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The Historical Demography of White Earth Indian Reservation: The 1900 U.S. Federal Manuscript Census Considered

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In recent years an increasing number of scholars have directed attention toward Native American historical demography. Much of this effort has centered on discerning the size of Indian populations prior to European contact. The question no longer appears to be whether or not Indian groups experienced a demographic disaster when exposed to European diseases and domination but how extensive the resulting depopulation was. While these discussions of cataclysmic demographic catastrophes retain their positions in the limelight, other important questions are upstaged. This is not meant to suggest that these avenues of inquiry be abandoned, only that other important questions exist that may be easier to answer and crucial in determining later Indian experiences.

AMERICAN INDIAN POPULATIONS AS SUBJECTS FOR HISTORICAL DEMOGRAPHIC RESEARCH

American Indian populations have been regarded as poor subjects for demographic analysis. Evidence for the precontact and early historic periods is scant. Vital registration systems are either

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lacking or of such poor quality as to be useless. Censuses taken by various organizations have been shown to be inadequate. However, it is possible to make use of a wide variety of plausible demographic source materials available only for Indian people to create better pools of data.

During the nineteenth century virtually all groups of Indian people passed from total or partial independence to the status of wards of some imposed government. The U.S. government utilized huge proportions of allocated federal dollars in the "management" of Indian people. The growth of the bureaucracy associated with the establishment of formal federal relationships with various Indians may cause Indian groups to emerge as some of the better recorded minority groups. Tribal membership, annuities, education, allotted land, health care and population composition were all monitored to insure that only those who were rightfully entitled by federal standards to receive services did so. In addition to these annual reports gathered by the Bureau of Indian Affairs (BIA), federal and state censuses of varying quality exist for most Indian groups. This wealth of serial data may permit the reconstitution of families and households, allowing a degree of detail greater than that which is possible for other ethnic enclaves. Urban Irish in low-income neighborhoods were rarely the objects of such intensive scrutiny. When combined with accounts produced by Indian people and contemporary observers such as agents, missionaries, teachers, agents, anthropologists, travellers and others, the abundance of data available for cross-checking may partially compensate for the poor quality of particular documents. A great deal of this type of material exists for White Earth and many other Indian reservations across the country.

However, this abundance of demographic source material does not entirely compensate for the limitations inherent in applying these techniques to groups of Indian people. Even though the information provided by available documentary evidence might allow family reconstitution, efforts in this direction may well be thwarted. Frances Densmore described how Ojibwa names were acquired. Initially, children could be named after a peculiar incident at their birth or some special power possessed by another Indian. Names could be added or completely changed as they grew (Densmore 1929:52–3). Such inconsistency makes record linkage difficult. The process of anglicization of surnames compounds the problem. Intermarriage between White men and

Ojibwa women was widespread. Wives and children often possessed an English name and an Indian name which could be used interchangeably. Indian men working in lumber camps were forced to take English names in order to be paid. The anglicization process was not uniform: some translated their Indian names into English and added an English first name; some took their gens name as a family name; nicknames stuck; lumber employees assigned names arbitrarily; and names were misspelled and mistranslated phonetically (Ritzenhaler 1945: 175-7). Furthermore, names recorded in the census often describe the person with an Ojibwa word, "old woman" or "little girl," rather than providing actual names. The peculiarities of Indian naming patterns pose formidable problems for demographic researchers.

Assessment of an individual documents is necessary, but the prospects for illuminating extensive kinship patterns by means of family reconstitution seem quite limited before the late nineteenth century when the BIA began to keep population records on a more regular basis. Perhaps more accurate measures can be obtained once most Indians have acquired English surnames. However, the increase of family names reflects something of the process and extent of acculturative processes. Ojibwa women who married White men broke the gens line which was traced patrilineally, thereby further confusing the already weakened gens system. On the other hand, data existing for the White Earth Ojibwa are very rich, providing many valuable social indices beyond purely demographic ones. Researchers will need to exercise a great deal of creativity in dealing with the available documents pertinent to their subjects, which may vary from one tribe and time period to another. The difficulties of applying more sophisticated demographic techniques to groups of Indian people must be recognized, but more basic measures ought to be possible.

Compiling a demographic history is not a significant endeavor unless the results are linked to particular environments and sets of social and economic factors. Conditions affecting fertility, mortality and kinship patterns will surely vary from region to region, tribe to tribe, and even within a single tribe as groups of people experienced different rates and directions of social and economic change. Ethnohistory, a vague term denoting the interdisciplinary use of historical and ethnological techniques, can yield a great deal of information in specific situations. Rig-

orous evaluation of documentary sources coupled with an understanding of the different cultural premises on which Indian groups operated is capable of yielding the most complete account of Native American historical and cultural development at the present time. Demographic analysis fits nicely into this framework.

THE 1900 U.S. FEDERAL CENSUS: WHITE EARTH RESERVATION

No single source can allow an interpretation of changing Ojibwa demography. The combination of a variety of documents can introduce a temporal perspective necessary to detect changes in customs. Effort and ingenuity will be essential in piecing together and making sense of these scattered bits of information, but they possess too much research potential to be ignored. The 1900 U.S. federal census is one piece of evidence to be employed in this type of analysis.

Prior to 1900 U.S. federal census did not enumerate reservation Indians. Only Indians living off reservations were tabulated, and then poorly. Earlier systems of categorization often aggregated Indian people with other "colored" or minority groups thereby thwarting any attempt to examine them singly. The 1890 census provided some limited information for several reservation groups, but the manuscript form was destroyed in a fire. The 1900 census was the first to establish a separate form for Indian people in addition to the regular form for the general population. The categories of inquiry cover a variety of useful material, but the responsibility for thorough compilation ultimately rested with the individual enumerators who often omitted more specialized questions regarding allotments and occupations. The census supplies enough information to allow indirect measures of fertility, mortality and possible use of Coale and Demeny's life tables and stable population models (for the categories of information covered by the 1900 census, see Figure I). The measures taken are simple and can be employed in analyzing the 1900 census for other groups of Indians.

The 1900 U.S. census for White Earth Reservation is of limited value. Population estimates from a number of sources do not align. The Reverend Joseph Gilfillan, Episcopal missionary at White Earth in 1898, provided estimates of the population. In

Figure I: Categories of Information Contained in the 1900 U.S. Federal Manuscript Census

GENERAL POPULATION FORM

Location
—In Cities: Street
House #
—# of Dwelling—Order of Visit
—# of Family—Order of Visit
Name (Include all persons in family. Omit children born since June 1, 1900.)
Relationship to Head of Family
Race
Sex
Date of Birth: Month
Year
Age
Marital Status
Years Married
Mother of # of Children
# of Children Living
Place of Birth
Father's Place of Birth
Year of Immigration to U.S. (significant when close to international borders)
# of Years in U.S.
Naturalization
Occupation
Months not Employed
Attended School (in months)
Can Read?
Can Write?
Speaks English?
Dwelling Information: Owned or Rented?
Free or Mortgaged?
Farm or House?
# of Farm Schedule

SPECIAL INQUIRIES RELATING TO INDIANS

Other Name (if any)
Tribe
Father's Tribe
Mother's Tribe
Degree of White Blood (0, 1/2, 1/4, 1/8)
Polygamous? (if married)
Taxed?
Year Acquiring Citizenship
Citizenship Acquired through Allotment?
Fixed or Movable Dwelling?

1873 "Those who lived at White Earth had been removed there within five years, mostly from Gull Lake and Crow Wing; but the mixed bloods had come from many different parts of northern Minnesota and Wisconsin (Gilfillan 1901:5)." Gilfillan estimated the White Earth population at 1700 individuals, "very largely French mixed-bloods (Gilfillan 1901:55)." Gilfillan recounted the principal migrations to White Earth since 1873 as follows: 300 of the Mille Lacs band; the remaining 200 from Gull Lake; 300 from Leech Lake; 100 from Cass Lake; and about 1,000 French-Canadian mixed-bloods (Gilfillan 1901:55-7). Therefore, Gilfillan's estimated total in 1898 was 3,600. Since this estimate is higher than any other and the method of tabulation was based on undocumented recollection, I have largely discounted it and accepted lower estimates. The 1900 BIA census, tabulated by the agent at White Earth listed 1,544 residents and 1,198 immigrants for a total of 2,742 (U.S. Bureau of Indian Affairs 1900).

The 1900 federal manuscript for White Earth numbers only 450 (U.S. Census Office 1902). Differences in definitions of "Indian" may account for some of the variation in estimates. The U.S. government persistently drew distinctions between mixed- and full-blooded individuals in order to provide a basis for apportioning funds and services. Since the BIA figure of 2,742 is based on a manuscript enumeration of individuals, its reliability is greater than either the Indian Office figures or the estimates of Reverend Gilfillan. If this estimate is accepted, then the U.S. manuscript census is underenumerated by 84%.

The method of enumeration of the U.S. census must also be viewed with skepticism. The labels for the census sheets had been scratched over usually twice and often three or four times. We cannot be certain that the enumerators accurately determined which label was ultimately correct. Those enumerated do not necessarily represent an accurate cross-section of the reservation population. Mixed-bloods, White husbands, Indians with anglicized names, and nuclear family types are all concentrated near the beginning of the census. Further in the listing family types become more varied, the incidence of widowed persons increases, and Indians are noted as being more full-blooded. It seems possible that the initial entries represent more acculturated Indians, perhaps living in a town or village. Later entries may represent Indians living in more remote and inaccessible areas. Maybe the 84% who were not counted were even farther out. It is also plausible that a large part of the population

left the reservation to engage in some seasonal, communal activity such as those described by observers. Perhaps the 1,198 migrants recorded by the agent had not yet arrived. Even so, the U.S. census is still underenumerated by 75% without them. All of this reasoning is, of course, purely inferential. Any conclusions based on the data must be regarded as tentative.

Two individuals compiled the census, one of whom operated meticulously while the other ignored entire categories. The second enumerator disregarded questions dealing with literacy, occupations and the year in which allotments were acquired. The discovery of this omission was disappointing because the total number of cases where information was provided for these categories was so small that statistics generated were not meaningful. Enumerators of other reservation groups may have taken greater care to cover more of these significant categories than the enumerators assigned to White Earth.

The combination of inadequacies reviewed above severely damages the reliability of the 1900 census for White Earth Reservation and underscores the need for critical handling of demographic materials for American Indian populations. Recently Cary Meister has suggested several statistical tests useful for assessing the quality of ethnohistorical demographic materials (Meister 1980). Again, the abundance of this type of data may allow cross-checking between sources so that the aberrant estimates can be identified and handled accordingly. The measures offered in the following section have been interpreted broadly with an eye toward overarching generalities. They must be regarded as tentative, to be corroborated or modified by further research.

DEMOGRAPHIC MEASURES

Age Structure

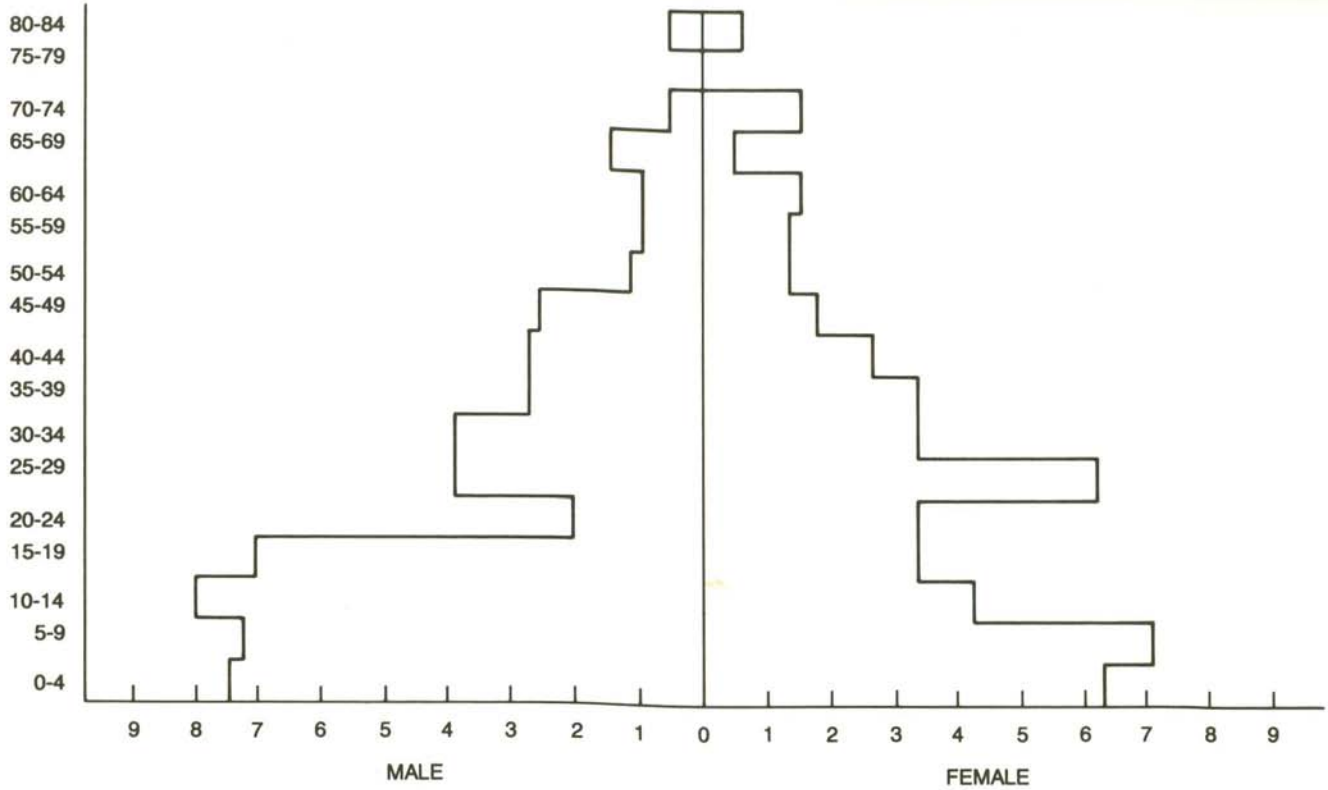
The age structure of the Indian population at White Earth as reported in Graph I is difficult to interpret. Women show both high fertility and mortality as evidenced by a thick base with moderate indentations to older ages. Men, however, reveal low mortality and high fertility reflected in a broad base that quickly falls away. High fertility characterizes naturally reproducing populations practicing no birth control. Neither contemporary observers nor ethnographers of the Ojibwa commented about birth control methods and the assumption of natural reproduc-

tion rests on the basis of this tenuous negative evidence. High mortality can be corroborated by ethnographic information describing poverty and periodic waves of disease (Densmore 1929; Gilfillan 1901; Whipple 1901, 1902). Most contemporary observers commented on White Earth's high infant mortality rate. They provided no statistical measures but noted customary practices causing lengthy exposure to the elements and improper care as being responsible. While their assessment of causation may be erroneous, their observations may have some basis in fact.

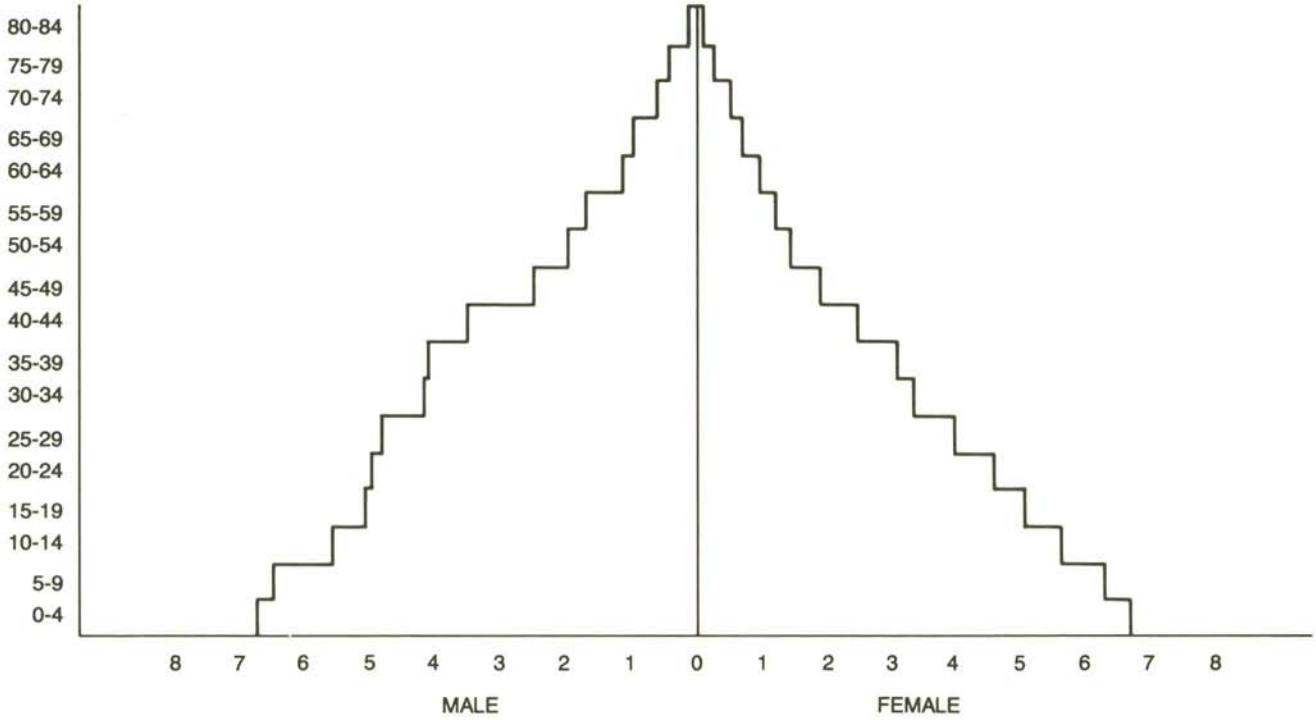
The historical fact of migration to White Earth supports the notion that selective migration exaggerates the high fertility/low mortality pattern found among young men. If typical ages for male independence were low, more men 10-19 may have migrated to the reservation in order to acquire promised benefits (land and agricultural implements). The diminishing proportion of males from 7% for the 15-19 age group to 2% for the 20-24 age group may have been caused by some form of seasonal employment in the lumber industry since the census was taken in June. However, there is no apparent reason why this should affect only males in the 20-24 age group and not both older and younger males. This differential pattern of migration will affect other measures as well.

Several tentative explanations for the odd shape of the female age pyramid can be offered. The smaller proportions of females in the 0-19 age groups may have been affected by a number of factors. First, females in these age groups may be underenumerated if some special status was attached to having male children. But females in the 10-19 age groups are disproportionately smaller than those in the 0-9 groups. Perhaps women 10-19 married out of the group; early ages at marriage were characteristic of Indian populations. Marriage among the Ojibwa usually entailed a period of service to the family losing the member. Since matrilocality was generally the norm (Densmore 1929), these young women may have been temporarily living with their husbands' families before settling permanently at White Earth. Other measures may help to clarify this situation.

The age structures of both the U.S. Indian population and the Minnesota state population, represented in Graphs II and III, reflect the same sort of low mortality/high fertility pattern as the White Earth male population. But these similarities should not be uncritically accepted. The pyramid for the U.S. Indian

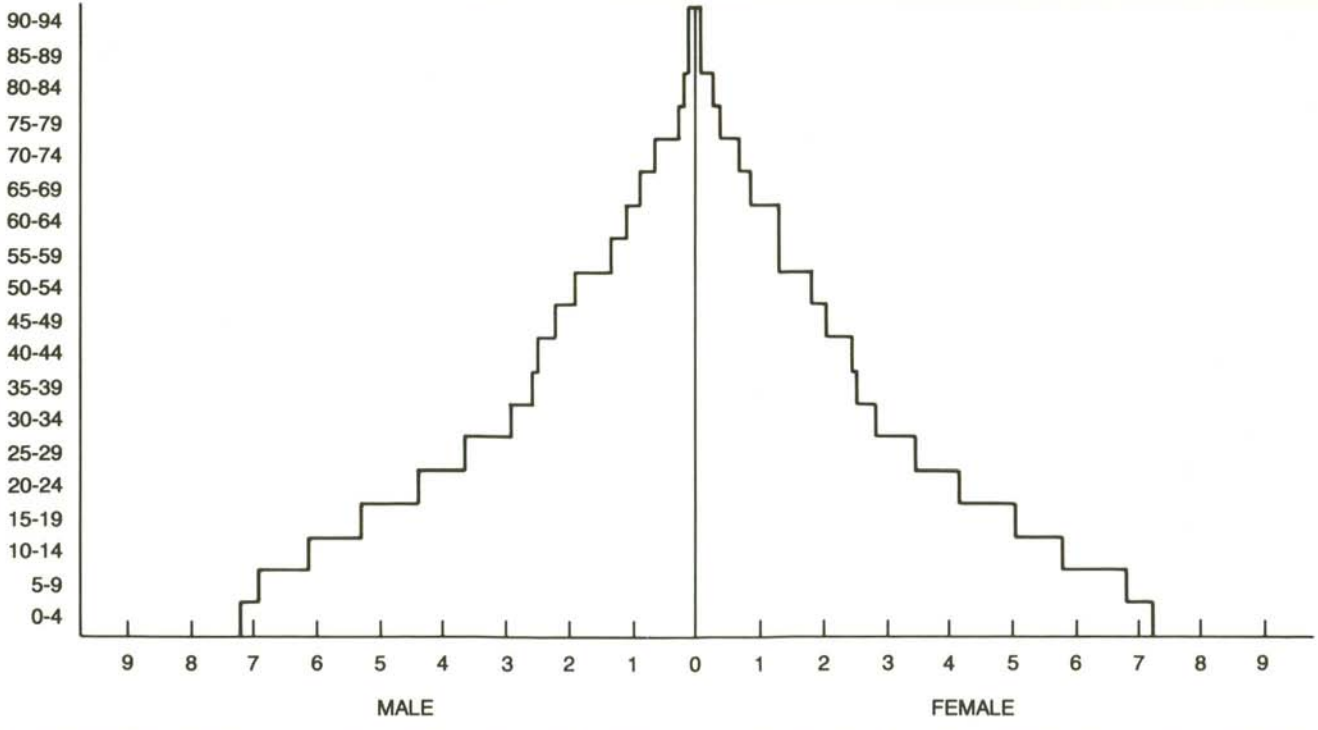


GRAPH I: Percent of White Earth Population for Each Specified Age Period, by Gender; 1900



*Measures are taken from: U.S. Census Office, "Population, Part II," *Twelfth Census of the United States Taken in the Year 1900.* Vol. II (Washington, DC: U.S. Government Printing Office): lxxxii-lxxxiii.

GRAPH II: Percentage of Minnesota Population for Each Specified Age Period, by Gender; 1900*



*Measures are taken from: U.S. Census Office, "Population, Part II," *Twelfth Census of the U.S. Taken in the Year 1900.* Vol. II (Washington DC: U.S. Government Printing Office, 1902): 1v.

GRAPH III: Percentage of U.S. Indian Population for Each Specified Age Period, by Gender; 1900*

population aggregates a wide variety of demographic experiences. Recently conquered Plains Indian groups contrasted sharply with the Southeastern groups whose longer periods of interaction with Whites allowed adaptation and varying degrees of population recovery. Scholars have postulated that the nadir for Indian populations occurred in the early twentieth century. Such theorizing again overaggregates diverse demographic experiences. An examination of reformers' hopes for White Earth residents in the mid-nineteenth century and the benefits accruing to those who migrated lends credibility to the notion that residents fared relatively well. The male experience might support such a contention. However, acquisitive land- and resource-grabbing accelerated throughout the 1890s. Implementation of allotment and the subsequent alienation of reservation land and resources from Indian hands probably caused even greater social and economic disorganization. White Earth's population probably experienced better demographic conditions than many Plains tribes in 1900, but the U.S. Indian population age structure may exaggerate its good fortune.

Indirect Demographic Measures

The 1900 census provides information permitting indirect measures of fertility and mortality. Together, these estimates will allow use of model life tables and stable population models.[1] The methods offered here are intended to serve as prototypes for use with the 1900 census for other reservation groups.[2]

Fertility

Table I provides statistics necessary for the first indirect measure which utilizes the "children-ever-born" category on the 1900 census form. This method corresponds to what is referred to as "own-children" techniques in the demographic literature.[3] Fertility measures utilizing children-ever-born require that the census have a specific question asking each woman how many live births she had. These numbers yield measures of the cumulative fertility of women up to specific points in childbearing years (for White Earth, 35-54). This measure generally underestimates young children because it measures past fertil-

TABLE I: Statistics Regarding the Number of Children Born for Women, Age 15–65^{+}, for Each Specified Age Period; 1900*

Age of Women	Total #	# Ever-Married	% of Total Ever-Married	# Childless among Ever-Married	% Childless among Ever-Married	# Children Married	Mean # Births per Ever-Married Women	Mean # Births per All Women	# Children Living	% Dead of Children Ever-Born
15-19	16	4	25	2	50	3	.8	.2	3	0
20-24	15	10	66.7	5	50	11	1.1	.7	9	18.2
25-29	22	18	81.8	3	16.7	54	3	2.5	37	31.5
30-34	14	11	78.6	1	9.1	38	3.5	2.7	27	29
35-39	16	16	100	1	6.3	91	5.7	5.7	61	33
40-44	12	11	91.7	1	9.1	62	5.6	5.2	42	32.3
45-49	8	8	100	2	25	23	2.9	2.9	17	26.1
50-54	6	6	100	1	16.7	34	5.7	5.7	15	55.9
55-59	6	6	100	1	16.7	20	3.3	3.3	10	50
60-64	7	6	85.7	1	16.7	28	4.7	4	11	60.7
65^{+}	12	12	100	1	8.3	55	4.6	4.6	24	56.4

*A 26, 30, 32 and 60 year old woman have each been omitted because no figures were given for numbers of children.

ity and is, therefore, subject to the unreliability of memory. Even so, measures employing children-ever-born have been shown to correlate well with the crude birth rate (Bogue and Palmore 1964). Figure II shows how they can be substituted for the crude birth rate in order to derive a gross production rate, or female replacement rate. The gross reproduction rate will serve as one component allowing use of the stable population models.

Figure II: Calculations of Gross Reproduction Rates (GRR) for Women, Age 35–54: White Earth Reservation, 1900

Children-Ever-Born $\quad \frac{\text{Total Births to ♀ 35-54}}{\text{Total ♀ 35-54}} = \frac{210}{42} = 5$

$\text{GRR} = 5 \times .48^{*} = 2.42$ $\quad$ *masculinity rate

Mortality

It is also possible to construct a mortality estimate from data provided in the 1900 census. This coupled with the gross reproduction rate will permit the use of stable population models. In Figure III a mortality rate can be derived by calculating total deaths divided by total births through use of information on children-ever-born and children-living. The estimate is assumed to apply to children 0-4. The margin of error can be reduced by assuming that the estimate applies to children 0-7.5, but the reliability of memory decreases with the distance of its subject from the present.

Life Tables and Stable Population Models

The estimated mortality rate of 390 can be matched with an appropriate life table by adding the infant mortality rate (in the Mx column) with the weighted mortality rate for children age 1. The suitable life table can be determined by matching the sum of these two mortality rates (378) with the estimated mortality rate for White Earth (390). When the sum (x1000) is subtracted from the initial population base (100,000), the resulting figure is an estimate of survivors at age 5 (62,200). This can be checked by comparing the estimate of survivors at age 5 with the figure (61,205) in the 1x column (number of survivors at age

Figure III: Calculation of Mortality Estimate from Children-Ever-Born and Children-Living Data: White Earth Reservation, 1900

Qmx (mortality rate) $\frac{\text{Total Births}}{\text{Total Deaths}} = \frac{163}{419} = .39 \rightarrow$ for White Earth $(\times 1000) = 390$

Model West Level 5: infant mortality rate – 306

weighted infant mortality $\rightarrow$ $\frac{50}{694} \times \frac{x}{100} =$

72

rate for children age 1

$306 + 72 = 378(\times 100)$

$$\begin{array}{r} 100000 \\ -\ 37800 \\ \hline 62200 \end{array}$$

x out of an original cohort of 100,000). They correlate well with the number of survivors at age 5 at White Earth (61,000). Figure IV represents the Model West Level 5 life table which encompasses this mortality experience, further projecting a very low life expectancy at birth of 30 years.

The gross reproduction rate (2.42) can now be employed to determine an estimated birth rate, death rate and rate of natural increase from the Model West Level 5 stable population model represented in Figure V. Reported estimates seem to parallel ethnographic descriptions of deteriorating social and economic conditions at White Earth. A birth rate of 39, death rate of 33, rate of natural increase of 6 and life expectancy of 30 years at birth follow from the stable population model. If this analysis was carried no further, one might be led by the evidence to conclude that high mortality rates must have been important determinants of the nature of relationships between people.

The stable population model predicts what would happen to a given population if the particular set of conditions apparent at one point in time was to persist until a stable age composition had evolved. Scholars debate their utility, with some objecting to the wide discrepancies sometimes reported between actual birth and death rates and the intrinsic ones represented in the stable population model. Others urge caution in their use but not abandonment, insisting that the timing and direction of trends tend to be valid though at times exaggerated (Bogue 1969, see note 1).

Figure IV: Model West/Level 5: Life Table[1]

FEMALES AGE (X)	1000 Q (X)	D (X)	1000M (X)	L (X)	L(X)	P (X)	T (X)	E (X)	AGE (X)
0	255.73	25573	306.71	100000	83377.8	0.69239*	3000000.0	30.000	0
1	177.65	13222	50.31	74427	262816.9	0.86180**	2916622.2	39.188	1
5	50.16	3070	10.29	61205	298352.2	0.95518	2653805.4	43.359	5
10	39.20	2279	8.00	58135	284979.2	0.95493	2355453.2	40.517	10
15	51.17	2858	10.50	55856	272136.0	0.94263	2070474.0	37.068	15
20	63.89	3386	13.20	52998	256524.6	0.93241	1798338.0	33.932	20
25	71.55	3550	14.84	49612	239185.1	0.92404	1541813.3	31.078	25
30	80.71	3718	16.82	46062	221017.1	0.91561	1302628.2	28.280	30
35	88.40	3743	18.50	42345	202364.4	0.90857	1081611.0	25.543	35
40	94.75	3658	19.89	38601	183861.9	0.90174	879246.6	22.778	40
45	102.13	3569	21.52	34944	165796.1	0.88409	695384.7	19.900	45
50	131.25	4118	28.09	31375	146579.4	0.85276	529588.7	16.879	50
55	165.65	4515	36.12	27257	124996.9	0.80212	383009.3	14.052	55
60	236.51	5379	53.65	22742	100262.7	0.73240	258012.4	11.345	60
65	308.33	5354	72.91	17363	73432.1	0.64457	157749.7	9.085	65
70	423.53	5086	107.46	12010	47332.0	0.52765	84317.6	7.021	70
75	557.04	3856	154.42	6923	24974.6	0.32475***	36985.6	5.342	75
80	1000.00	3067	255.32	3067	12011.2	0.	12011.0	3.917	80

MALES AGE(X)	1000 Q(X)	D(X)	1000 M(X)	l(X)	L(X)	P(X)	T(X)	E(X)	AGE(X)
0	295.46	29546	368.38	100000	80204.5	0.65796*	2766801.6	27.668	0
1	177.12	12479	50.16	70454	248774.1	0.86049**	2686597.1	38.132	1
5	46.88	2718	9.60	57976	283083.4	0.95953	2437822.9	42.049	5
10	33.74	1865	6.86	55258	271626.8	0.96025	2154739.5	38.994	10
15	45.97	2455	9.41	53393	260828.5	0.94466	1883112.7	35.269	15
20	65.16	3319	13.47	50938	246393.9	0.93117	1622284.2	31.848	20
25	72.76	3465	15.10	47619	229434.3	0.92187	1375890.3	28.894	25
30	83.92	3705	17.52	44154	211509.2	0.90932	1146456.0	25.965	30
35	98.07	3967	20.62	40449	192329.2	0.89255	934946.8	23.114	35
40	117.86	4300	25.05	36482	171662.8	9.87354	742617.6	20.355	40
45	136.22	4384	29.23	32183	149953.6	0.84784	570954.8	17.741	45
50	170.61	4743	37.30	27799	127137.1	0.81330	421001.2	15.145	50
55	206.11	4752	45.96	23056	103400.4	0.76410	293864.0	12.746	55
60	273.43	5005	63.35	18304	79008.0	0.69354	190463.7	10.406	60
65	351.91	4680	85.41	13299	54795.3	0.60586	111455.7	8.381	65
70	459.31	3959	119.25	8619	33198.1	0.49121	56660.3	6.574	70
75	600.31	2798	171.55	4660	16307.2	0.30496***	23462.2	5.035	75
80	1000.00	1863	260.32	1863	7155.3	0.	7155.0	3.841	80

[1]From: Ansley J. Coale and Paul Demeny, *Regional Model Life Tables and Stable Populations* (Princeton: Princeton University Press, 1966): p. 6.
* P(BIRTH), ** P(0-4), *** T(80)/T(75)

Figure V: Model West Females/Mortality Level 5: Stable Populations, Proportions at Age (X), Proportions up to Age (X), and Various Indices, at Given Rates of the Female GRR (M29)[1]

AGE	GRR = 0.800	1.000	1.250	1.500	1.750	2.000	2.250	2.500	3.000	3.500	4.000	5.000	6.000
0- 1	0.83	1.13	1.51	1.89	2.25	2.59	2.91	3.22	3.80	4.32	4.79	5.62	6.32
1- 4	2.84	3.81	5.00	6.13	7.20	8.21	9.15	10.03	11.62	13.03	14.28	16.40	18.16
5- 9	3.75	4.87	6.17	7.37	8.45	9.42	10.31	11.11	12.50	13.66	14.65	16.22	17.41
10-14	4.25	5.31	6.48	7.49	8.36	9.11	9.76	10.33	11.25	11.96	12.51	13.29	13.79
15-19	4.80	5.78	6.80	7.61	8.27	8.81	9.24	9.60	10.12	10.46	10.68	10.89	10.92
20-24	5.37	6.22	7.04	7.64	8.08	8.41	8.64	8.80	8.98	9.03	9.00	8.81	8.54
25-29	5.93	6.62	7.21	7.58	7.81	7.94	7.99	7.99	7.89	7.71	7.50	7.04	6.60
30-34	6.49	6.98	7.32	7.46	7.48	7.42	7.32	7.18	6.86	6.53	6.19	5.58	5.06
35-39	7.04	7.29	7.36	7.27	7.10	6.88	6.64	6.40	5.92	5.47	5.07	4.39	3.84
40-44	7.58	7.56	7.35	7.03	6.68	6.33	5.99	5.66	5.07	4.56	4.12	3.42	2.89
45-49	8.10	7.78	7.28	6.75	6.25	5.78	5.35	4.97	4.30	3.76	3.32	2.65	2.16
50-54	8.48	7.85	7.07	6.35	5.72	5.17	4.69	4.27	3.58	3.05	2.62	2.01	1.59
55-59	8.57	7.64	6.62	5.77	5.06	4.47	3.97	3.54	2.88	2.38	2.00	1.47	1.12
60-64	8.15	6.99	5.83	4.93	4.21	3.63	3.15	2.77	2.17	1.75	1.43	1.01	0.75
65-69	7.07	5.84	4.69	3.84	3.19	2.69	2.29	1.97	1.50	1.17	0.94	0.63	0.45
70-74	5.40	4.30	3.32	2.64	2.13	1.75	1.46	1.24	0.91	0.69	0.54	0.35	0.24
75-79	3.38	2.59	1.93	1.48	1.17	0.94	0.77	0.64	0.45	0.33	0.26	0.16	0.11
80+	1.98	1.45	1.03	0.77	0.58	0.46	0.36	0.30	0.20	0.15	0.11	0.06	0.04
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1	0.83	1.51	1.89	2.25	2.59	2.91	3.22	3.80	4.32	4.79	5.62	6.32
5	3.66	6.51	8.02	9.45	10.80	12.06	13.25	15.42	17.34	19.07	22.02	24.48
10	7.41	12.68	15.38	17.90	20.22	22.37	24.36	27.92	31.01	33.71	38.24	41.89
15	11.66	19.16	22.87	26.26	29.33	32.13	34.69	39.17	42.96	46.22	51.53	55.69
20	16.46	25.95	30.49	34.53	38.14	41.38	44.28	49.28	53.42	56.90	62.42	66.61
25	21.83	32.99	38.13	42.61	46.55	50.01	53.08	58.26	62.45	65.90	71.23	75.15
30	27.76	40.20	45.71	50.43	54.48	58.00	61.07	66.15	70.16	73.40	78.27	81.75
35	34.25	47.52	53.17	57.91	61.91	65.32	68.25	73.01	76.09	79.59	83.86	86.81
40	41.29	54.88	60.44	65.01	68.79	71.96	74.65	78.93	82.16	84.66	88.24	90.65
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
BIRTH RATE	9.750	13.380	17.970	22.470	26.830	31.010	38.780	45.840	52.250	58.100	68.420	77.290
DEATH RATE	43.680	39.790	36.770	34.990	33.980	33.470	33.340	33.860	34.690	35.670	37.770	39.840
GROWTH RATE	-33.930	-26.410	-18.800	-12.510	-7.150	-2.460	5.440	11.980	17.560	22.430	30.650	37.450
GRR (27)	0.830	1.022	1.258	1.491	1.722	1.950	2.402	2.847	3.288	3.724	4.588	5.441
GRR (31)	0.772	0.979	1.243	1.510	1.780	2.053	2.606	3.168	3.736	4.310	5.474	6.655
GRR (33)	0.746	0.959	1.236	1.520	1.812	2.110	2.722	3.355	4.004	4.668	6.037	7.451
NRR (27)	0.399	0.491	0.605	0.717	0.827	0.937	1.154	1.368	1.579	1.789	2.204	2.614
NRR (29)	0.373	0.466	0.583	0.699	0.816	0.933	1.166	1.399	1.632	1.865	2.331	2.798
NRR (31)	0.349	0.443	0.562	0.682	0.805	0.928	1.178	1.432	1.689	1.949	2.475	3.009
NRR (33)	0.326	0.420	0.541	0.665	0.793	0.923	1.192	1.468	1.753	2.043	2.642	3.261
AVERAGE AGE	43.830	40.450	37.000	34.190	31.860	29.890	26.770	24.400	22.550	21.050	18.780	17.140
PROP. 15-44	37.210	40.450	43.060	44.600	45.430	45.790	45.620	44.830	43.750	42.560	40.130	37.850
BIRTHS/P. 15-44	0.026	0.033	0.042	0.050	0.059	0.068	0.085	0.192	0.119	0.137	0.170	0.204
POP. -4/15-44	0.098	0.122	0.151	0.180	0.208	0.236	0.290	0.344	0.396	0.448	0.549	0.647
POP. 5-14/5 + OVR	0.083	0.107	0.135	0.161	0.186	0.208	0.247	0.281	0.310	0.336	0.378	0.413
DEPNDCY RATIO	0.603	0.569	0.562	0.575	0.601	0.634	0.712	0.799	0.889	0.980	1.162	1.341
POP. SIZE, B(0) = 1	102.582	74.723	55.651	44.494	37.271	32.253	25.784	21.816	19.140	17.213	14.616	12.938
EXP. OF LIFE	30.000											

[1]From: Ansley J. Coale and Paul Demeny, *Regional Model Life Tables and Stable Populations* (Princeton: Princeton University Press, 1966): p. 82.

However, the phenomenon of migration invalidates the stable population estimates. The life table population is constructed as a stationary one where the death rate equals the birth rate. For populations that are increasing regularly, like the population at White Earth Reservation, the birth rate will be higher and the age composition will be younger than the life table figures for them. The particular set of conditions apparent in the life table would not evolve into the corresponding stable population model.

All of White Earth's residents in 1900 had been migrants within the past thirty years. U.S. policymakers created White Earth in 1867 in an attempt to consolidate all of the Minnesota Ojibwa on one reservation. Although complete removal never occurred, voluntary immigrants elected to reside at White Earth throughout the late nineteenth century. Two bands, the Otter Tail Pillagers and Pembina, were forcibly relocated at White Earth in 1876. In addition to this process of in-migration, out-migration also occurred. The close affinity between Ojibwa people in northern Minnesota fostered a mingling of reservation populations. These historical facts render the measures derived from stable population models invalid for White Earth reservation.

Correlation with Child-Woman Ratios

Child-woman ratios also provide indirect measures of fertility, although they suffer from the same limitations due to underreporting of infants as estimates using children-ever-born. If the above analysis was true, the child-woman ratios should reflect the lower fertility rates. The child-woman ratio is based on the survivors of children born in the last 5 years (0-4). Since young children are most likely to have been omitted, the ratio of children 5-9 is sometimes used. This can, however, cause further complications because the average fertility measured is then 7.5 years before the census date. Table II reports child-woman ratios for the White Earth population in 1900. These measures seem fairly consistent with figures derived from the stable population models. But, again, in- and out-migration over the years renders this apparent correlation invalid.

Discussion

If this census was the only piece of demographic information one had to work with, it would make sense to try to improve the reliability of the indirect estimates. But the 1900 U.S. man-

TABLE II: Calculation of Child-Woman Ratios: White Earth Reservation, 1900

$$k\left(\frac{P\,0\text{-}4}{F\,15\text{-}49}\right) = k\left(\frac{61}{103}\right) = 592.2$$

$$k\left(\frac{P\,5\text{-}9}{F\,15\text{-}49}\right) = k\left(\frac{63}{103}\right) = 611.65$$

uscript census is by no means the only source of demographic information for the White Earth population. As mentioned earlier, the Bureau of Indian Affairs compiled manuscript censuses for every consecutive year beginning in 1885. For this reason correcting the 1900 U.S. manuscript census does not seem imperative until the necessity for doing so is demonstrated by an evaluation of the quality of the BIA censuses. Results of this analysis may then be either corroborated or modified.

The demographic exercises offered above are intended to serve two purposes. First, the basic techniques should have applicability for any Indian group represented in the 1900 U.S. federal census. Rarely are demographic materials available for individual Indian people that provide such detail—especially at this relatively early date. The measures taken are simple and replicability ought not to be a problem. Secondly, the analysis accompanying the demographic methods illustrates the special problems of applying these techniques to Indian people. Not only can the cross-cultural gap between "American" enumerators and their Indian subjects be substantial, but the historical experiences of each group pose additional interpretive problems. Considering the hegiras that many Indian groups were forced to undergo as U.S. policymakers applied their often misguided programs of directed culture change, stable population models may have little utility for many Indian populations. Materials for each group must be thoroughly evaluated on the basis of its own experiences. The analysis presented above highlights both of these considerations.

SOCIAL INDICES

The 1900 federal census has applicability beyond purely demographic purposes. Social indices can also be derived from available information. Because of the variation in the enumerators' compilation of the White Earth census, categories relating to family size and structure were elaborated more fully than occupation, literacy and information on allotment. It is possible to construct numerous cross-tabulations, on the basis of this data, that have not been attempted here. The following analysis reflects the uneven quality of this census for White Earth reservation.

Marriage and Kinship Patterns

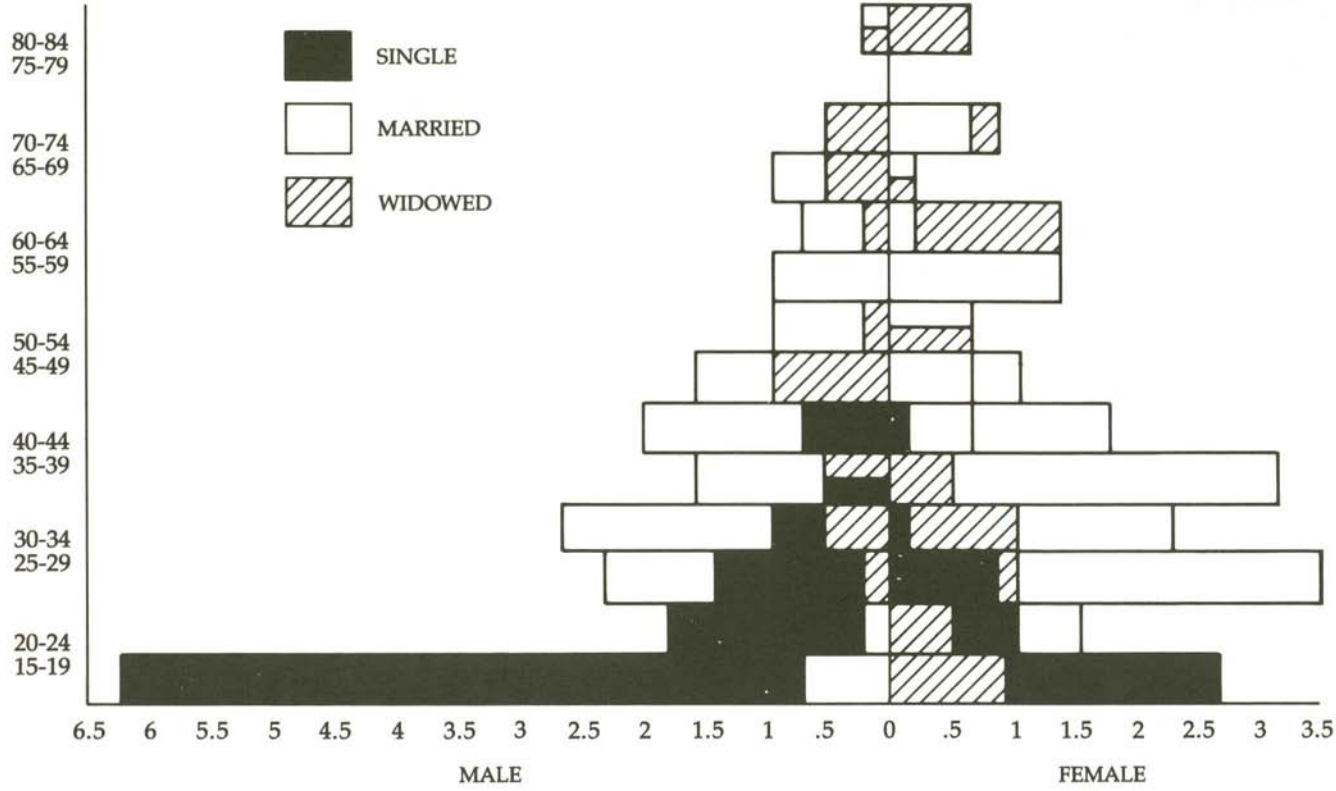
The 1900 census provides invaluable information pertaining to marriage and kinship patterns. Material produced by contemporary observers can aid in interpreting the data. It must be emphasized that one census cannot answer questions concerning the transformation of Ojibwa culture. Additional materials are necessary to detect changes in patterns over time.

Graph IV clearly reveals that marriage was the preferred cultural norm among the White Earth Ojibwa. Only a very small percentage of the population past the age of 29 was single. The dramatically larger proportion of unmarried men in the 15-19 age group as compared to women seems to indicate a preference for early marriage for women, although selective migration of young men exaggerates this cultural norm. A larger number of widows in the later years of life is also notable. A high mortality rate may be responsible for the increased incidence of widowhood, although this gender distinction is inexplicable.

Although the Ojibwa practiced flexible marital relationships, the pattern of marital status for the White Earth Ojibwa follows the more general pattern found in many diverse populations. While the proportion of the population that is single declines with increasing age, the proportion married increases similarly. Rising widowhood surpasses the proportion married in the later years of life. The large number of single young men was produced by the selective migration of young men in this age group. Table III, representing a comparison of the conjugal condition of the population of Minnesota and White Earth, reveals dis-

GRAPH IV: Marital Status [illegible]

GRAPH IV: Marital Status for White Earth Reservation, by Age and Gender; 1900



similarities. That fewer Indians were single is perhaps reflective of a cultural preference for earlier marriage. Juxtaposition of the two populations demonstrates a higher proportion of widowed Indians, which may be a function of higher mortality rates. Misreporting may also have been at play here. Ethnographers report that marriages were easily broken and divorces frequent among the Ojibwa, and yet only one male is listed as being divorced. Indians could conceivably have misunderstood the terminology being employed and represented themselves as having been widowed rather than divorced.

TABLE III: A Comparison of the Conjugal Condition of Residents of White Earth Reservation and the State of Minnesota,* by Gender; 1900

Location	Single		Married		Widowed	
	M	F	M	F	M	F
Minnesota	25.21	14.79	27.03	26.68	2.12	3.61
White Earth	19.48	8.24	24.72	28.46	5.62	8.24

Divorced		Unknown	
M	F	M	F
.15	.17	.19	.05
—	—	—	—

*From: U.S. Census Office, "Population, Part II," *Twelfth Census of the U.S. Taken in the Year 1900*. Vol. II. (Washington, DC: U.S. Government Printing Office, 1902): lxxxii-lxxxiii.

Household Size

The mean household size for the 128 White Earth households encompassing 441 individuals (boarders have been eliminated) has been tabulated as 3.45 in Tables IV and V. Since thirty individuals lived alone, they tend to skew the outcome. Table V reveals that mean household size without solitary persons was 4.2. These figures are low when compared with Minnesota and Becker County within Minnesota in Table VII but compare more favorably with Beltrami County in Minnesota. The relatively youthful age structure of the White Earth population affects this measure, as does the selective migration of young men.

TABLE IV: Percentage of Households Composed of Each Specified Number of Members (Mean Household Size); White Earth, 1900

Household Size	# of Families	Proportion of Total Households
1	30	23.4
2	27	21.1
3	16	12.5
4	21	16.4
5	11	8.6
6	8	6.3
7	5	3.9
8	5	3.9
9	3	2.3
10	2	1.6

TABLE V: Average Household Size, With and Without Solitary Individuals; White Earth, 1900

	With Solitaries	Without Solitaries
Total # Households	128	98
Total # of People	441	411
Household Size:		
Mean	3.5	4.2
Median	3	3
Mode	1	2

TABLE VI: Percentage of Solitary Individuals for each Specified Marital Status; White Earth, 1900

	#	Proportion of Total
Solitary Person Households	30	23.4
Widowed	16	12.5
Single	12	9.4
Married	2	1.6

Family Types

The variety of family forms that existed at White Earth in 1900 are reported in Tables VIII and IX. The simple (nuclear) family was most prevalent, constituting 62.4% of the total number of families. Extended families (all types: upward, downward and

TABLE VII: Comparison of Mean Household Size*

Area	Total Pop.	Total # Dwellings	Average Size
White Earth	441	128	3.45
Minnesota	1,751,394	317,037	5.50
Becker Co.	14,014	2,796	5.00
Beltrami Co.	9,863	2,571	3.80

* Figures for Minnesota, Becker and Beltrami Counties were computed based on data contained in U.S. Census Office, "Population, Part II," *Twelfth Census of the U.S. Taken in the Year 1900.* Vol. II. (Washington, DC: U.S. Government Printing Office, 1902): clvii-clxix.

lateral) comprised 14.4% of the families. A high mortality rate may have affected the nature of family types. Table VI reveals a high incidence of widowed persons among solitary individuals. Table IX demonstrates that extended family types contain a majority of widowed heads living in a variety of kin relationships. High mortality rates may have contributed to a permissive attitude toward divorce. Flexible and temporary relationships may have been facts of life imposed by social and economic conditions. Even so, people learned to adapt within these parameters. Elaborate extended kin relationships such as those characteristic of Eastern Woodlands groups should not be antic-

TABLE VIII: Percentage of Each Household Type for Each Specified Age Period; White Earth Reservation, 1900

Household Types				
Age	Solitary		Simple	
	N	%	N	%
-29	6	4.8	16	12.8
30-49	15	12	46	36.8
50+	10	8	16	12.8

Extended					
Up		Down		Lateral	
N	%	N	%	N	%
1	.8	—	—	2	1.6
2	1.6	—	—	4	3.2
—	—	7	5.6	2	1.6

TABLE IX: Percentage of Each Household Type of All Households; White Earth, 1900*

Family Forms Comprising Broad Categories			
Category	**Class**	**N**	**Proportion of Total Households**
Solitaries	a. Widowed	17	13.3
	b. Single	10	7.8
	c. Married Individual	4	3.1
Simple Family Households	a. Married Couples	14	10.9
	b. Married Couples with Children	41	32
	c. Widows with Children	6	4.7
	d. Widowers with Children	6	4.7
	e. Married Individuals/Children	11	8.6
Extended Family Households	a. Upward	3	2.3
	b. Downward	5	3.9
	c. Lateral	8	6.2
	d. Combination of 4a-4c	3	2.3
Indeterminate	a. (Seem to be in-laws)	1	.8

*Categories and classes adapted from Peter Laslett, "Introduction," In *The Household and Family in Past Time*, eds. Peter Laslett and Richard Wall (Cambridge: England, 1972).

ipated. This type of social structure was probably never the norm for the White Earth Ojibwa or their ancestors. But the Ojibwa may still have behaved in patterned ways. These regularities may or may not reflect the effects of assimilative attempts at directed culture change perpetrated by agents and missionaries. Detecting possible patterns requires further information.

Life Cycle

An examination of the Ojibwa life cycle can aid in the interpretation of the various family types found at White Earth. Most contemporary observers, being untrained in ethnographic analysis, do not provide the indepth information necessary to discern kinship patterns. But Frances Densmore, an ethnologist who did field work among the White Earth Ojibwa in the 1910s and 1920s, described rather flexible residence norms (Densmore 1929:72). Although her fieldwork took place at a somewhat later period, one would not expect basic social patterns to be dramatically altered in such a short span of time. Residence after

marriage was most often uxorilocal, occasionally virilocal, or the couple might live alone immediately. Such variation may be the result of social disorganization caused by directed culture change or the allotment process. But it may also be a carryover from the past. Mobile bands require greater social flexibility than sedentary groups. Behavior reflected in the 1900 census most likely represents an adaptive response to reservation surroundings within the context of a more "traditional"—but not necessarily aboriginal—heritage of flexibility and long-term reciprocity.

Polygamy

Polygamy is mentioned by virtually every contemporary observer of the Ojibwa in the late nineteenth and early twentieth centuries (Densmore 1929; Gilfillan 1901; Whipple 1901, 1902), probably because of Christian prescriptions against the practice. Reverend Gilfillan remarked that governmental policy actually encouraged polygamy (multiple wives) by issuing annuities to extra family members. No polygamous unions were reported in the 1900 census even though a special question existed to detect it. There are several cases where individuals, usually women, described themselves as married but a spouse is not listed. It seems illogical to assume that only household members who were present at the time of the enumeration were included, as children would then undoubtedly have been omitted in large numbers. These absent spouses may have been visiting relatives on other reservations which spouses often did independently in the warmer months. An alternative but perhaps less tenable explanation may also be the practice of polygamy. Polygamy may not have been practiced at White Earth, but it may be that no cases were reported because Indians were quite aware of sanctions against the practice among Euroamericans.

Discussion

Several factors governed the preponderance of nuclear and extended family types found at White Earth. Métis, or mixed-blood, communities, with bison-oriented subsistence strategies that differed from Indians', lived near Pembina, North Dakota. A substantial number of Métis from this area were removed to

White Earth as part of the Pembina band in 1876. In addition to Indian peoples of northern Minnesota, White Earth also attracted large numbers of French-Canadian mixed-bloods with origins throughout the Great Lakes commercial and social fur trade system. It may, then, be necessary to consider the White Earth population as a fragmented collection of individuals accustomed to quite diverse lifeways—a community of communities, so to speak. The variety of family forms may reflect these differences. A great many people may have been behaving in socialized patterns imposed by White or Métis parents. Though blood distinctions traditionally meant little to the Ojibwa, patrilineal descent systems meant that children of White fathers and Indian mothers had no institutionalized position within the gens system, weakened though it was by this time. Accommodations were made within the community organization for these children, but they were also likely to be sent away for schooling to larger Minnesota towns or to eastern boarding schools. Familiarity with the ways of their fathers may have reinforced the tendency toward nuclear family forms. On the other hand, people may have been responding to new conditions on the basis of older norms allowing flexibility. Some nuclear families may be illustrative of phases of a "traditional" Ojibwa life-cycle, embodied in the bilateral hunting band. Simple family households can be accommodated within this framework. Young couples could expect older relations, especially parents, eventually to reside with them. By the same token, some extended families may have been temporary arrangements. Families extended downward could anticipate losing younger couples at some point. We may never know which norms and values were the operative agents in these situations, but it is better to recognize the wide variety of possible interpretations than to opt for a simple disintegration or persistence model.

The fact that the residents had all migrated to the reservation within the last three decades must have influenced the nature of the White Earth social structure. Any previously established patterns were interrupted. Time is required to establish community. The main point to be drawn from all this is that family forms varied to such extents that nuclear families, although they constituted the largest proportion, must be viewed critically. Do they represent: 1) a transition away from more "traditional" Ojibwa marriage norms; 2) the influence of emigrant Métis lifeways; 3) simply one stage in the Ojibwa life cycle; or 4) a com-

bination of all three? Further material is necessary for any conclusions to be drawn.

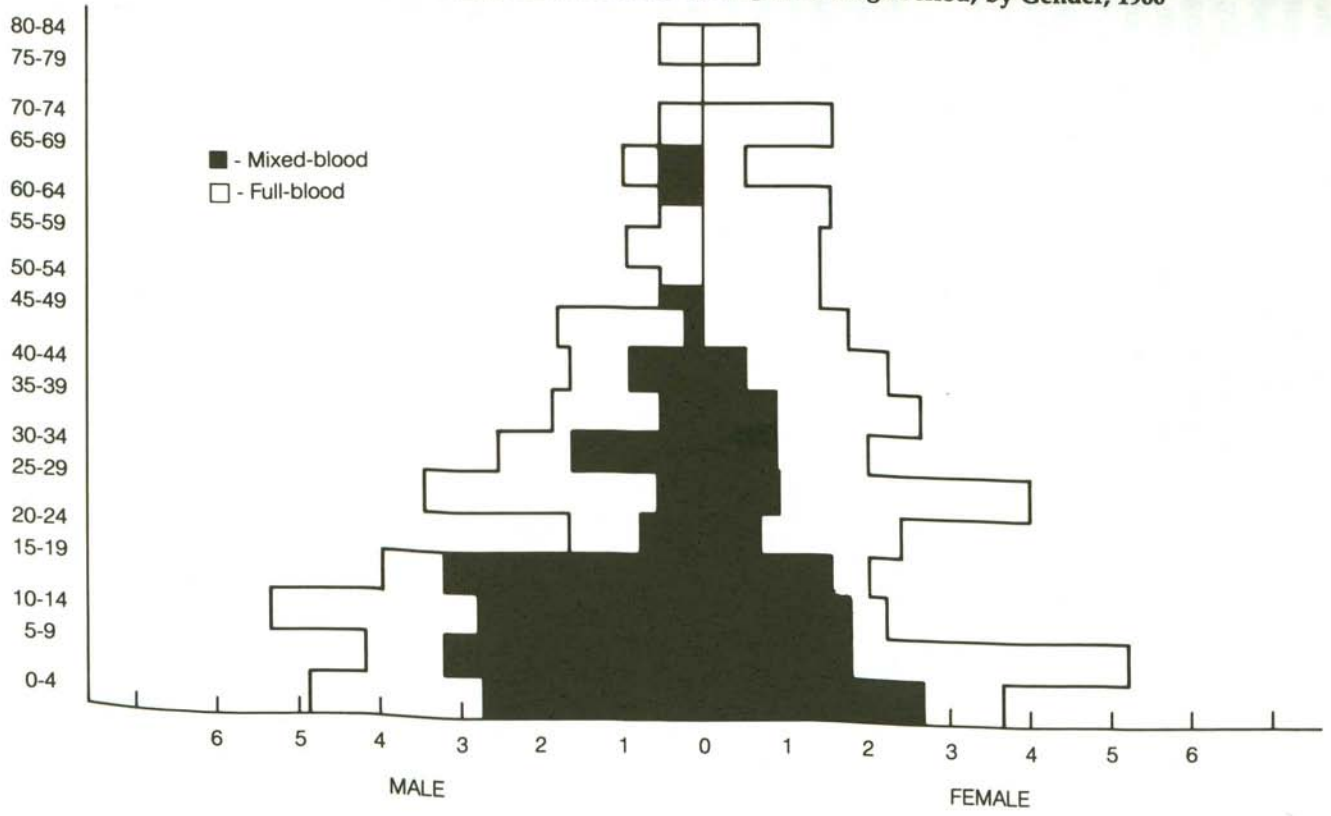
Degree of Indian Blood

Graph V, dealing with the degree of Indian blood possessed by individuals, is the last compilation drawn from the 1900 census. The question of blood status is a complex one. Individuals of mixed parentage made homes among the Ojibwa for generations prior to 1900. This miscegenation originated during the early years of the fur trade, a biological result of the frequent unions between Indian women and French traders. The physiological fact of mixed heritage meant little in earlier times, but it has had increasing social, political and economic ramifications over the years. A growing number of these mixed-bloods or Métis came to perform broker roles, mediating between Indians and Euroamericans and populating a network of trading towns throughout the Great Lakes commercial system (Peterson 1978). Some of these individuals found homes at White Earth Reservation in the late nineteenth century and continued their broker roles in the new setting. White Earth also hosted a number of the Pembina band of Chippewa, comprised of many Métis, who were removed there in the late 1870s.

In addition to the diverse social origins of reservation residents, U.S. Indian policy further complicated social relationships by fostering economic competition and factionalism along blood lines by establishing differential policies based on blood quotas. The issue clearly transcends the biological one, becoming an ideological hot potato for U.S. Indian policymakers, who spent a great deal of time trying to determine the blood status of each individual so that further policy issues that rested on blood status might be dispensed with (Beaulieu: unpublished paper). Policy measures based on such unreliable indices of behavior and capabilities generated more problems than they they solved.

Graph V reveals a larger proportion of mixed-bloods between ages 0 and 19 and declining proportions thereafter which indicate increasing miscegenation. This measure must be viewed with some suspicion considering the overall problems with the 1900 census. Even though Graph V indicates increasing intermixture between Indians and Whites, it also reveals a majority

V. Proportion of Mixed-Bloods and Full-Bloods for Each Specified Age Period, by Gender; 1900



of full-bloods at all age levels for both genders. Judging by the comments of contemporary observers who frequently point out the large number of mixed-bloods on White Earth, the reverse might have been expected. Misreporting may have been at play, with mixed-bloods erroneously representing themselves as being full-blooded, although the advantages to this ploy seem obscure. Perhaps mixed-bloods were involved in more conspicuous activities on the reservation, drawing more than their share of attention. The issue cannot be settled on the basis of one census. It remains a complex problem for researchers to grapple with.

CONCLUDING REMARKS

Ethnohistorical interpretation of information derived from only one census is problematic. This is especially true when the census is underenumerated to the extent of the 1900 U.S. census for White Earth. The measures in this essay provide no sound conclusions in regard to the demographic and social experiences of the White Earth Ojibwa; they were intended only to suggest some broad parameters to be tested against future research. Only when this one particular document is combined with other available sources may the results prove to be satisfactory. A series of documents can introduce a temporal perspective essential for determining historical and cultural developments.

It is difficult to attempt approximations of the experiences of Peoples who have left few written records of their own. Demographic techniques provide measures of behavior that can aid in attaining a cross-cultural perspective. It must be emphasized that explanations for such behavior are still elusive and very often defy quantification. Demographic techniques alone are incapable of providing the information that can be acquired by the interdisciplinary use of a wide variety of source materials and methods.

NOTES

1. The life table is a mathematical model originally developed to express probabilities pertaining to individual persons. It portrays age-specific mortality conditions for a population at a given point in time and provides a basis for measuring longevity by establishing a "hypothetical cohort" of 100,000 persons and assuming that these cohort members experience the same mortality conditions evident in the life table throughout their entire lives.

The stable population model predicts what would happen to the population represented in the life table if the conditions apparent at that one particular point in time were to persist until a stable age composition had evolved.

The reader is directed to the following works for a more extended discussion of these models and their utility. Further bibliographic citations can be acquired through this literature.

Donald J. Bogue, *Principles of Demography* (New York: John Wiley and Sons, 1969). Nathen Keyfitz, et al., *Population: Facts and Methods of Demography* (W. H. Freeman, 1971).

2. Easily comprehensible guides to these and other demographic measures and methods are James A. Palmore, *Measuring Fertility and Natural Increase: A Self-Teaching Guide to Elementary Measures* (Working Papers of the East-West Population Institute, 1971). James A. Palmore, *Measuring Mortality: A Self-Teaching Guide to Elementary Measures* (Working Papers of the East-West Population Institute, 1971).

3. See articles appearing in the journal *Demography* for references to "own-children" techniques, especially Donald J. Bogue and James A. Palmore, "Some Empirical and Analytic Relations among Demographic Fertility Measures, with Regression Models for Fertility Estimation," *Demography* 1 (1964):316-338; Wilson H. Grabill and Lee Jay Cho, "Methodology for the Measurement of Current Fertility from Population Data on Young Children," *Demography* 2 (1965): 50-73; Robert D. Retherford and Neil G. Bennett, "Sampling Variabililty of Own-Children Fertility Estimates," *Demography* 14 (1977):571-580.

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