway. It is interesting to note that low and medium parity children left the community at younger ages than did the high order children, who tended to remain in the community about fifty years.

Children born in the transition years, 3,591 for whom information was available, were removed from the population at a mean age of 37.9. The distribution by birth order, unlike the first birth cohort, did not show much variation. Children born in the last period, 1930-1948, were removed at a very early age, a mean of 7.2 years. This occurred because of (1) out-migration along with their parents, and (2) the close of observation at the end of 1948.

First order children had the overall lowest mean age of removal from the population at 28.0 years ($N = 1,631$). Conversely, children of the upper parities remained in Manti the longest, although they too moved out.

Household Size at Exit from the Population

Table 32 shows that the families which left Manti were relatively small in size. A large proportion (16.9 percent) of the wives were childless or had single-child families (34.6 percent). Only 282 or 21.4 percent of those families which moved contained six or more children. The high proportion of childlessness among the migrant families shows the dismal economic conditions for young people in Manti.

The direction of the Church in the early years and economic pressures of the later years influenced patterns of migration into and out of Manti. It was obvious that the Mormons who lived there moved in and out as family units in each of the historical periods. Over time, the LDS Church relinquished control and movement in organized groups ceased.

TABLE 32

HOUSEHOLD SIZE OF ONCE-MARRIED WOMEN WHO EXITED THE POPULATION,
MANTI, UTAH

Household Size	Number	Percent
2	223	16.9
3	456	34.6
4	212	16.1
5	144	11.9
6	79	6.0
7	77	5.8
8	32	2.4
9	29	2.2
10	27	2.1
11 or more	38	2.9
Total	1317	100.0

Manti was created by the LDS Church. Under its aegis people moved there, bringing settlement and community-building skills. Migration into Manti forged a population with a distinct ethnic character, as many who settled there came from Europe, especially Scandinavia. The community attracted both permanent and temporary migrants. Manti was a stopping point along the Mormon Corridor, used by families as they moved further westward. Some found it a place to stay. Also, the presence of the temple attracted people who came to perform religious duties that can be performed only within a temple. Missionaries were dispatched to Manti to provide necessary services to the population there, e.g., teachers. Also, it was apparent that some came to Manti to participate in the agricultural economy, that the periodic booms and busts from the late nineteenth century through

the 1930s contributed to the amount of migration that occurred.

Population Decline in Manti

Manti lost population to mortality and out-migration to areas of better economic opportunity. Natural increase, even in a high fertility population, could not replace all of those lost. As Table 33 shows, more adults left the population through death and migration than entered the population. As fertility also was in decline as time passed, population growth could not be sustained. Only 635 births were recorded in the Modern Period.

During the sixty years from 1890 to 1949, 834 adults moved into Manti and 1,869 exited by death or out-migration. In terms of timing, in-migration accelerated from 1890 through 1929, at which time it began to decline. It then plunged in the fourth decade of the twentieth century. Out-migration and death produced a volume of exits from the community at a frequency more than double that of in-migration. The result was an excess of exits over entries numbering 1,035. As most moved as family units, population size went into decline. Of the losses, 1,102 (58.9 percent) of the 1,869 were due to death. Another 767 (41.1 percent) represented out-migration. By sex, 588 of the deaths (53.3 percent) were of males and 514 (46.7 percent) were of females. Deaths by the end of the period were associated with an aging population and there were few being born in the town to replace them.

TABLE 33
ENTRY AND EXIT^a OF THE ADULT POPULATION, MANTI, UTAH, 1890-1949

Decade	In-migrants	Exits	Difference
1890-1899	50	144	-94
1900-1909	147	280	-133
1910-1919	232	436	-204
1920-1929	241	457	-216
1930-1939	145	330	-185
1940-1949	19	222	-203
Total	834	1869	-1035

^aDeath and out-migration.

CHAPTER V

CONCLUSIONS

Introduction

From the reconstitution of the Manti population and tracing the social history of the community, it was obvious that the population went through an epidemiologic and demographic transition. Mortality changed from high, unstable levels, to low, stable ones. Fertility passed from high, unstable levels to the national pattern of declining fertility. Migration changed from high levels, governed by the Church, to low levels unfettered by the Church but subject to family, economic and individual needs.

There were three historical epochs in which demographic processes changed along with social institutions. The Frontier Period spanned the years 1849-1889, the Transition Period covered the years 1890-1929, and the Modern Period lasted from 1930-1948. In each of these time periods, the Church, marriage and the family, the economy, government, systems of transportation, communication and education changed markedly. The demographic transition captures changes in population processes and variables in the same time periods. The population changes were highlighted in the family reconstitution study.

Summary of Population Composition

From the reconstitution of the Manti population several general features of the adult population appeared. Most were native-born, mainly from Utah. Such was not true in each of the historical periods as many sent there in the Frontier Period were foreign-born. The dominant minority group in Manti and Sanpete County was Scandinavian. The leading country of origin for the foreign-born was Denmark, followed by England. In total, people from twenty-one different countries lived in Manti during the one hundred years period of observation. Country of origin showed the activity of the LDS Church in gathering the Saints in Zion (through the PEF), the LDS decision to halt recruitment in Europe, and the Congressional termination of Church-sponsored in-migration. As recruitment efforts came to a halt in the Transition Period, foreign arrivals waned. By the end of the Transition Period, people in Manti were evidencing xenophobia, as were other Americans. In the Modern Period, few foreign-born persons settled in Manti.

The adults were born as early as 1780 and as late as 1932 (the latter were "adults" in the sense that they were married and they, or their spouses, had given birth to children). The oldest were born long before establishment of the Mormon Church and were among the earliest followers of Joseph Smith. Those born in the Transition Period experienced the social and economic turmoil of a church under attack, much like the disruption of the early frontier years and just as revolutionary. New institutions and economies challenged the old,

even if the latter were in place just a short time. People born in the Modern Period saw rapid mechanization, electrification and improvement in public health.

Overall, monogamous marriages predominated in Manti. Frequency of plural marriages was hard to measure, but they constituted at least 8 percent of the unions of once-married women and 11 percent of all married women. Among males, 50.8 percent were first marriages, 9.3 percent second through six marriages, and 39.8 percent were of unknown rank. Women included, except for the nominative linkage of polygamists, were all once-married.

The population of Manti grew steadily through the decennial census of 1910, peaking at 2,437. Thereafter the population declined, dropping to a smaller size, 2,240, in the decennial year 1940.

Summary of Mortality

The population of Manti experienced a rapid "epidemiologic transition" in mortality in comparison to the centuries-long trends in other Western societies. Timing was propitious: the diffusion of public health knowledge and the implementation of new agricultural techniques occurred simultaneously with modernization of nearly all spheres of life. The mortality experience of the Manti population was one of continual improvement, allowing advantages to those least able to survive, i.e., infants. Life lengthened for most. Medical advances and technological improvements in food production, coupled with an environment with vast resources, given water, peopled by agriculturalists, plus the capacity of the population to learn new skills and

adopt new ways of doing things contributed to improvements in the length and quality of life in Manti.

The timing of the change was obvious: the transition years of 1890-1929 marked social and economic changes unparalleled in the short history of the community. They were linked, also, with changes occurring throughout Utah and other rural areas of the United States. Transition in mortality usually presages fertility transition.

The demographic transition is an evolutionary model of population changes. Societies are depicted as moving from agrarian, subsistence levels with near constant size and high birth and death rates to developed (or modernized) situations of industrialization and urbanization with birth and death rates under control. Minor subdivisions of the society parallel the characteristics of the whole. Intermediate steps between low development and modernization vary depending on local conditions. A somewhat typical three-step descriptive version of the demographic transition suggests a change from a period of high birth and death rates to one of low, or stable, birth and death rates. It is assumed that as mortality rates fall, fertility remains high and declines only later. The relatively higher fertility behavior leads to population expansion. Subsequent pressures on social and economic resources occur contributing to reduction in fertility performance and, perhaps, changes in values and attitudes about fertility. In the case of a localized population, increasing fertility accompanied by declining mortality may produce pressures for higher age at first marriage, adoption of birth control technology, out-migration, or all three.

Undoubtedly, the population in Manti went through a transition in mortality. It also experienced a transition in fertility, paralleling national trends. As there were religious prohibitions on the use of birth control and positive values placed on marriage and the production of large families, migration also may have been used to limit the size of the local population. Social and economic conditions also produced pressures for a small population.

Summary of Fertility

There was variation in the pattern of fertility by birth cohort of once-married women in Manti. The results of the family reconstitution reveal that the Mormon population of Manti, Utah was not unlike that of other rural areas of the country. Fertility trends of the demographic transition model were confirmed, with one exception, in regard to age at first marriage.

The average household size for families in Manti was not so very different from other rural areas in the United States. Depending on characteristics of the sample drawn, household size averaged about six persons per nuclear family unit. Migratory families tended to be smaller than those which did not leave the community, suggesting that economic conditions (lack of jobs, primogeniture and ultimogeniture) encouraged out-migration. Women, whether monogamous or polygamous, bore from zero to fourteen children. A high proportion of the women, especially among those who moved out of town, were childless.

The people born prior to settlement tended to conform to a European age at first marriage, i.e., in the upper twenties. It

should be noted, however, that Mormons migrated as family units and the women who arrived first in Manti were already married. Few local records existed recording their exact date of marriage. Unpredicted by the demographic transition model, an American pattern of age at first marriage appeared as time passed, with women first marrying in the late teens and early twenties. The age at first marriage declined by decade and by major period of local history.

Marriages among the Manti population were long-lasting, averaging over twenty-seven years. Males and females, aside from polygamous unions, tended to marry one person for life. Although records were sparse on marital dissolution, most marriages were terminated by death rather than by divorce.

Women in Manti appeared to bear children according to a regime of natural fertility. The mean birth interval, including the interval between marriage and first birth for which a surrogate measure was used, was 24.8 months. The mean is comparable to other figures reported in the literature. For the Modern Period, when there was good information on the first birth interval, the mean of just over seventeen months is comparable, also, to that reported elsewhere in the literature on Mormon fertility.

Summary of Migration

The process of migration among the Mormons occurred under forced and voluntary conditions. The experience of the Manti Mormons shows, also, that migration under ecclesiastical auspices was used to populate remote areas of Utah and to distribute the gathered

Saints where needed. Church-governed migration diminished along with isolation. For Manti residents such a change meant that families could move when economic exigencies or kinship considerations contributed pressures outside of Church or local control.

The evidence contained in the various data sources used in the family reconstitution indicated that the Transition Period was an era of high mobility, with frequent in-migration and exit from the population. Migration into town followed a definite seasonal pattern. The fall months, compared with the rest of the year, had the highest frequency of in-migration. An examination of age and out-migration revealed that as time passed younger adults left Manti. Age at exit, for both males and females, declined from the fifties to the twenties. Females left, generally, at slightly younger ages than males, reflecting (1) the Mormon practice of family migration, and (2) Mormon marital age patterns. Also, declining age at exit showed failure of the local economy to assimilate the youth of the community. A large proportion of migrant once-married women left with small families (16.9 percent were childless and 34.6 percent had only one child). This was another indication of changing economic conditions locally: the agricultural economy could not sustain the available workforce. The population of Manti declined because of out-migration and death. Few women who remained in Manti in the Modern Period could bear children.

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