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Henry H. Choong

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HISTORICAL DEMOGRAPHY OF THE ASSINIBOINE AND SIOUX
OF THE FORT PECK INDIAN RESERVATION, MONTANA: 1885-1900

By

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Historical Demography of the Assiniboine and Sioux of the Fort Peck Indian Reservation, Montana: 1885-1900 (95 pp.)

Director: Gregory R. Campbell

The demographic histories of reservation populations are determined by extant social and environmental conditions, which shape demography by changing the population structure through modification of fertility, and mortality patterns, and age-sex structure. The demography of the Assiniboine and Yankton Sioux population at the Fort Peck Indian Reservation, Montana, was reconstructed using data derived from four censuses collected by the United States Indian Services in 1885, 1890, 1895, 1900. The ethnohistorical method was used to determine some of the socially created conditions that might have caused changes in population structure. In order to reconstruct and interpret correctly reservation demographic patterns and understand the nature of those changes, the database was examined against contemporaneous government documents and ethnological accounts of events. The demography of the Assiniboine and the Yankton Sioux on the Fort Peck Indian Reservation was determined partly by malnutrition, starvation, and disease brought about by social and physical conditions created by the reservation administration. The Assiniboine and Yankton Sioux population at Fort Peck experienced a severe decline in numbers from 1885-1890, and continued to decline until 1900. The excessive mortality from epidemics during the pre-reservation period was replaced by chronic ill-health stemming from inadequate medical care, overcrowded living conditions, and poor diet. Respiratory tract, venereal, gastrointestinal diseases, and eye-ear infections were prevalent.
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CHAPTER 1

INTRODUCTION

Nature and Scope of the Problem

There are two main avenues of research in the historical demography of American Indians, both which deal with pre-reservation Native American populations. One focuses on reconstructing Native American demography at European contact and estimating the population sizes at that time; the second examines the demographic changes which followed.

Many researchers of North American demography and epidemiology have chosen to focus on introduced European diseases and rapid depopulation in the pre-reservation period (Crawford 1992; Crosby 1976; Joralemon 1982; Milner 1980; Snow and Lanphear 1988). Their main concern is with mortality in these populations following exposure to infectious and chronic diseases previously unknown to Native Americans. This is an important area of research, and has received ample attention due to the dramatic nature of the population decline.

The focus on the pre-reservation contact period, however, has overshadowed equally important research dealing with the demography Native American populations during the reservation period (Meyer 1982:29). The establishment and administration of the reservations by the United States government generated numerous documents from which demographic
data may be derived and analyzed. One approach to understanding the demographic structure of Native American populations that takes advantage of this rich source of data is an ethnohistorical method emphasizing the study of historical tribal censuses (Moore and Campbell 1989:18).

The ethnohistorical approach allows one to improve the quality of data and the accuracy of results of a demographic analysis. This is achieved by cross-checking the database (such as a tribal census) against ethnological accounts describing cultural practices which are contemporaneous with the database (Moore and Campbell 1989:18). Using the ethnohistorical method the researcher may examine critically the database, and take into account distortions caused by the ethnocentrism of the census takers, inconsistencies in recording, and other sources of error.

In this study, I used the ethnohistorical method to address three questions pertaining to reservation demography: (1) to what extent can I reconstruct the demography of the Indian population of a reservation from census records; (2) what were some of the social and physical conditions which might have affected population structure; and (3) which part of the reconstructed demographic pattern is shaped by aberrations in the data?

To answer these questions, I reconstructed the demography of the Assiniboine and Yankton and Yanktonai Sioux on the Fort Peck Indian Reservation during the early
reservation period (1885-1900) using data from the Indian Census Rolls (National Archives, Record Group 75). I then interpreted the results against ethnohistorical data derived from the Annual Reports to the Commissioner of Indian Affairs, Reports of the Inspectors for the Indian Service (National Archives RIFJOIA), and ethnographic sources. I also discussed the methods and problems of reconstructing reservation population history from census records and ethnohistorical sources.

Historical Demography of American Indian Populations and Census Data

Much of the population data for this study were obtained from the annual censuses conducted by the United States Indian Services (National Archives, Indian Census Rolls, Fort Peck:151 and 152). Four Fort Peck Indian censuses comprised the data set: 1885, 1890, 1895, and 1900. The census rolls were submitted yearly by agents or superintendents in charge of the reservation, as required by an act of July 4, 1884 (23 Stat.98). The Indian populations on the reservations were monitored to facilitate allocation of funds and distribution of annuities (Meyer 1982:30). The data on the rolls were the English and/or Indian name, roll number, age, sex, and relationship to head of family. Each census, except the one
for 1885, consisted of two inserts; one for the Assiniboine and the other the Yankton Sioux (the census takers made no distinction between the Yankton Sioux and the Yanktonai Sioux; all Yanktonai were counted as Yankton). The 1885 census roll contained only a census of the Assiniboine; population figures for the Sioux in 1885 were obtained from the Annual Report of the Commissioner of Indian Affairs for that year.

A population census can provide a picture of a population constantly changing. The reasons for these changes are vital events such as births and deaths that occur in it at any given time. Analysis of censuses reveal not only the structure but also the history of part or all of the population (Pressat 1972:3). This especially is true if pertinent questions on vital events such as births and deaths are asked (Pressat 1972:3).

Vital registration systems (i.e., systems for recording statistics such as births, deaths, and numbers of people in families, etc.) for reservations, however, were often of very poor quality or even non-existent. Consequently, American Indian populations have been regarded as poor subjects for demographic analysis (Meyer 1982:30). Indeed, there are many problems inherent in the demographic reconstruction of any population; one has to be certain that patterns and variations in the population structure are real and not artifacts of the record-keeping. These problems are compounded in the study of Indian populations because of the
cultural biases of the record-keepers (Moore and Campbell 1989:18). At Fort Peck, even after the Assiniboine and the Sioux were ordered to remain on the reservation, they continued (to some extent) to maintain their seasonal movements, especially in the summer months when the censuses were taken. The censuses continued to be taken in the summer, despite the complaints of some agents about the problems with enumeration (Annual Reports 1887:144; 1889:232). Agents sometimes exaggerated the number of Indians to keep up with the number from the previous year (Annual Report 1887:144).

In addition to the problem of accuracy of the numbers, there is also the problem of distinguishing individuals from one census to another, or even within the same census. This problem is caused by: (1) the random order in which families were enumerated yearly; (2) the anglicization of native names; (3) the peculiarities of Indian naming patterns. Each census was carried out by the Agent and a translator; there was no supervision of special agents and inspectors (Annual Report 1887:144). Enumeration was required by law, and was carried out each year. The actual act of enumeration, however, was not standardized and was carried out as the agents pleased; as there was a high turnover rate, the censuses lacked uniformity (Annual Report 1886:183). Even handwriting becomes a factor in deciphering the censuses. Data, especially names, were often illegible. Families were not assigned a permanent number. Each of the censuses used in
this study was taken by different agents (Annual Reports 1885, 1890, 1895, 1900). Anglicization often resulted in individuals bearing only first names. Names recorded in the censuses often describe the person with a Siouan word, "Girl (Wincincapi)", "Boy (Hoksina)", or "No Name (Cajewanica)", rather than providing actual names. Often, administrative household units were superimposed on native social organization, resulting in distortion of the nature of family structures. In the Fort Peck censuses, children were sometimes enumerated as separate households (National Archives: Record Group 75).

Nevertheless, much useful information on fertility, mortality, and age-sex composition may be derived from these censuses and data-quality problems may be overcome by using other sources of demographic data in addition to census and population records. There is a wide variety of demographic source materials available for Native Americans to supplement the census data (Meyer 1982:30). Census figures may be examined against accounts of contemporary observers such as agents, missionaries and travellers, to partially compensate for the poor quality of the data. One outgrowth of the bureaucracy associated with the development and administration of the reservation system is the voluminous documentation of matters pertaining to the reservations (Meyer 1982:30). Tribal membership, annuities, education, allotted land, health-care, and population composition were documented to
monitor those who received federal services. These were, for example, the *Annual Reports* submitted to the Commissioner of Indian Affairs. These documents provide insight into the social and administrative background against which the censuses were collected. This knowledge is valuable in evaluating the quality of the census data and aid in their interpretation (Meyer 1982:31). Often, the consequences of the policies set forth and enforced by the government may be seen in the demographic record. For example, at Fort Peck in 1892, children were sent to off-boarding schools in Fort Shaw and Carlisle after the reservation boarding school burned down (*Annual Report* 1892:298). The reduction of children in the 10-14 age group partly accounted for the indentation in that age-group rectangle of the age-sex pyramids for the Assiniboine and Sioux after 1892.

Extant social conditions, therefore, are especially pertinent to the reconstruction and interpretation of demographic records. Meyer (1982:31) noted that compiling a demographic history is not a significant endeavor unless the results are linked to particular environments and sets of social and economic factors. Different rates and directions of social and economic change determine, to large extent, the conditions which affect fertility and mortality. Historical records are often highly incomplete, given the reality of the times, and ways of life which produced them (Griffen 1991:152). Also, the purposes for which written statements
are made at one time are seldom the same as those of the later
generations who use them to reconstruct the past (Griffen
1991:152). This is true of Annual Reports. Some agents
submitted reports which did not reveal the true conditions of
the time, for fear of criticism regarding their handling of
reservation affairs (Annual Reports 1885, 1886; Mattison
1963: 169). Recent work dealing with the methods
reconstructing North American population history from censuses
and ethnohistorical sources has been done by Campbell (1991);
Griffen (1991); Jackson (1992); Johansson and Preston
(1978); Meyer (1982); Sawchuck (1992); and Swan and
specifically the demographic response of the Navajo Indian
Reservation population to underdevelopment. These works
provide a background of the method and theory on which this
study is based.

Theoretical Background

Human populations have been able to adapt successfully to
many different physical and social environments, as evidenced
by the wide variety of niches that they fill. Even with this
great flexibility, however, it should not be assumed that a
given human population can survive all types of environmental
change or that there may not be substantial variation in a
population's health and well-being in different environments (Baker et. al. 1986:5). The reservation system created another type of physical and cultural environment in which Native American populations had to adapt. Some of the stresses created by reservation life included restriction of movement to a limited area, disruption of the annual subsistence cycle, change in diet, increase in close-contact diseases, and intertribal or tribal and non-native political conflicts. The transition to reservation life had, on occasions, an adverse effect on these populations, which had already experienced not only the impact of initial European contact, but also subsequent pressures from settlers and for some groups, removal to Indian Territory (Campbell 1989). This process of adaptation to reservation life is seen in the demographic history of the Assiniboine and Yanktonai Sioux at Fort Peck.

Studies of traditional subsistence economy populations that have been impinged upon by outside ("western") influences have shown that the demographic histories of these societies are products of the interaction between ecological and cultural factors resulting from this contact (Harbison 1986:63). This interaction shapes demographic history by changing the population structure through the modification of fertility, and mortality patterns, and the age-sex structure. One way in which how population structure may be altered on reservations is through health patterns created and
perpetuated by reservation living conditions. Recent studies on impinged subsistence societies show that while health does improve in some regards, many aspects of health decline (Baker 1986:6). This has indeed been true of the reservation system. The assumption that health of Native American populations improved automatically once they were placed on reservations and exposed to the benefits of western medicine is erroneous (Campbell 1989). In their work with the Southern Coast Salish, Guilmet et. al. (1991:1-32) have shown that access to western health care on the reservations actually have had debilitating effects, the treatment for syphilis prescribed by the reservation physician resulted in mercury poisoning. While the technological potential for improved health may have existed, social conditions and other cultural factors often formed a barrier between Native American populations and good health. In order to accurately reconstruct and interpret demography of reservation, therefore, these social factors should be examined as an integral part of their demographic history (Figure 1).

Demographic analysis of Native Americans, then, should extend beyond establishing gross mortality levels and charting population increase or decrease. It is important to reconstruct the size of their populations, but change in population size alone is not a good index of health or the nature of change in the population. For example, according to the statistics from the Annual Reports to the Commissioner
Social Conditions:

Disease ----> Access to health-related resources ----> Change in health

↑
↓

............ Living Conditions

Conflict of Cultures ----> Change in Fertility & Mortality

Figure 1. Diagram showing the interaction between health, social conditions, and demographic change
of Indian Affairs (1843-1934), the Cheyenne population grew from 2,800 in 1855 to 3,351 in 1905. Despite population growth, however, during the early reservation period (1886-1903) Northern Cheyenne health continued to deteriorate (Campbell 1991:352). Examining gross population growth alone would have not yielded an accurate picture of Northern Cheyenne demographic history. Northern Cheyenne health and fertility, which ultimately determined the population structure, was shown to be linked closely to political and economic conditions. This theoretical approach draws from the dependency theory, according to which underdevelopment or non-development in Third-World countries is caused and perpetuated by the dominance and economic control of a stronger political power (Webster 1984). Demographic patterns are linked inextricably to development, or the lack thereof (Kunitz 1981; Kantner and McCaffrey 1975; Wriggins and Guyot 1973).

From this perspective, reservations are underdeveloped areas, and the policies of the administrative powers ultimately were geared not toward socio-economic improvement. The consequences of underdevelopment are ultimately manifested as changes in population structure, i.e., demographic change (Kunitz 1981:175). It is important, therefore, to examine the non-biological (cultural) variables which affect population dynamics in order to reconstruct and interpret correctly reservation demographic patterns and understand the nature of
those changes in population composition, and ultimately, to the population structure.

Population Structure and Change

A population's structure is the distribution of the population among its sex and age groupings. This structure is made of biological and cultural components. The biological component of this structure is its genetic makeup; and the cultural component is made up of the social units within the age and sex groupings. This distribution of the individuals is not random. It is determined by biological factors such as disease and health, and cultural factors such as social conditions and cultural practices. Change in population structure (that is, change in the distribution of individuals among the age and sex groupings) is caused by variations in mortality and fertility which are attributable to the above biological and cultural factors. The biological and cultural determinants of population structure do not operate independently of each other.

Cultural factors play a large part in influencing the nature of the biological factors which in turn determine the population structure. Health and the prevalence of disease (a biological determinant), which in part determines mortality and fertility, are influenced by social conditions. By
affecting fertility and mortality, disease alters the age-sex structure and causes demographic change (Hauser 1964:20). Social conditions also may affect population structure directly by limiting or controlling fertility, or by causing migration in and out of the population.

Distribution of individuals in a population, therefore, ultimately is the product of the demographic forces of fertility, mortality, and migration (Harrison and Boyce 1972:6). The general framework is this: there are not only biological and cultural components of population structure, but also biological and cultural determinants of that structure. The cultural determinants of the structure ultimately are consequent upon the biological ones (Harrison and Boyce 1972:2).

That is, human actions may produce social conditions which affect ultimately biological determinants, as in the choice of mates, or eligibility to reproduce (marriage age). This in turn will affect the biological and cultural components of the population structure, i.e., the resulting genetic makeup of the offspring, and their choice of marriage partners.

At Fort Peck, one of the cultural determinants of the structure was the efficiency or inefficiency of the agents in carrying out their duties. The agents' discharge of their duties could directly affect the social and physical environment of the Indians, because they controlled access to
rations and other resources allotted to their particular reservations. One of the principal features of the reservation system was government control of the Indians' subsistence (Mattison 1963:146). The consequences of dietary changes, malnutrition, and starvation ultimately were manifested in the population structure.

The Study Population

The study population comprises the Assiniboine, Yankton and Yanktonai Sioux groups at the Fort Peck Indian reservation in northeastern Montana, from 1885-1900 (Figure 2). Although Fort Peck was already established at that time, I selected 1885 as the starting point of this study because the first BIA Indian census for Fort Peck was taken and the first Annual Report of the Commissioner of Indian Affairs was submitted that year.

These groups were chosen because they were small, and may be examined as one population as well as compared to one another. The Assiniboine, Yankton and Yanktonai Sioux had different sets of cultural mechanisms for adapting to their social and physical environment. These different sets of mechanisms served to keep the two groups separate by enabling each group to maintain its unique ethnic identity (Fowler
Figure 2. Location of the Fort Peck Indian Reservation in Montana
Each group therefore responded differently to the stresses imposed by the reservation system.

On the other hand, the Assiniboine and Sioux were forced to live close together and, inevitably, there was biological and cultural exchange. Proximity and similar conditions imposed by the reservation system resulted in a degree of structural homogeneity (the "reservation culture") and therefore similarity in demographic response.

Previous work pertinent to the Fort Peck reservation has dealt mostly with aspects of the ethnography of the Assiniboine (Miller 1987; Rodnick 1937; Sharrock 1974; Lowie 1909). Miller (1987:100-149) provided a valuable reconstruction of the social conditions on Fort Peck during the early reservation period (1884-86) pertaining to intertribal relations, government policy, and agents' discharge of their duties. He reconstructed also the epidemiological history of the Assiniboine leading up to their location on the reservation, but did not examine the demography of the population during that period. The work of Lowie (1909), and Rodnick (1978) provided a baseline from which to measure social changes among Montana Assiniboine. Rodnick's thesis (1978) dealt with the Fort Belknap Reservation, but did provide comparative population figures for Fort Peck.

The study of the demography of the Fort Peck population has been limited to gross population counts (Rodnick 1978;
Wissler 1936, 1939). An early attempt at observing the population trends during the reservation period was done by Wissler (1936). This study was different from previous studies of Indian populations in that it was not concerned with establishing definite population sizes for fixed dates, but was concerned with population change (Wissler 1936:3). He provided a summary of the Assiniboine population on reservations in the United States and Canada from 1874 to 1934. Wissler also merged ethnographic and population data in describing the political-economic peak of power in the Assiniboine (Wissler 1936: 19). In his later work (Wissler 1939), he refined his analysis of demographic trends among reservation groups in the Northern Plains. Wissler saw that while numbers decreased for a time after Plains Indians were placed on reservations, their numbers later increased (Wissler 1939:38). He concluded that this increase marked an adjustment to reservation life (Wissler 1939:38). While Wissler's work touched upon the Assiniboine and Dakota groups as a whole, to date there has not been any work which deals specifically with the demography of the Fort Peck Indian population during the reservation period.
CHAPTER 2

HISTORICAL SETTING

The Assiniboine

The Assiniboine also are known as the Nakoda or Nakota, or As'see nee poi-tuc (which in Cree means, "those who cook with stones") or Stoney in Canada. The Assiniboine originated as the result of a split between two opposing factions of the Yanktonai Sioux during the early sixteenth century. Early Jesuit records show that by 1640 they were already recognized as a distinct group (Thwaites 1896:249).

During the early seventeenth century the Assiniboine were found living in the Lake Winnipeg region (Sharrock 1974:103). They traded with the French, and along with the Cree, were among the first groups to trade with the English following the establishment of the permanent trading post on Hudson's Bay in 1670. Together with their Cree allies, the Assiniboine served as middlemen between the Europeans and the Plains tribes.

Their role in the fur trade precipitated a shift from a woodlands lifestyle to a plains lifestyle, in which the buffalo was an important source of food and fur. The control of the trade to the west and southwest enabled the Assiniboine to extend their territory westward and northward to part of
the northern forests and most of the plains and grove belt zone from Lake Winnipeg to the headwaters of the North Saskatchewan River, southward to below the Missouri (Miller 1987:71).

This territory encompassed present-day Saskatchewan and Montana, and included the drainages of the Qu'Appelle, the Souris, the lower Yellowstone, and the lower Missouri rivers, and the drainage of the Missouri from the mouth of the Milk River to just below the mouth of the Little Missouri (Sharrock 1974:99). Neighboring groups were the Crow, the Mandan and Hidatsa, and the Yanktonai Sioux to the south, the Blackfeet and Atsina (Gros Ventre) in the west, the Plains Ojibwa in the east, and the Plains Cree the north.

Early records show that the Assiniboine were organized into widely distributed, politically autonomous bands (Rodnick 1937). These bands were highly mobile, and to exploit the resources in their territories, further divided into sub-groups seasonally. Beginning in 1829 they traded at the mouth of the Yellowstone. They wintered north and east of the Milk river.

The Sioux (Nakota)

The Sioux at Fort Peck were, and still are, Yankton and Yanktonai. There were originally seven political units of
the Sioux: The Mdeqakanton or **Spirit Lake People**, Wahpekute or **Shooters Among the Leaves**, Sisseton or **People of the Boggy Ground**, Wahpeton or **Dwellers Among the Leaves**, Yankton or **Dwellers at the End**, Yanktonai or **Little Dwellers at the End**, and Teton or **Dwellers of the Plains** (Woolworth 1974:7). These political units coalesced into three divisions (which were in actuality loose polities) as the groups migrated west from the eastern prairie area. The Mdeqakanton, Wahpekute, Sisseton, and Wahpeton became the Santee, or Eastern Division, the Yankton and Yanktonai became the Middle Division, and the Teton became the Western division. The primary divisions of the Yanktonai are the Upper Yanktonai and the Hunkpatina (Lower Yanktonai).

The Yankton and Yanktonai were originally one group (Schusky 1975:13). In the mid-seventeenth century, the Yanktonai originally lived between the Mississippi and Red Lake in what is now Minnesota (Woolworth 1974:7). Conflict with the Cree forced the Yanktonai south. The Yankton moved from a woodland environment in north-central Minnesota to a prairie area which encompassed northwestern Iowa, southwestern Minnesota around 1700. They moved to the Plains region of southeastern South Dakota in 1765 (Woolworth 1974:23). In 1846 the noted Yankton chief, "The Iowa", died. The Yankton, who were left without a unifying leader, broke into small bands. This may have been the genesis of the Upper Yanktonai and Lower Yankton groups of the 1850s (Woolworth
In 1853, the Yankton occupied the country from the mouth of the White River up to Fort Pierre, on both banks of the Missouri River, and as far eastward as the James River (Woolworth 1974:181). By 1858, the scarcity of buffalo forced them to cede a major portion of their land to the United States in return for annuities from the government (Woolworth 1974:181).

The Yanktonai, in 1825, controlled the intermediate country between the Missouri and the River St. Peter's in Minnesota, as well as the headwaters of the Jacques River (Atkinson and O'Fallon 1825:605). They remained there, raiding against the Mandan, Hidatsa, Arikara, Cree, Assiniboine, Blackfeet, Atsina, Crow, and Cheyenne. Hostilities continued with the Assiniboine until 1863, and by 1867 the last band of Yanktonai was placed the reservation (Curtis 1970:121).

The Yanktonai were placed on the Standing Rock Reservation in North Dakota, Crow Creek Reservation in South Dakota, and the Fort Peck Reservation in Montana. Most Yankton were placed in the Yankton Reservation in South Dakota, but a few bands went into the Milk River area (Miller 1987:107). In the Fort Peck censuses, the Yanktonai were enumerated together with the Yankton; no distinction was made between the two groups. The Yankton Sioux referred to throughout this study represents the category found in the
census reports (National Archives, Record Group 75, Indian Census Roll 1885).

Population: Pre-reservation

Assiniboine

By the time the Assiniboine population was located on the Fort Peck Reservation, its numbers had been reduced through conflicts with Europeans, other tribes, and disease. Beginning with the French occupation at Hudson Bay (1694-1714), many Assiniboine were killed in the ensuing conflict or were displaced. The result of this was the consolidation of the survivors into fewer bands and their migration west to the Plains (Miller 1987:88). The Assiniboine followed this pattern of fusion of survivors into groups also, when the population was ravaged by smallpox in 1732 (Miller 1987:88). Historical records show that from 1732 to 1823 the population suffered losses from various smallpox, influenza, and measles epidemics (Miller 1987:88; Schoolcraft 1860:511).

The Indians' lack of knowledge in dealing with these newly introduced infectious diseases resulted in severe depopulation. The Indians' principle method of dealing with fever was to "pass suddenly from a steam to a cold bath, whereby they produce a vivid reaction and profuse
perspiration... smallpox and measles being treated by them in the same way as fevers arising from malaria, as a matter of course must always terminate fatally" (Schoolcraft 1860:511). The smallpox epidemic from 1781-82 necessitated yet another reconstitution of Assiniboine society (Miller 1987:89). The extent of this depopulation is not known for sure, but Alexander Mackenzie's estimates suggest that there were between 1600 and 2000 survivors (Lamb 1970:116-17).

In 1800 an influenza epidemic reduced the Assiniboine population further by five to ten percent. Further loss, especially in adult males, was incurred in a measles epidemic from 1819-20 (Miller 1987:92).

Another smallpox epidemic in 1837 decimated the population severely. The smallpox had been brought in by a steamboat carrying an infected mulatto, to the Black Snake Hills, a trading post 60 miles above Fort Leavenworth (Schoolcraft 1860:257).

Groups that suffered adverse effects of the epidemic included the Minnetonees (Mandans) and the Arickaras, as well as the Assiniboine and the Yankton (Schoolcraft 1860:257). Table 1 summarizes the change in population size from 1780 to 1863. The numbers reveal the sizes of the group prior to and after the 1837-38 smallpox epidemic, which, according to Denig (1989:72) resulted in the loss of 67 percent of Assiniboine population. The Assiniboine were reduced to about 400 lodges (Fowler 1987:198).
Prior to the 1837 epidemic, there were about 9,000 Assiniboine living north of the Missouri, ranging from the plains below the Rocky Mountains toward the Red River of Hudson Bay (Schoolcraft 1860:257). Pilcher (1838) estimated that 4,000 Assiniboine died. This estimation of Assiniboine casualties is consistent with Denig's estimate of the 33 percent of the population that was left after the disease hit (Denig 1989:72). The devastation extended also to other groups, including the Yankton. It was reported that the Mandans were reduced from 1,600 to 31 people. Eight thousand Blackfeet, and 3,000 Cree died, and the Yankton and Santee were hit severely (Pilcher 1838). Several influenza epidemics and another smallpox epidemic in 1856-57 resulted in further population losses (Miller 1987:86). In 1884 the total number of Assiniboine in the United States and Canada was 4,140 (Wissler 1936:8).

**Sioux (Yankton and Yanktonai)**

The population estimates for the Yankton and the Yanktonai are given in Table 2. In 1765 a smallpox epidemic may have decimated the Yankton population (Analectic Magazine 1820:354). In 1805, Lieutenant Zebulon M. Pike made an estimate of the Yankton and Yanktonai as one group, giving a
<table>
<thead>
<tr>
<th>Year</th>
<th>Source</th>
<th>U.S</th>
<th>Canada</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1780</td>
<td>Mooney (^1)</td>
<td></td>
<td></td>
<td>10,000</td>
</tr>
<tr>
<td>1809</td>
<td>Henry (^2)</td>
<td></td>
<td></td>
<td>8,000</td>
</tr>
<tr>
<td>1838</td>
<td>Denig (^3)</td>
<td></td>
<td></td>
<td>3,000</td>
</tr>
<tr>
<td>1863</td>
<td>Hayden (^4)</td>
<td>1,500</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Mooney 1928:13  
\(^2\) Henry Alexander, from Wissler 1936  
\(^3\) Estimate from lodges, average of 7 people/lodge  (Denig 1989:79)  
\(^4\) Hayden 1863:379

Table 1. Selected pre-reservation Assiniboine population estimates
<table>
<thead>
<tr>
<th>Year</th>
<th>Source</th>
<th>Yankton</th>
<th>Yanktonai</th>
</tr>
</thead>
<tbody>
<tr>
<td>1807</td>
<td>BIA(^1)</td>
<td>700</td>
<td>3,600</td>
</tr>
<tr>
<td>1833</td>
<td>Denig</td>
<td>1,500(^2)</td>
<td>2,000(^2)</td>
</tr>
<tr>
<td>1835</td>
<td>Pilcher(^3)</td>
<td>1,820</td>
<td>-</td>
</tr>
<tr>
<td>1850</td>
<td>Schoolcraft(^4)</td>
<td>1,763</td>
<td>6,000</td>
</tr>
<tr>
<td>1852</td>
<td>Schoolcraft(^4)</td>
<td>2,500</td>
<td>6,000</td>
</tr>
</tbody>
</table>

\(^1\) Bureau of Indian Affairs (1907-1910)  
\(^2\) Estimate from lodges, average of 5 people/lodge (Denig 1989:15)  
\(^3\) Pilcher 1835  
\(^4\) Schoolcraft 1857

Table 2. Selected pre-reservation Yankton and Yanktonai population estimates
population of 4,300, with 900 fighting-age men, 1,600 women, and 2,700 children (Woolworth 1974:39). More than half of this group was Yanktonai. Their population increased almost fifty percent in twenty years. The Yanktonai were estimated to be about 4,000, and the Yankton about 3,000, in 1825 (Atkinson and O'Fallon 1825:605). Joshua Pilcher counted the number of Yankton in the Upper Missouri in 1835. This population consisted of 546 males, 728 females, and 546 children (Pilcher 1835). From about 1825 to 1860 the Yankton population ranged between 2,000 and 3,000 (Woolworth 1974:207).

The Yankton were hit by smallpox again, by the epidemic in the summer of 1837. Count Francisco Arese, an Italian traveller who visited the village of the Yankton and Santee Sioux at the mouth of the Vermillion River, noted the abandonment of camp after many tribes had died of smallpox (Arese 1934:82-103). The survivors were unable to withstand Sauk and Fox attacks and headed northeast for the Minnesota River area.

In addition to diseases, starvation also decimated the Yankton population. In April of 1845 thousands of Sioux from the Missouri River faced starvation, because buffalo had been extremely scarce east of the Missouri. Starvation and malnutrition increased susceptibility to diseases; "great numbers of young died from diseases" (Woolworth 1974:134). In
1853 most of the Yankton were hunting buffalo west of the Missouri when they were attacked by cholera (Woolworth 1974:160).

The Reservation Period and the Establishment of Fort Peck

The nineteenth century saw the decimation of the bison herds by Indians and non-Indians, which increased the competition for hunting grounds. Extermination of the northern buffalo herds began in 1876, two years after they had been eliminated from the southern Plains (Hornaday 1889:502-13). By 1880 the buffalo herds were almost totally exterminated in Canada, and Indian populations migrated to the United States to hunt. Although the buffalo had long been hunted by Indians, the ultimate demise of the great herds was brought about by large numbers (as many as 5000) of white hunters in Montana Territory in 1882. Such indiscriminate hunting hastened this process of decimation. The Milk and Marias river valley regions contained some of the last herds in 1882, but by the spring of 1883, the northern herds were virtually destroyed (Hornaday 1889:502-13).

The disappearance of the great herds increased the Indians' dependency upon the traders for food. Earlier, in 1860 Schoolcraft had already noted that "...famine is griping (sic) at their heels. The rapid destruction of the buffalo is
exhausting the only larder from whence they draw their support...very soon they will cease to gather a harvest..." (Schoolcraft 1860:452).

Decades before the decimation of the buffalo herds, the cumulative effects of the increase in white settlement in the region and the continuing hostilities among the tribes prompted the Indian Office to establish a treaty between the Plains tribes and the U.S. Government. The U.S. had two important goals in pressing the treaty, which were to establish fixed boundaries and to bring peaceful relations among previously hostile tribes. The Fort Laramie Treaty of 1851 was signed by Crow, Teton Sioux, Cheyenne, Gros Ventre, Blackfeet, and Arapaho (Kappler 1904:594). One Yankton, Chief Smutty Bear, signed this treaty (Woolworth 1974: 157).

The Assiniboine were represented by an individual in a small contingent of northern Plains Indians brought by Alexander Culbertson. Their growing dependency, and a desire to be less dependent on traders, forced the Assiniboine to assent to the terms of the Fort Laramie treaty in 1851. During this period the Assiniboine continued their attempts to gain an advantageous position in the region, although the whites demanded that the headmen restrain their warriors (Miller 1987:101). The treaty marked the first cession of lands by the Assiniboine to the United States.

The Fort Laramie treaty preceded a series of treaties leading to the establishment of Fort Peck at its permanent
location at the mouth of the Poplar River. In a treaty drawn on October 17, 1855 the Assiniboine, along with the Blackfeet and Atsina, reserved for themselves common hunting and fishing rights in an area ranging from the mouth of the Milk River to the vicinity of present-day Havre (U.S. BIA 1960:1). Several Sioux bands later joined this population.

In 1868, through an unratified treaty, the Milk River Agency was established, and the Atsina were assigned to that location (Miller 1987:103). The name of the Milk River Agency was changed to the Fort Peck Agency in 1873, and was later moved to the mouth of the Poplar River (Miller 1987:124).

Fort Peck, which was also called the Poplar River Agency, had the Missouri River as its southern boundary. The 1885 Annual Report of the Commissioner of Indian Affairs listed the Brule, Santee, Teton, Unkpapa, and Yanktonai Sioux as groups receiving rations from the United States government (U.S. Reports 1885:329). In 1887, separate Blackfeet, Fort Belknap, and Fort Peck reservations were established by the Northwest Indian Commission. Fort Belknap was established permanently as a separate reservation for the Atsina (Barry 1974:40). The Assiniboine, Blackfeet, and Atsina signed the agreement on January 21, 1887 and it was ratified by Congress on May 1, 1888 (Kappler 1904:584). The reservation period brought about a marked increase in forced dependency upon the U.S. government; by 1900, 70 percent of Assiniboine subsistence came from government rations (Grinnell 1900:92).
CHAPTER 3

MATERIALS AND METHODS

Sources of Data

Data for empirical analysis were drawn from: (1) Indian Census Rolls (National Archives, Record Group 75: 1885-96; 1897-05), and (2) Annual Reports of the Commissioner of Indian Affairs to the Secretary of the Interior (Annual Reports 1885-1900). The data were used to construct a demographic profile of the Assiniboine-Sioux at Fort Peck from 1885-1900. The rolls contained the following information which were pertinent to this study: (1) total number of people counted, (2) number of people in a designated nuclear family unit, (3) names of individuals (Indian names and translations were given, but only the translations were coded), (4) sex, (5) relationship to "head of family", and (6) age.

Members of family units were usually listed in this order: (1) Father, (2) Mother (instead of Wife), (3) Children, (4) Grandchildren (of Father and Mother), (5) Siblings (of Head of Family), (6) Nephews or Nieces (of Head of Family) (Figure 3). There was no specific designation of the heads of family. Some family units contained only grandparents and grandchildren. In the family units with "mother" and "father", there were no "grandparents" (to Mother or Father).
<table>
<thead>
<tr>
<th>No.</th>
<th>Indian Name</th>
<th>English Name</th>
<th>Relationship</th>
<th>Sex</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Papah</td>
<td>Dry Meat</td>
<td>Father</td>
<td>M</td>
<td>52</td>
</tr>
<tr>
<td>2</td>
<td>Ozhu Shnee</td>
<td>No Full</td>
<td>Wife</td>
<td>F</td>
<td>29</td>
</tr>
<tr>
<td>3</td>
<td>Chay tah</td>
<td>Hawk</td>
<td>Son</td>
<td>M</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Weah akey</td>
<td>Brings the Girl</td>
<td>Brother</td>
<td>M</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>No Name</td>
<td>No Name</td>
<td>Granddaughter</td>
<td>F</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>Oyah</td>
<td>Tracks</td>
<td>Man</td>
<td>M</td>
<td>25</td>
</tr>
</tbody>
</table>

Figure 3. Sample Census Form from the U.S. Bureau of Indian Affairs Indian Census Rolls showing categories of information
listed. All children were coded as own children, according to the census. Couples with no children were listed as husband and wife, and unmarried people were listed simply as man, or woman. There was no specific category for marital status.

In the 1885 census, widowers were recorded but for the rest of the censuses no such information was given. There was no record of polygynous marriages. Polygamy was considered to be contrary to the progress of the Indians towards a "civilized" state (Annual Report 1890:132). The absence of this form of marriage from the censuses may be attributed to both the refusal of the enumerators to recognize polygamy and the reluctance of the Indians to report them. The format of recording varied from year to year; families were not assigned numbers, nor was the order in which families were counted consistent. Family units were separated by a space before the next entry, or the count began with each head of family.

The database structure was created to code of the census data using dBase IV. All the data were encoded exactly as they were in the census rolls, except for the Indian names, which are not pertinent to this study. In order to link members of family units to each other, each family was assigned a number, and each person was assigned a 3-digit "census number", which contained the family number and a number for the person in the order in which he or she was counted (Figure 4). The Annual Reports provided the numbers of births and deaths for the year, from which crude birth and
<table>
<thead>
<tr>
<th>Family No.</th>
<th>Census No.</th>
<th>Name</th>
<th>Relationship</th>
<th>Sex</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>010</td>
<td>Dry Meat</td>
<td>Father</td>
<td>M</td>
<td>52</td>
</tr>
<tr>
<td>0001</td>
<td>011</td>
<td>No Full</td>
<td>Wife</td>
<td>F</td>
<td>29</td>
</tr>
<tr>
<td>0001</td>
<td>012</td>
<td>Hawk</td>
<td>Son</td>
<td>M</td>
<td>9</td>
</tr>
<tr>
<td>0001</td>
<td>013</td>
<td>Brings the Girl</td>
<td>Brother</td>
<td>M</td>
<td>20</td>
</tr>
<tr>
<td>0001</td>
<td>014</td>
<td>No Name</td>
<td>Granddaughter</td>
<td>F</td>
<td>2</td>
</tr>
<tr>
<td>0002</td>
<td>020</td>
<td>Tracks</td>
<td>Man</td>
<td>M</td>
<td>25</td>
</tr>
</tbody>
</table>

Figure 4. Sample coding chart showing designated family units
death rates were calculated. These reports also provided summaries of affairs on the agency, and for 1885 and 1890, a tabulation of diseases and numbers of reported cases. After 1890, the medical statistics were included in the Report of the Field Inspectors.

Population Change

The word "population" refers to the total number of Assiniboine and Yanktonai Sioux enumerated in the censuses. The "Assiniboine population" and "Sioux population" refers to the total number of Assiniboine and Sioux enumerated, respectively. The course of population change over five-year periods from 1885 to 1900 was described; average change within each period was calculated to show how change was distributed.

Change is measured by the difference between population sizes at different dates (Shyrock et.al. 1973:377). This is expressed as both absolute values and percentages. The absolute amount of change was obtained by subtracting the population at the earlier date from that at the later date. The percent of change was obtained by dividing absolute change by the population at the earlier date Shyrock et al. 1973:378). Rates of population change were calculated for the periods of 1885-1890, 1890-1895, and 1895-1900.
All calculations were done using the absolute population number for the year; it was not possible to derive mid-year population numbers from the censuses. To compensate for the difference in sizes of the Assiniboine and Sioux groups and to give a more accurate indication of the rate of change relative to each other, a semilogarithmic grid was used; the vertical axis was plotted to a logarithmic scale, but the x-axis was plotted to an arithmetic scale (Shyrock et al. 1973:387).

The rates of population change are based on two vital events, which are births and deaths; the data do not allow for consideration of other vital events such as physical movement (in and out-migration on the reservation, or internal migration).

**Demographic Rates**

The formulation of rates provided a measure of the phenomena in the Assiniboine and the Sioux and permitted comparisons in time and space. Crude rates were calculated to measure the frequency of phenomena in the total Indian population of the reservation (the "total Indian population" refers to the total number of Assiniboine and Sioux enumerated in the censuses). Although crude rates cannot account for variations in age, sex, or other categories, they do permit a
yearly comparison of that population. The level of refinement of rates were set by the data.

The figures on the number of births and deaths from the Annual Reports are somewhat questionable. The number of births and deaths represent only reported cases, and cannot be taken as being wholly accurate. Even if the agency physicians had made a concerted effort to identify all births and deaths every year and report them, many vital events doubtless occurred distant from the agency and were not recorded. The rates calculated, therefore, should be taken as a measure of the proportion of births and deaths from one year to another, rather than the actual magnitude of those occurrences.

Mortality

Crude Death Rates (CDR) for the Assiniboine and the Sioux were calculated from the numbers of deaths reported per year from the Annual Reports to the Commissioner of Indian Affairs. The CDR is defined as the number of deaths in a year per 100 of the population (Shyrock et. al. 1973:7). CDRs were calculated for the population as a whole because there are no records of deaths specific to either the Assiniboine or the Sioux. It was not possible to calculate age-specific death rates because there was no way to determine whether the
absence of individuals from the census represented an out-migration or death, nor were the number of deaths broken down by sex to permit sex-specific rates. Nevertheless, the CDR represents the best estimation of the general mortality rate derivable from the census.

**Fertility**

The term *fertility* as used here refers to realized (actual) reproduction and not potential reproductive capacity. Crude Birth Rate (CBR) was the most basic measure of fertility used; it was calculated to show gross variations in fertility, while taking into account the size of the population (Shyrock et.al 1973:7). This statistic is useful for descriptive purposes, although it may not show important age and sex differentials (Shyrock et.al 1973:7). Crude Birth Rates were calculated from the number of reported births given in the *Annual Reports*. All other things being equal, the size of the Crude Birth Rate will depend on the relative size of the groups of women at fertile ages (Pressat 1972:175). However, the data on the number of births per year are not separated into live births or stillbirths, nor can it be assumed that the figures represent all births for that year.

The absence of complete statistics on births and the small size of the population necessitated the reconstruction
of fertility based on other data. Child-Woman Ratios (CWR) were calculated from the census records as an indicator of fertility (realized reproduction). The Child-Woman Ratio refers to the ratio of children under five years old to women of childbearing age (15-49) (Shyrock et. al. 1973:500). The 15-49 age group was used as a denominator, because if the entire population was used, the denominator would be weighted down by the whole population (Pressat 1972:358). Children under five were used because there is proportionately less under-enumeration of children under five than of children under one year old (Shyrock et. al. 1973:501). This also takes into account child mortality during the first five years of life, and therefore is the best estimator of effective fertility.

Although some mothers are left out, they have contributed so few of the children under five that the inclusion of women outside the 15-49 age range would include mostly women who were "not at risk" for pregnancy (Shyrock et. al. 1973:500). Children under five may have been borne up to five years prior to the census date when the women were up to five years younger. This use of ratios provides a fairly sensitive indicator that accumulates the effects of marital fertility, illegitimate fertility, and infant mortality.

One disadvantage of using the Child-Woman Ratio is that it is affected directly by the underenumeration of young children. Another factor affecting the interpretation of
Child-Woman Ratios is mortality. Mortality affects both women and the children under five who are survivors of births in the preceding five years. Since the survival rate is higher for women than children, the ratios always understate recent fertility. The main advantage of the general fertility ratio is that it does not require a special question in the census (Shyrock et. al. 1973:501), and is a valuable estimator of general fertility rates when vital events data are absent or unreliable (Swan and Campbell 1989:61).

Small Populations and Age-Sex Pyramids

The small size of the study population has to be taken into account in the calculation of demographic indices. Small populations are subject to random variations that are sometimes considerable, from one year to the next and from one group to another (Pressat 1972:357). The study of age composition is very important in the evaluation of the demographic situation of such populations, especially in short-term change (Pressat 1972:357).

Crude rates may be a reflection of age composition, rather than a genuine measure of fertility or mortality; this is particularly true of the death rate, which is more influenced by the age composition of the population than is the crude birth rate (Pressat 1972:357). Crude birth or death
rates calculated for one year for a population of a few hundred or even of a few thousand, therefore, have to be examined against the age composition. For this reason, the study of age-structure and the construction of a pyramid retain their importance and their interest for small populations (Pressat 1972:282).

Population Age Composition

In small populations, the variation in composition can be very great. Data on age are important in themselves, for the description and analysis of other types of demographic data (Shyrock et al. 1973:201). Age structure of a population is of interest because social relationships within a community are considerably affected by the relative numbers at each age (Shyrock et al. 1973:201).

Age is an important variable in the study of mortality and fertility. Even though age-specific death or birth rates could not be calculated from the data, the crude birth rates may be examined against the age-specific child-woman ratios to estimate comparative fertility in the different age-groups of women.

Age of some individuals, especially young children and very old people, may have not been reported, may have been reported erroneously by the respondent, or estimated
inaccurately by the enumerator (Shyrock et al. 1973:204). One possible source of error was the under-enumeration of children under a year old. After the 1895 census, no children under a year old were enumerated. The Assiniboine usually named their children about three weeks after birth (Rodnick 1978:55). The naming ceremony required presents, and was somewhat costly. The poverty which accompanied reservation life often caused the naming to be postponed (Rodnick 1978:55). It is possible that children who were not yet named at the time of the census may not have been reported. Another indication of depressed socio-economic conditions were the names of children who were listed in the censuses. Poor parents who could not afford presents of horses to shamans and warriors often named their children after events in their (the parents') lives, or based on the children's physical peculiarities (Rodnick 1978:56). In the censuses there were many children with names such as "Almost Dead", "Tall", and "Limpy".

The formation of the age groups was determined by the nature of the study. When the data are grouped into five-year groups, or broader groups, both the gross and net misreporting errors are smaller than the corresponding errors for single ages since misreporting of age within broader intervals has no effect on the number of people in an age-group. On the other hand, the amount of net under-enumeration will tend to accumulate and grow as the age
interval widens, since omissions will tend to exceed erroneous
inclusions at each age (Shyrock et. al. 1973:204).

**Age-Sex Structure**

The population pyramid was used to give as detailed a picture as possible, of the age-sex structure of the population. A population's vital rates can be estimated from changes in its age-sex structure (Coale 1957). The sex ratio is determined ideally by the frequency of the sexes at conception and by their subsequent comparative mortality. The mortality levels of the age-sex groups are caused by cultural, genetic, as well as ecological factors. Conversely, the resulting age-sex ratio, together with the reproductive capability of both sexes and the cultural constraints regarding reproduction and sex roles, can affect genetic, social, and ecological structure.

The population was divided into five-year age groups. The age groups are shown in percentage, to show the differences or changes in proportional size in each age-sex group. For the oldest age groups, an open-ended category at 85+ years was used because the data on the number of people over 85 were very small. If data available for the oldest groups were presented in the standard interval, until the end of the life span, the upper end of the pyramid would have an
extremely elongated needle shape which would convey very little information (this may be seen even with the open-ended age category) (Shyrock et. al. 1973:237). The diversity of the population composition is shown by the differences in the relative size of the adult age groups (which influence natality) being smaller in the more advanced age groups (which influence mortality).

Thus, heterogeneity of population composition is a factor not as important in the variability in the crude birth rate as it is in the crude death rate. The length of the rectangle representing each five-year age group depends on three factors: (1) the total at birth of the group; (2) the amount of reduction by mortality; (3) the amount of migration (Pressat 1972:272). In the absence of more complete data on these three factors, the pyramid allowed for some general statements regarding mortality and migration.
CHAPTER 4

RESULTS

Demography of the Assiniboine and Sioux at Fort Peck: 1885-1900

Population Change

The Fort Peck Assiniboine and Sioux population as a whole fell by 48 percent from 1885 to 1900 (Table 3). The most severe reduction was from 1885 to 1890, when the Assiniboine population fell by 33 percent and the Sioux, by 53 percent. Both groups show a similar pattern of change, with high average rates of change in the first five-year period and almost identical average rates in the final five-year period (Figure 5). From 1890 to 1895 the Assiniboine population apparently remained fairly stable, with an average rate of change of 0.08 percent, but the Sioux population increased by 16 percent.

Mortality and Fertility

The Crude Death Rate (CDR) for the population was relatively low from 1885 to 1890, but doubled in 1895. By 1900 the crude death rate for the Assiniboine and Sioux was 7.01.
<table>
<thead>
<tr>
<th>Year</th>
<th>Assiniboine</th>
<th>Sioux</th>
</tr>
</thead>
<tbody>
<tr>
<td>1885</td>
<td>1,072</td>
<td>2,332</td>
</tr>
<tr>
<td>1890</td>
<td>719</td>
<td>1,092</td>
</tr>
<tr>
<td>1895</td>
<td>716</td>
<td>1,275</td>
</tr>
<tr>
<td>1900</td>
<td>620</td>
<td>1,134</td>
</tr>
</tbody>
</table>

Table 3. The B.I.A. Census population figures for Fort Peck.
Figure 5. Rates of population change showing decrease from 1885-1890
The year 1890 had the lowest death rate for the years 1885 and 1890.

The Crude Birth Rates (CBR) for the population are highest at 8.49 in 1885 and fall to 3.19 in 1900. The pattern of crude birth rates were almost directly opposite of the pattern of crude death rates; the highest crude birth rate was in 1885 and the highest crude death rate was in 1900 (Figure 6). The birth rate in 1885 exceeded the birth rate in 1900 by more than half. The reverse is true for the crude death rates.

Age-Specific Child-Woman Ratios: Assiniboine

The child-woman ratios for the Assiniboine in 1890 and 1895 are patterned erratically. Among the Assiniboine in 1890, the child-woman ratio was identical for the 20-24 age group and 30-34 age group but dropped to 0.6 in the 25-29 age group (Figure 7). These 20-24 and 30-34 age groups also had the highest child-woman ratios for that year. The 20-24 age group also had the highest child-woman ratio for 1895 and 1900. The lowest child-woman ratio for all three years was 0.1 for the 45-49 age group in 1890.

The pattern of child-woman ratios for 1895 was almost exactly the opposite that for 1890 in the 30-34 and 35-39 age groups. Both show an increase from the 15-19 age group to the
Figure 6. Crude Birth and Death Rates of the Fort Peck Indian reservation.
Figure 7. Age-Specific Child-Woman Ratio: Assiniboine 1890-1900
20-24 age group and decrease in the 25-29 age group but in 1890 there was an increase in the ratio for the 30-34 age group while the ratio for that age group fell in 1895. The reverse was true for the 35-39 age group. The highest child-woman ratio for the Assiniboine was 0.92 for the 20-24 age group in 1895. The lowest child-woman ratios were found in the 15-19 age group and the 45-49 age group.

In 1900 child-woman ratio remained high for the 20-24 and the 25-29 age group. The ratio then fell steadily after that to below 0.1 for the 15-19 age group.

**Age-Specific Child-Woman Ratios: Sioux**

The child-woman ratios are consistently higher in this group (Figure 8) than in the Assiniboine. Among the Sioux the pattern for the child-woman ratios is less erratic but shows an increase from 1890 to 1895. The ratios for the Assiniboine in 1885 show a similar patterning (Figure 9), but it was not possible to calculate child-woman ratios for the Sioux for that year because no census roll for them was submitted. The values for 1895 fall in a pattern which is similar to that of 1890, but are higher in all age groups except for the 15-19 age group. In both years the ratios peak at the 30-34 age group, but increases from 1.02 in 1890 to 1.30 in 1895. In
Figure 8. Age-Specific Child-Woman Ratio: Yankton Sioux 1890-1900
Figure 9. Age-Specific Child-Woman Ratio: Assiniboine 1885
1900 the ratios are close to those in 1895 but peak at the 25-29 age group and decreases after that. The distinctive pattern of the child-woman ratios for each year in both groups is shown in Figures 10, 11, and 12. The age-specific child-woman ratios in both groups begin to show a similar pattern in 1900. Overall, child-woman ratios are extremely low for both groups. The highest ratio for the whole 15 year period was 1.30.

Proportions of Males and Females
In Five-Year Age Groups
As Shown by Age-Sex Pyramids

Pyramids may be analyzed and compared in terms of: (1) the relative magnitude of the area on each side of the central axis of the pyramid i.e., the symmetry of the pyramid or a part of it; (2) the length of a bar or group of bars in relation to adjacent bars; (3) the steepness and regularity of the slope (in a steep slope, the sides recede gradually and rise fairly vertically, and in a gentle slope, the sides recede rapidly) (Shyrock et. al. 1973:239). These characteristics of pyramids reflect, respectively, the proportion of the sexes, the proportion of the population in any particular age class, and the general age structure of the population (Shyrock et. al 1973:239).
Figure 10. Age-Specific Child-Woman Ratio: Assiniboine and Yankton Sioux 1890
Figure 11. Age-Specific Child-Woman Ratio: Assiniboine and Yankton Sioux 1895
Figure 12. Age-Specific Child-Woman Ratio: Assiniboine and Yankton Sioux 1900
In the age-sex pyramids for the Assiniboine and the Sioux, there is some distortion by age-heaping. Age heaping is the tendency for enumerators or interviewees to report certain age-groups over others. The enumerators often guessed the age of the interviewee, since it was not customary for the Indians to keep track of age in that manner (Johansson and Preston 1978:13). Other systematic patterns of misreporting of age common to enumerators used to Western cultural norms are reflected in the pyramids. Western enumerators tended to report young wives as older than they really were, especially if they had borne children (Johansson and Preston 1978:13). Teenage girls who did not achieve menarche were likely to be reported as being younger than they really were. These patterns of misreporting may partially account for the thicknesses of the lower ends of the pyramids.

**Assiniboine**

The Assiniboine age-sex pyramid of 1885 shows an irregular age-sex structure (Figure 13). This irregularity is seen in all the age-sex pyramids for the Assiniboine and Sioux and is partly due to stochastic fluctuations in births, deaths, and migrations characteristic of small populations (Campbell 1991:349). At the most advanced ages, the numbers of each sex are very unequal. At age 65-69, the ratio of
Figure 13. Assiniboine Age-Sex Structure 1885
females surpassed the number of males by over 100 percent; at 80-84 years, by over 200 percent. Below the 65-69 rectangle, the irregular structure continues, with an excess of females throughout the pyramid except for the 15-19 age group. The broadest part of the pyramid is near the base, in the 5-9 rectangle, slightly narrowing upwards until the 15-19 rectangle. The 20-24 rectangle shows a considerable indentation on either side. This shows a young population, with most people falling into the 0-4, 5-9, 10-14, and 15-19 age groups. The step-structure of 10-14, 15-19, and 20-24 rectangles in the females suggests a higher rate of mortality than in males for those age groups.

In 1890 the irregular age-sex structure persists, and the sides of the pyramid are even more staggered (Figure 14). There is a reduction in the number of older people from the 70-74 age group upward. At the top of the pyramid, the ratio of males in the 75-79 and 80-84 rectangles are similar. There are no males in the 85+ age group. There are fewer females in the 75-79 and 85+ age groups than in 1885, and none in the 80-84 group. The length of the rectangles show an increase in the ratio of females in several age groups compared to the rest of the population: 70-74; 60-64; 50-54; 40-44; and 30-34. This is attributed partly to an increase of males and females in some age groups, and a decrease in others. There is an increase in women who were in the 50-59, 45-49, and 35-39 age groups in 1885. The number of women who
Figure 14. Assiniboine Age-Sex Structure 1890
were in the 65-69 age group in 1885 remained constant in 1890. The change in proportions is due also to a reduction of the number of children of both sexes who were in the 0-4, 5-6, 10-14, and 15-19 age group in 1885. The number of men who were in the 20-24, 25-29, 30-34, 35-39, and 40-44 age groups in 1885 is also smaller.

In 1895, the number of Assiniboine remained fairly constant, but internally the population continued to undergo changes in proportions (Figure 15). The oldest group of surviving members was the 80-84 group of females. The proportion of males in the 80-84 and 85+ continued to decline. Like the 1890 pyramid, the 1895 age-sex structure reveals a population of intermediate age; that is, although the base is still proportionately the largest age group, most of the population falls into the 20-24, 30-24, and 40-44 age categories. There was a slight decrease in fertility, shown by the proportion of the 5-9 age group to the base. In 1900 (Figure 16), there is a further constriction in the base, indicating a decline in fertility and a rise in mortality.

Yankton and Yanktonai Sioux

The 1890 pyramid for the Yankton and Yanktonai Sioux (Figure 17) has a very broad base and narrows very rapidly from the 0-4 age group to the 10-14 age group. The shape of
Figure 15. Assiniboine Age-Sex Structure 1895
Figure 16. Assiniboine-Age-Sex Structure 1900
Figure 17. Yankton Sioux Age-Sex Structure 1890
the pyramid at the 75-79, 80-84, and the 85+ age groups, is similar to that of the Assiniboine for the same year. The ratio of males declines rapidly from the 55-54 age group to the top of the pyramid. The shape for the females also resembles the Assiniboine in that there is an unusually high ratio of females in the 60-64 age group. Between the 70-74 and the 15-19 rectangles, the pyramid has fairly steep slope. The sides are staggered, but the proportions of the age groups are closer in relation to each other than in the Assiniboine.

The shape of the 1895 pyramid (Figure 18) shows a fairly young population. It has a very broad base; the 5-9, 10-14, 15-19, and 20-24 rectangles are short compared to it, but make up the largest proportion of the population. From the age groups of 25-29 to 50-54, the proportions are fairly similar, and show that these groups were of intermediate size in the population.

The 1900 pyramid (Figure 19) also shows a population that was demographically younger than the Assiniboine population of that year, although both the Assiniboine and the Yanktonai Sioux experienced a decline in fertility. The 0-5 age group is still the largest, but the length of the 5-9 rectangle indicates a drop in fertility.
Figure 18. Yankton Sioux
Age-Sex Structure 1895
Figure 19. Yankton Sioux Age-Sex Structure 1900
Population Change

and Conditions on the Reservation

The proportion of Assiniboine children in the 0-4 age group and the general shape of the age-sex pyramid for the Assiniboine in 1885 can be explained partly by high mortality from starvation. Starvation and other dietary problems were important as sources of stress affecting the population, even before the formal establishment of the reservation. In October 1871, Agent A.J. Simmons, who was assigned to the Milk River Agency, reported that game was rapidly being killed and there would be starvation that winter (Miller 1987:114). The scarcity of game continued for years and contributed to starvation. In the winter of 1883-84 and summer of 1884, at Wolf Point, the cumulative results of the decimation of the buffalo and the unreliable issuance of rations resulted in a period of famine for the Assiniboine. The first deaths among the Assiniboine from starvation at Wolf Point were reported in February of 1884, and by June mortality was high in the old and the very young (Miller 1987:132).

The Sioux were reported to be in a similar situation. Conditions were so bad that horses and dogs had to be
slaughtered for food against the order of the Indian Agent, and attempts were made to obtain forcibly rations from the Poplar Agency. These conditions were stated in the report of U.S. Indian Inspector Matthew R. Barr in September of 1884:

The great number of deaths that occurred in March last, 87 in that month, while not directly traceable (sic) to an under supply of food, which could be called starvation. Yet there is no doubt that the diseases in many cases which caused death could have been much more manageable under the conditions of plentiful supply of food and warm clothing and fuel. Inquiry at Wolf Point where the most severe suffering and the greatest number of deaths occurred had to the conclusion that about 100 horses were killed for food. The estimate of the number of dogs killed for the same purpose last winter varies from 200 to 2000... (National Archives, RIFJOIA, 1 September 1884: Record Group 48).

Conditions did not improve in 1885. This was evident in the first annual report to the Commissioner which was submitted by Burton Parker, the Agent in charge of Fort Peck: "I assumed charge January 23, 1855, and found the Assinaboines (sic) in quite destitute circumstances. Their annuity goods had not yet been issued" (Annual Report 1885:132). Their own stocks did not fare well either. That winter, about half the herd of cattle belonging to the Assiniboine died (National Archives, RIFJOIA, 8 April 1885:1). Nevertheless, the seriousness of the situation was not conveyed and the report ended on this note:
...the utmost harmony prevails all over the reservation...the Government is dealing kindly and liberally with this people, and...many of their (the government's) supposed wrongs are imaginary. (Annual Report 1885:134).

In the winter of 1885-86, starvation and malnutrition resulted from the agency's physician neglect and another agent's failure to distribute rations. Because of a dispute with the agent, the agency physician refused to leave the agency at Poplar, even when ordered to make rounds to other parts of the reservation (Miller 1987:136). The following report was made by Inspector C.H. Dickson, who arrived in March 1886:

At and near the agency proper are the Yankton Sioux about 2300 in number according to the last census, and at Wolf Point...are the Assiniboine Indians about 1100 in number... They have no physician, and often suffer for want of medical attention (Miller 1987:136).

The proportion of females in the 20-24 and 25-29 age groups is consistent with the interpretation of starvation. Children and females of child-bearing age are affected especially in terms of morbidity and mortality. Susceptibility to infection and the duration of infection is increased by malnutrition. Starvation and malnutrition in children and females of child-bearing age on the Northern Cheyenne Reservation had these same effects (Campbell 1991:345). Indeed, the historical conditions with regard to malnutrition and disease on the
Northern Cheyenne and Fort Peck reservations were similar to situations in contemporary Third-World Countries, where morbidity and mortality in those groups under similar circumstances are high (McElroy and Townsend 1989:235).

The high Crude Birth Rate but relatively low (realized) fertility for 1885 may be also tied to the periods of starvation and malnutrition. The interpretation of high infant mortality due starvation and malnutrition (in both infants and mothers) in 1885 may explain why there is a high Crude Birth Rate despite the low realized fertility shown by the base of the 1885 pyramid. The crude birth rate for 1885 was the highest in the period of 1885-1900, but the average child-woman ratio for the Assiniboine was only 0.47. It is not known how many of the births reported in 1885 represented live births or what the infant mortality rate was, but the child-woman ratio does take into account infant mortality.

After 1885, both the Assiniboine and the Yanktonai Sioux maintained relatively high fertility and moderate to high infant mortality levels from 1890 to 1900, as illustrated by proportions of the bases to the rest of the age-sex pyramids. It is likely that the infant mortality levels after 1885 were less dramatic than in times of chronic starvation, but remained fairly high nevertheless, as malnutrition and disease persisted. Coale (1964:48) stated that a "high-fertility population has a larger proportion of children relative to adults of parental age as a direct consequence of
the greater frequency of births". The Assiniboine and Yanktonai Sioux groups fit Coale's description of high fertility. Fertility levels for women tend to be higher under conditions of high infant mortality. This represents a biological and social response to that stress (Campbell 1991:355). Higher infant deaths interrupt post-partum and lactational amenorrhea, leaving women open to conception. Chronic malnutrition and starvation results in women giving birth to underweight babies, resulting in possibly higher infant and child mortality (Campbell 1991:355). This chronic starvation was due partly to the poor system of ration distribution.

The poor rationing system may be attributed to the inefficiency of the reservation administration. In August 1885 Yanktonai headmen petitioned to the agent to demand new butchers and interpreters, claiming that they were responsible for cheating, stealing, and limiting the amounts of food, making the rations so small that people were hungry all of the time (Miller 1987:135). In the 1880s the turnover rate for agents at Fort Peck was high. Agents at Fort Peck were changed almost yearly (Miller 1987:135; Annual Reports 1885-1900). Some of these agents did not themselves distribute rations properly. Inspector Frank C. Armstrong witnessed a beef issue under the direction Agent Henry R. West's administration in 1886, and wrote in his inspection report that:
...butcher had cut the meat into pieces about equal size and issued the same sized beef to each family. That is, to a family holding a ticket calling for three persons ...he would give the same sized beef as he would to one holding a ticket for seven persons (National Archives, RIFJOA, 20 August 1886:Record Group 48).

This ineptness continued to contribute to the malnutrition and "general scarcity of food" which continued to result in many deaths at Wolf Point (Miller 1987:135). The rations that were issued consisted of food items which were not part of Native American diet, including salt-pork, hard-tack, sugar, flour, milk, coffee, and beans (Rodnick 1978:19). For the Assiniboine, meat was considered the only type of food that would keep the individual well-nourished (Rodnick 1978:87). The small amounts of meat issued forced the Indians to subsist on what they perceived as inferior types of food. Even as late as 1937, Rodnick (1978:87) reported that many older Assiniboine on Fort Belknap considered meat to be an essential food item and that few would drink milk.

Political conflicts among employees and Indians also contributed directly to the loss of Indian lives. Dr. V.S. Benson, the Agency Physician in 1886, when cross-examined by Inspector Armstrong reported, "[Agent West] makes rules for my practice of medicine. Agent refused to issue rations ordered by me for sick child of Red Thunder because he personally disliked him" (National Archives, RIFJOIA 1886:1).
The agents were not totally responsible, for they themselves were subject to the deplorable conditions at Fort Peck:

....They [the agents] arrive at their agency utterly ignorant of what their duties are to be. Ignorant of all surroundings, they find themselves and families away from civilization, without society, and encompassed by discomforts. Instead of a comfortable, furnished house, as they have been led to believe they may expect, they find a shack, in many instances... They become disgusted; too poor to return from whence they came, they determine to make the best of a bad bargain; thrust their relatives and friends...into every office under their control which pays, regardless of fitness...and permit things to go to the...(Annual Report 1886:184).

The reduction in the Assiniboine and Sioux population in 1890 is reflected in the changes in the proportions shown by the staggered arrangement of the age rectangles. This reduction partly could be accounted for by the absence of Indians who could not be counted because they were not on the reservation or beyond the jurisdiction of the agency. Some continued their seasonal cycles despite not having the authorization to leave the reservation. The Annual Report to the Commissioner of Indian Affairs of 1887 (Annual Report 1887:144) for Fort Peck stated that about four hundred Indians were absent without permission, most having gone to Canada to hunt and to pick berries.

In 1889 the number absent were estimated to be about three hundred. This also accounts for the significant
increase in proportions in some age groups from one year to the next, notably the unnaturally high proportion of females in the 40-44, 50-54, and 60-64 age groups in the Assiniboine in 1890.

However, the apparent mortality rate is still high; even if four hundred Indians were added to the 1890 total of 1811, there still is a reduction of the population by 1193 people, or about 35 percent of the 1885 total population.

Some losses were incurred as a result of ongoing inter-tribal hostilities. In 1886 the Crow were at war with the Assiniboine, Sioux, Blackfeet, and Piegan, and the Sioux were at war with the Crow, Piegan, and Blackfeet (Miller 1987:141). These hostilities continued until the early 1890s. Casualties were reported not only among men, but also women (Miller 1987:141).

Infectious Diseases

In non-industrial societies, disease is the most important single cause of low fertility (McElroy and Townsend 1989:128). The factors which influenced health on Fort Peck, therefore, ultimately affected its demography. The harsh social conditions contributed to further deleteriousness by diseases. The high mortality in the 0-4 age group in 1885 is also attributable to infectious diseases. By the time the
Assiniboine and the Yanktonai Sioux were concentrated on reservations, the major epidemics of smallpox, measles, and influenza had already taken their toll of the population, although many of these diseases were still present on the reservation. The excessive mortality during the pre-reservation period from epidemics was replaced by chronic ill-health in the early reservation period stemming from inadequate medical care, overcrowded living conditions, and poor diet. Other reservation populations, including the Navajo population on the Navajo Indian Reservation in southwestern United States, have undergone a similar disease experience (Kunitz 1981:185).

Health facilities on Fort Peck were unsatisfactory. There was no hospital building or medical facilities until 1894, when the agent's old house was remodeled as a "hospital" (Annual Report 1894:184). Agency physicians were often isolated, culturally as well as physically, from their patients. Instead of working within the boundaries of Native health practices and beliefs, the agents actively discouraged the Indians from visiting their "medicine men" (Annual Reports 1887:146). In 1886 Inspector C.H. Dickson reported that the agency physician, Dr. V. S. Benson, had visited the sub-agency at Wolf Point only four times during the winter of 1886, and had threatened to resign if forced to visit the Assiniboine weekly (Miller 1987:138).
Table 4 gives a summary of the number of cases of all afflictions reported by the agency health service in 1885 and 1890. Influenza, tuberculosis (white plague), and measles were still present (Annual Report 1885:398). Influenza, as well as measles, may be associated with secondary infection of the lungs, and along with tuberculosis, caused high mortality in children and young men. Agent H.W. Sprole of Fort Peck wrote in 1874, "There is considerable mortality among children of a few months' age. Many of the young men barely reach man's estate before they die of consumption" (Annual Report 1894:184). The loss of the young men may be seen in the age-sex pyramid of 1895. The relative high fertility (the overall child-woman ratios for 1895 are the highest, but the actual values are still very low) for that year may be a response to the high infant mortality in 1884.

The new diseases which resulted from poor living conditions included typhus. Schoolcraft wrote in 1860 that typhus which was "unknown to savage life...their mode of living being unfavorable to its development, as in civilized life, it has its origin in illy-ventilated (sic) residences..." (Schoolcraft 1860: 511). Indeed, poor housing, along with an inadequate diet, contributed significantly to the high death rates on reservations during the early reservation period (Mattison 1963:168). The Indians were encouraged to adopt "citizen's dress" and live in log
<table>
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Table 4. Summary of cases reported by the Fort Peck Agency physician (Source: Medical Statistics, Annual Report to the Commissioner of Indian Affairs, 1889 & 1890).
cabins. In 1887, Agent D.O. Cowen reported that "...one-half of the Indians at this agency have adopted citizen's dress wholly, and are living in houses [log cabins]" (Annual Report 1887:144). By 1889 there were 480 log cabins on the Fort Peck reservation (Annual Report 1889:232). Agent C.R.A. Scobey wrote in 1890 that "...the Indians are making some progress toward a civilized state...most noticeable in their abandoning their "teepees" for houses..." (Annual Report 1890:132). The increase of these dwellings may account partly for the high incidence of influenza and respiratory diseases after 1886 (Figure 20). Close contact diseases, such as typhoid and respiratory tract infections reflected the conditions in the small and ill-ventilated houses in which they had to live. Dysentery, diarrhea, and typhoid-related fevers also were prevalent (Figure 21). Thirty-two percent of the population suffered from an illness in 1885 and in 1890 the figure had risen to 79 percent. The effect of such housing on health in reservations was noted by Grinnell in 1900:

The tendency to tuberculosis, no doubt arises very largely from their present mode of life, which is especially favorable to the spread of this disease...The houses are small and ill-ventilated, the household and visitors gather in numbers in a single room and deposit their sputa on the floor. From sweeping, from dancing, and even from the tread of people walking, dust is constantly rising from the floors and carries with it the tubercle germs which find lodgment in the air passages of the inmates and visitors (Grinnell 1900:164).
Figure 20. Incidence of influenza, tuberculosis, and respiratory diseases
Figure 21. Incidence of gastrointestinal and eye-ear close-contact diseases
Incidence of influenza, tuberculosis, and diseases of the respiratory tract increased after 1885; the frequency of influenza may also be measured by incidence of secondary infection of the lungs and other pulmonary complications (Figure 20). Although these diseases were not present in epidemic proportions, their presence was maintained steadily by lack of proper sanitation and proper health care.

The poor conditions of housing were also seen in the reservation school. The agency boarding school atmosphere was not conducive to learning, or health, as reported by agent D. O. Cowen in 1887:

...little progress has been made during the year, owing to bad management...the school is crowded to overflowing... and the buildings inadequate.  
(Annual Report 1887:145)

School-age children were exposed to infectious diseases not only at home, but also at school. One-hundred and eighty-seven children were reported to have attended the agency boarding school at Poplar Creek in 1890, and the medical statistics for that year show that 51 were infected with chicken-pox, 28 with diphtheria, 148 with influenza, and 71 with conjunctivitis. Along with influenza, conjunctivitis was a prevalent close-contact disease.

Tubercular diseases continued to be prevalent, especially in children. The report of the Inspector of the
Fort Peck School states, "... a number of children afflicted with scrofula.." (National Archives, RIFJOIA, 24 November 1890). The term scrofula refers to cervical tuberculous lymphadenitis, or a swelling of the glands (Stedman's 1982:1267). Mortality due to infectious disease could have played a large part in determining the age-sex structure after 1885. Even though the mortality figures do not show it, the decline in the proportion of school-age children from 1890 to 1895 is reflected in the age-sex pyramids, especially in the 10-14 age group.

After 1892, the decline was also due to the number of children sent away to new boarding schools. In November, 1892, the agency boarding school was consumed by fire. As a result, children were sent to school off the reservation to Fort Shaw and Carlisle. Children were taken sent away for periods up to four years (Annual Report 1893).

The reservation school was reopened in 1894, but this reduction in the number of school-age children may be seen in the 1895 and 1900 age-sex pyramids, for a number of children remained at Fort Shaw and Carlisle. Despite the optimistic reports from the agents, reports from outside observers show that conditions in the schools did not improve as late as 1899 (Grinnell 1900).

Children who returned to the reservation from these schools after a prolonged absence also suffered considerable psychological stress. They were ill-equipped psychologically
to return to the reservation, and were perceived as a disturbing element, because, as Inspector McConnell reported, "...when returned home they sow discontent and immorality among their former associated...you [the government policy of sending these children away] have done them irreparable injury having wrecked their future lives." (National Archives, RIFJOIA 1894). Many of these returnees, who were women, turned to prostitution (National Archives, RIFJOIA 1894).

Another source of ill-health attributable to social conditions is venereal disease. Syphilis and gonorrhea accounted for the largest number of disorders reported in 1885 (Annual Report 1885: 397), and were important sources of ill-health, frequently mentioned in the Annual Reports as the main cause of mortality from disease, next to influenza and tuberculosis (Annual Reports 1885-1900). Agent Cowen reported in 1887 that "chronic syphilitic affections and consumption which have prevailed among the Indians...for many years (Annual Report 1887:146). The Annual Reports mention not only secondary and tertiary syphilis, but also congenital syphilis (Annual Reports 1894: 184). Syphilis and gonorrhea, along with tuberculosis, not only affected mortality but also fertility. Any disease which involve internal pelvic organs will have an effect on fertility, by causing secondary sterility (Campbell 1991:347). This reduction of fertility occurs through pelvic inflammatory disease (PID), which
often occurs as a complication of gonorrhea or following childbirth or abortion (McElroy and Townsend 1989:129).

Conclusion

The demographic patterns at Fort Peck shows that the demography of the Assiniboine and the Yankton Sioux were influenced by conditions caused by underdevelopment on the reservation. Their population structure is a result of the combination of environmental and cultural factors which were created by reservation life. One aspect of the population which was affected by reservation life was health. Health in the Assiniboine and Sioux population did not improve with their forced settlement on the reservation during the period of 1885-1900. Starvation and the prevalence of chronic infectious diseases may be linked to specific socially-created conditions, when the demographic data are examined against ethnohistorical sources. Taking into account the fluctuations due to enumeration problems and to movement of people, the general trend of the population figures show a severe decline from 1885-1890, and a continuous decline until 1900.

The tremendous loss from 1885-1900 may be attributed to the stresses incurred in the initial settlement of the reservation proper, starvation, disease, and inter-tribal conflict. After 1890, mortality continued to rise due to
chronic diseases. The population decline after 1885 is not of a dramatic nature, but indicates the persistence of ill-health. Although the earlier epidemic proportions of smallpox, measles, and influenza were not seen during this period, chronic diseases of the respiratory tract, venereal diseases, and other diseases related to overcrowded and unsanitary conditions persisted. The poor conditions of schools had an adverse impact on children, and contributed to the high incidence rate of influenza in 1890. Resistance to disease was further reduced by the malnutrition and starvation brought on by mismanagement of the reservation.

An examination of the age-sex structure reveals the effects of reservation life on the population composition, when studied in conjunction with ethnohistoric documents. An examination of the early reservation period reveals an excess of adults over children, consistent with Wissler's findings for the Plains Indian reservation societies (Wissler 1936:39). Infectious diseases like influenza, tuberculosis, syphilis, and gonorrhea influenced not only mortality, but more importantly, fertility. The low child-woman ratios contrast with the relatively high fertility levels shown by the age-sex pyramids; this is consistent with an interpretation of a compensatory response to disruptions in the reproductive process by heavy mortality, although it did not result population growth.
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