

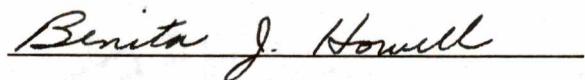
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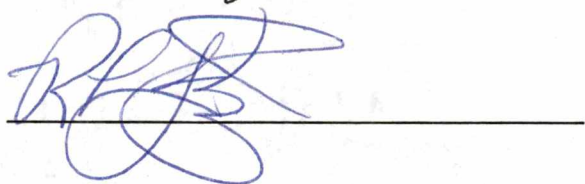
I am submitting herewith a thesis written by Sheralyn D. Robinette entitled "An Assessment of the Trivers-Willard Hypothesis Using the Boas Data For the Micmac and the Pacific Northwest Tribes." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts, with a major in Anthropology.



Michael H. Logan,
Major Professor

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Date August 1990

An Assessment of The Trivers-
Willard Hypothesis Using The Boas
Data For The Micmac And The Pacific
Northwest Tribes

A Thesis
Presented for the
Master of Arts
Degree
The University of Tennessee, Knoxville

Sheralyn D. Robinette
August 1990

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Abstract

The purpose of this study is to assess the utility of the Trivers-Willard hypothesis, which predicts that societies of low socioeconomic level will favor female offspring due to their potential ability to marry "up" in the socioeconomic hierarchy. Consequently, these societies should be characterized by a gender-biased sex ratio and low male reproductive success. The materials utilized in this study were collected by Franz Boas in 1891-93. Data sets for the Micmac and the Pacific Northwest tribes were chosen, primarily due to their large sample sizes.

Marriage patterns were determined by admixture. Those listed as above one-half Indian were considered to be the same as full-bloods. Those listed as one-half or below were considered to be the same as non-Indians.

The number of children by gender were divided according to the marriage patterns. The sex ratio at birth was determined from the survivorship and mortality figures and submitted to a chi-square analysis. Final results showed a gender-bias in the I-I marriages of both tribal groups. More specifically,

the Micmac exhibited a greater ratio of males to females than would be expected, while the Pacific Northwest tribes exhibited just the opposite.

Mortality rates were utilized to determine if one gender would exhibit higher death rates among the tribal groups. The resulting data were submitted to a chi-square analysis. All tests failed to meet the significance level of .05.

A subanalysis of the Pacific Northwest tribes was also undertaken. The first test contrasted the Coastal vs. Interior groups. The second compared the Tsimshian, a matrilineal society, with the other tribal groups having bilateral or patrilineal descent. Both comparisons failed to meet the significance level of .05.

Final analysis of all the data showed a possible male bias among the Micmac and a female bias among the Pacific Northwest tribes. The results, however, were inconclusive. Possible explanations of this phenomenon are relative acculturation or Divale and Harris' male supremacy complex.

In summary, it can be said that data for the Pacific Northwest tribes appear to support the Trivers-

Willard hypothesis. Data for the Micmac, however, do not support the predictions of this hypothesis.

Further research is necessary, both with contemporary societies and with other types of historical data, before the Trivers-Willard hypothesis can be accepted as a valid statement about variance in human reproductive behavior.

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Chapter 1

Introduction

Differential parental investment strategies have been studied by anthropologists, ethologists, and sociobiologists (e.g. Trivers 1972; Trivers and Willard 1973; Betzig 1988; Cronk 1989a; Wilkinson et al. 1989; Borgerhoff Mulder 1990). In many cases, parental investment strategies favor one sex to the detriment of the other. For example, among the Mukogodo of Kenya, Cronk (1989a) found that parental investment favored female offspring. Consequently, male offspring suffered higher mortality rates than did females.

The study by Cronk (1989a) is one of many which utilized the Trivers-Willard hypothesis as a basis for analysis. According to Trivers and Willard (1973), in order for this hypothesis to apply to a given population, the following criteria must be met:

- 1) The society, or a subsection of a given society, must be of low socioeconomic status, based on economic level and/or ethnic

affiliation.

- 2) Male reproductive success must be less than that of females overall.
- 3) Parental investment strategies must be gender-biased.

In short, Trivers and Willard (1973) state that parents at the lower end of the socioeconomic hierarchy will tend to favor female offspring due to their enhanced marital prospects. However, male offspring will tend to be favored at the upper end of the hierarchy for much the same reason.

Applications of the Trivers-Willard hypothesis have yielded mixed results. In some cases, such as in Cronk's (1989a), ample support is provided for the acceptance of the Trivers-Willard hypothesis. In other cases, as in the study of Japanese and Euroamericans in Hawaii by Wilkinson et al. (1989), evidence leads to a rejection of the hypothesis. Therefore, one can legitimately question the utility of this hypothesis.

The purpose of this thesis is to further assess the applicability of the Trivers-Willard

hypothesis as an explanation for gender-biased child mortality and parental investment strategies. Chapter 2 will provide a brief review of the recent sociobiological literature, focusing on those works linked to parental investment strategies. This hypothesis will be tested using two data sets originally collected by, or collected under the supervision of, Franz Boas in 1891-93. The data concern the Micmac of Maine and eastern Canada (materials collected by L. A. Lee, A. Tisdale, A. McDonald, and G. M. West) and various tribal groups of the Pacific Northwest (materials collected by Boas and numerous other researchers working in the area of British Columbia). Researchers involved with the collection of this data set are marked by an asterick (*) in the list of researchers provided in Appendix A.

The Micmac

The Micmac are Algonkian speakers from eastern Maine and the Canadian Maritime Provinces (Figure 1.1). Beginning in the early sixteenth century, continuous contact between the Micmac and White settlers has been documented. From the

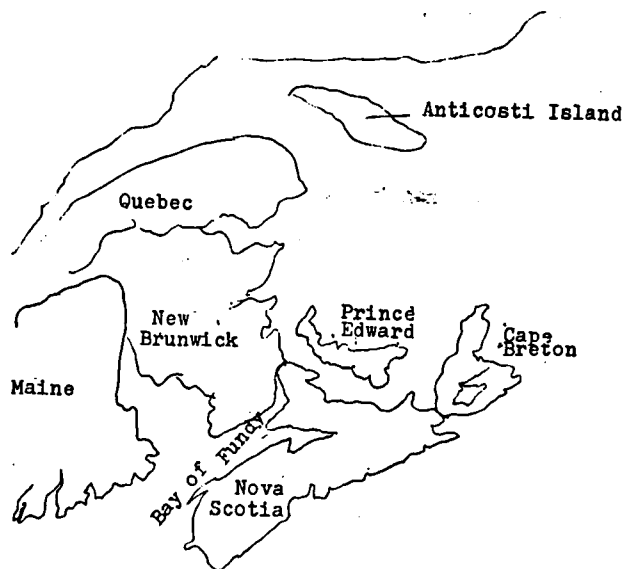


Figure 1.1
Traditional Micmac Area
Adapted From: Wallis, W. D. and
and R. S. Wallis (1955)
The Micmac Indians of Eastern
Canada. University of Minnesota
Press: Minneapolis.

beginning, the Micmac were the target of Jesuit missionaries and traders. The latter sought to monopolize the fishery industries and the fur trade. This continuous contact has led to the assimilation of many European traits among the Micmac; for example, farming, Catholicism, and western dress (Wallis and Wallis 1955; Kehoe 1981; Wolf 1982).

Internally, the Micmac were a tightly-knit group, interconnected by complex kinship ties. Bands practiced both kin-based and residential exogamy. Marriages were typically arranged by parents. However, it should be noted that social status and wealth were not as important as personal choice in the selection of a marriage partner. As tribal organization broke down (due to assimilation pressures), many Micmac bands were forced to disperse to various locations, ranging from eastern Canada to Kansas and Oklahoma. As a result, marrying within the tribe became increasingly difficult (Wallis and Wallis 1955; Kehoe 1981).

In short, the Micmac, under acculturational pressures, abandoned many indigenous traits (e.g. hunting/gathering, matrilineal descent), and replaced these with Euroamerican traits (e.g. farming,

patrilineal descent). The incorporation of these traits eventually led to a breakdown in the traditional lifeways of the Micmac. One of the changes included a shift from a hunting economy to one based on agriculture. Other changes occurred in marriage customs, with many marrying outside the tribe. Descent patterns shifted from a matrilineal to a patrilineal system. A once egalitarian society was transformed into one with increasing social stratification (Wallis and Wallis 1955; Upton 1979; Kehoe 1981; Debo 1989).

The Pacific Northwest

The Pacific Northwest tribes include Salish, Penutian, and Wakashan speakers, most of whom were engaged in maritime activities, keying on the salmon. The far west location and surrounding geographical barriers effectively isolated these tribal groups until the mid-nineteenth century (Figure 1.2). Even then, the influx of Russian and others of European descent was sporadic, creating little competition and pressure for Indian removal. Unlike some Native American groups, the Pacific Northwest tribes viewed the settlers as a new market for their products and

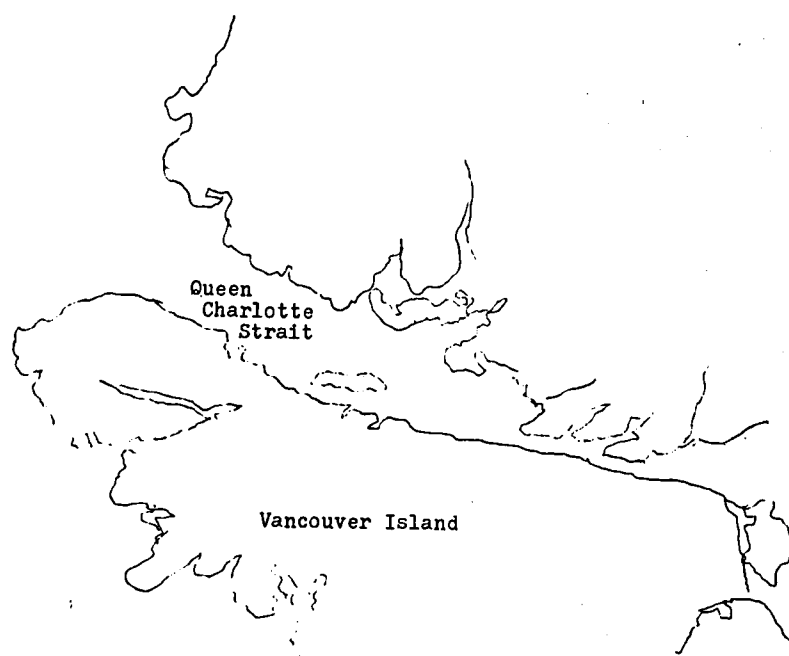


Figure 1.2
Traditional Tribal Areas of the
Pacific Northwest. Adapted From:
Boas, F. (1966) Kwakiutl Ethnography.
ed. H. Codere. University of Chicago
Press: Chicago.

successfully established trade relationships with visiting and residential Whites (Boas 1966; Kehoe 1981; Seguin 1984; Debo 1989).

The Pacific Northwest Coast tribes (e.g. Coast Salish, Kwakiutl, Tsimshian), were highly organized, with an elaborate hierarchical social system. Accordingly, marriages were carefully arranged by parents to ensure the continuation of the family's status. Most marriages were within the tribal group (e.g. Kwakiutl married Kwakiutl), although advantageous marriages outside the tribe were encouraged as well (Boas 1966; Kehoe 1981).

The interior tribes of the Pacific Northwest, notably the Shushwap, Thompson, and the Okanagan, were much simpler in social structure. More specifically, these tribal groups had a more egalitarian system which did not recognize hierarchical ranking or marriages arranged for the sake of family prestige. The differences between the Coastal and Interior groups of the Pacific Northwest will be investigated further in a later section of this thesis.

In summary, the Pacific Northwest tribal societies retained their social structure and many of

their traditions in the face of White contact. Unlike the Micmac who were forced to abandon many of their traditions to accommodate Euroamerican interest, these tribal groups modified their behavior, thereby capitalizing on the new economic markets, while maintaining much of their traditional heritage (Ford 1941; Boas 1966; Spradley 1969; Kehoe 1981; McDonald 1984; Seguin 1984).

Members of the Micmac and the Pacific Northwest tribes may have been viewed as socially and economically inferior by most non-Indians. Ample evidence of this attitude can be found in the works of Olson and Wilson (1984), Boxberger (1988), and Debo (1989). For all intents and purposes, it will be assumed that this attitude prevailed and, therefore, the first tenet of the Trivers-Willard hypothesis is satisfied. In order to assess this hypothesis, the following methodology was employed.

Methodology

As stated earlier, the primary variable of interest is variance in parental investment strategies. In the context of this thesis, parental investment was

assessed on the basis on differential gender-related mortality among offspring. Socioeconomic status was based on ethnicity, i.e. Indian versus White, and quantum thereof; and mode of life, i.e. traditional versus Euroamerican occupations.

Ethnicity was determined using the admixture scales established by Boas during the original data collection. Those listed as above one-half Indian were considered culturally the same as full-bloods. Those listed as one-half or below were considered non-Indian.

Marriage patterns by ethnicity were then determined. In order for a marriage to be considered Indian/Indian (I-I), both partners had to fall above one-half Indian. Marriages in which one partner fell on or below the one-half mark were classified as Indian/non-Indian (I-N or N-I). Marriages listed as I-N consisted of an Indian female and a non-Indian male, while those listed as N-I consisted of a non-Indian female and an Indian male. In the event that both partners fell on or below the one-half point, the marriage was classified as non-Indian/non-Indian (N-N).

The number of children by sex was determined for each of the marriage types within the tribal groups

analyzed. Data were collected for the sex ratios at birth and after birth to determine the variance in the two data sets.

Marriage types were listed on a nominal scale, i.e. I-I, I-N, N-I, and N-N. All other data sets, i.e. number of children by sex and number of marriages by type, were listed on a ratio scale. The final tabulations were submitted to a chi-square analysis. The significance level was set at .05.

A subanalysis of the Pacific Northwest data set was also undertaken. The tribal groups were divided into three categories: the Kwakiutl and Coast Salish, each with bilateral descent; the Tsimshian, a coastal group with matrilineal descent; and the more egalitarian, patrilineal Interior groups, i.e. Shushwap, Okanagan, and Thompson. The number of children by sex was determined for each division and these figures compared to determine if there is a difference in gender bias within the Pacific Northwest region.

The first analysis combined the Coastal groups, i.e. Kwakiutl, Coast Salish, and Tsimshian. The second grouping consisted of the Interior tribes, i.e.

Shushwap, Okanagan, and Thompson. The child sex ratios for Coastal vs. Interior were calculated and submitted to a chi-square test to determine if a relationship between tribal location and gender-biasing could be determined.

The second analysis combined the Kwakiutl and the Coast Salish with the Interior tribes, leaving the Tsimshian as the comparison group. This subdivision was chosen due to the fact that the Tsimshian are the only matrilineal group within the sample set. Due to this descent pattern, it would appear that the Tsimshian would be the most likely to have a higher male mortality. These figures were submitted to a chi-square test to determine if a correlation existed between descent pattern and gender-biasing in the child sex ratio.

Mode of life was also investigated to determine the relative economic positions of the Micmac and the Pacific Northwest tribes. Data for the Micmac were obtained from the data sheets and supplemented by ethnographic materials. Information of this sort was not available on the data sheets for the Pacific

Northwest tribes; therefore, ethnographic data were utilized to reconstruct mode of life.

From the brief discussion above, it is clear that many limitations exist within the data sets. For example, it is impossible to determine an independent measure of parental investment as Cronk (1989a) did while investigating the Mukogodo. Furthermore, as stated above, some of the data sheets were not completely filled out, particularly in reference to the mode of life section. These omissions precluded many types of analysis. These and other limiting factors will be discussed in a later section of this thesis.

Results

Final analysis of the data yielded only partial support for the Trivers-Willard hypothesis. More specifically, the Pacific Northwest Coast tribes supported the basic predictions of the hypothesis. The Micmac, however, did not conform to the predictions of Trivers and Willard (1973). However, as stated above, the only tenet which could be tested with any validity was that of socioeconomic level. Parental investment

strategies were extrapolated from differential mortality rates, which leaves a substantial margin for error. Overall reproductive success could not be determined. Therefore, the validity of these results could be questioned. However, based on the the analysis of marriage patterns, differential mortality rates, and socioeconomic level, it would appear that the Micmac do not conform to the Trivers-Willard hypothesis.

Several possible explanations may account for these anomalous results. The Micmac may have been affected by other factors which overrode the basic tenets of the Trivers-Willard hypothesis. Another possibility is biased reporting during the initial data collection, which would skew the results used for this analysis. One other possibility lies in the inapplicability of the Trivers-Willard hypothesis. More specifically, the apparent satisfaction of the tenets of the Trivers-Willard hypothesis by the Pacific Northwest tribes could be due to factors other than socioeconomic level. In short, the correlation may be incidental. However, due to the limitations of these data sets, this last possibility cannot be tested.

Therefore, ethnographic analysis with modern communities is needed in this regard. A full discussion of these possibilities will be provided in the final chapters of this thesis.

Implications

Several benefits can be gained from a reassessment of the Trivers-Willard hypothesis. In cases where the hypothesis is accepted, insights can be obtained regarding the mating patterns and parental investment strategies as they are affected by socioeconomic level. In cases where the hypothesis is rejected, more comprehensive hypotheses must be generated which consider factors beyond ethnicity and socioeconomic status that may affect sex ratio patterning in the dependent generation, factors such as acculturational level, maternal age, Rh incompatibility, disease, and malnutrition.

Chapter 2

Literature Review

A wealth of literature exists on the application of Darwinian evolution to human behavioral data (Betzig et al. 1988). In the context of a single chapter, it would be impossible to attempt even a preliminary review of this literature. Consequently, this chapter will focus only on some of the most recent examples of the use of Darwinian evolutionary theory within ethnology and archaeology.

The discipline of anthropology has always been characterized by a diversity of theoretical perspectives, ones ranging from the symbolic (Goodenough 1956; Levi-Strauss 1962; Turner 1974; Sahlins 1985) and social (Malinowski 1972; Wolf 1982; Geertz 1984) to the ecological (Steward and Carneiro 1968; Rappaport 1971; Lett 1987) and materialist (Harris 1968; 1979; Applebaum 1987). Embedded in many of these approaches, either explicitly or implicitly, is the concept of evolution and/or adaptation, a la Herbert Spencer (c.f. Carneiro 1973; Freeman 1974). However, in the last two decades, many researchers have

abandoned Spencer's directional evolution in favor of the classic Darwinian approach (Trivers 1971, 1972; Trivers and Willard 1973; Wilson 1975; Richardson and Stubbs 1976; Dunnell 1980; Gould 1980; Williams 1981; Dunnell 1984; Rindos 1985, 1986; Dunnell 1989; Rindos 1989; Borgerhoff Mulder 1990).

Darwinian evolution has occupied a central role in the biological sciences since its inception in the mid-nineteenth century. The rediscovery of Mendel's principles of genetics near the turn of the century provided the missing component of Darwin's theory. The combination of the two created a powerful theory for biological evolution which would give rise to the unified synthetic theory of the the 1940s. In short, it would be impossible to overstress the importance of Darwinian evolution in the development of modern biology (Freeman 1974; Mayr 1978; Smith 1978; Gould 1986).

In essence, the basic principles of Darwinian evolution are variation, transmission, and selection (Ayala 1984). Darwin assumed that random variation arose in each individual. This variation was then transmitted to the succeeding generations through

reproduction. Furthermore, all variations were not equally "fit" and would exhibit differential reproduction and survival through the process of natural selection, which operated within specific environmental constraints (Dobzhansky 1968; Freeman 1974; Gould 1980; Stebbins and Ayala 1981; Gould 1986; Pollitzer 1987).

It is easy to see the utility of such a theory for the biological fields of inquiry; but what of the cultural and behavioral? Researchers in the social and behavioral fields are divided on this issue (Carneiro 1969; Flannery 1972; Carneiro 1973a, 1973b; Wilson 1975; Sahlins 1976; Service 1981; Betzig et al. 1988; Borgerhoff Mulder 1990; Sieff 1990). Some feel that the applicability of Darwinian evolution is self-evident and have gone to great lengths to prove their conviction. Consider, for example, the field of sociobiology, which focuses on such topics as altruism, kin selection, and parental investment strategies to name just a few (Wilson 1975; Rindos 1985, 1986; Betzig et al. 1988; Borgerhoff Mulder 1990). Others, however, feel that Darwinian principles have no central place in cultural or behavioral research (Carneiro 1969; Allande

1972; Bray 1973; Carneiro 1973a, 1973b; Collins 1973; Carniero 1974; Wilson 1975; Durham 1976; Sahlins 1976; Kirch 1980).

Allande (1972), Collins (1973), Wilson (1975), Durham (1976), Chagnon and Bugos (1979), Irons (1979), Kirch (1980), Betzig et al. (1988), Redding (1988), and Borgerhoff Mulder (1990) advocate the application of Darwinian evolution in its "pure" form to cultural phenomema. For example, Durham contends that the concept of inclusive fitness can be lifted from biology and used with little or no modification to analyze cultural behavior. In essence, Durham views inclusive fitness as affecting the selection of cultural traits which will confer greater somatic and reproductive success on the individual.

Rindos (1985) advocates the Darwinian model as well, albeit with a few modifications. According to Rindos, the mode of transmission and selection of cultural traits are ultimately meaningless. The only important component is the origin and retention of variation. In order to understand the effects of variation in cultural traits, Rindos divides the selective processes into two types. Cultural selection

1 refers to the selective advantages enjoyed by the individual who has adopted a particular trait in lieu of others less beneficial. Cultural selection 2 refers to the specific factors which govern the adoption or rejection of a particular trait. In combination, Rindos contends they propel cultural evolution. Furthermore, Rindos states that cultural evolution was and is more important than genetic evolution. In fact, cultural evolution led to the genetic fixation for the capacity for culture which ultimately gave rise to modern Homo sapiens.

Others, such as Bray (1973) and Sahlins (1976), feel that Darwinian evolution has little utility in cultural and behavioral research. For example, Bray states that the goals of cultural selection do not necessarily confer reproductive success on an individual. Therefore, adopting the concepts of fitness and selection from biological realms is not feasible for a cultural context.

Sahlins (1976) follows much the same line of reasoning in his discussion of sociobiology. To Sahlins, there is no absolute correlation between social institutions and individual behaviors.

Therefore, any presupposition of a correlation between the two automatically invalidates the theoretical framework of investigation.

Regardless of the controversy surrounding the applicability of Darwinian evolution to cultural phenomena (c.f Lieberman 1989), attempts to use this theoretical framework persist in anthropology and archaeology.

One of the foremost theorists in archaeology currently advocating the use of Darwinian evolution is Robert C. Dunnell. According to Dunnell (1980, 1984, 1989), Darwinian evolution provides a set of universal principles which account for the variability of the archaeological record. This theory also explains how and why artifacts appear in the form they do.

According to Dunnell, natural selection operates on a range of cultural traits. Through this process, advantageous traits are transmitted to subsequent generations, while maladaptive traits are eliminated from the culture complex. Therefore, any particular traits which occur repeatedly, both spatially and temporally, were selected for, while

those traits which disappear were selected against. A major complication in this type of analysis is the separation of beneficial traits from those which are "neutral."

Leonard and Jones (1987) agree with Dunnell's (1980, 1984, 1989) assessment of the use of Darwinian evolution in archaeological context. According to Leonard and Jones, all traits, biological, behavioral, and cultural, have temporal and spatial distributions. Furthermore, all traits have differential success and survival rates. The concepts supplied by Darwinian evolution provide the underlying framework, while allowing for modifications which apply specifically to the phenomena under study. For example, reproductive success in a biological organism is measured by the number of viable offspring contributed to succeeding generations. In the case of artifacts, reproductive success could be measured by the persistence of attributes through time. Once classes of such attributes are isolated, the selective pressures can be determined and archaeological explanations advanced.

Wenke (1981) and Redding (1988), like Dunnell (1980, 1984, 1989) and Leonard and Jones (1987),

advocate the use of Darwinian evolutionary principles in archaeological research. Based on the findings of these works, Darwinian evolution would appear to have a promising future in archaeology, although much work remains to be done. Can the same be said for ethnographic data?

In 1975, E. O. Wilson introduced a new perspective into the study of cultural phenomena: sociobiology. This theoretical perspective attempts to apply the Darwinian concepts of variation, transmission, and selection to human behavior. In essence, all behaviors which enhance the potential reproductive success of the individual are adaptive and therefore, subject to natural selection (Wilson 1975; Betzig et al. 1988; Cronk 1989a, 1989b; Wilkinson et al. 1989; Abernathy and Yip 1990; Borgerhoff Mulder 1990; Low 1990; Sieff 1990).

The subfield of sociobiology covers many aspects of human behavior. Some of the most common topics for research have been kin selection and altruistic behavior, reproductive versus economic success, and marriage and inheritance patterns.

Several research projects have been conducted regarding kin selection and altruistic behavior. Examples of these can be found in the work of Betzig et al. (1988), Turke (1988), and Borgerhoff Mulder (1990). The underlying assumption of these studies is that while altruistic acts lower the reproductive fitness of the individual "donor," the fitness of the "recipient" is enhanced. Furthermore, if the recipient is within the kinship network, the reproductive success of the donor is also indirectly enhanced. An additional feature of altruism in the kinship network is the concept of reciprocity between donors and recipients, which would enhance the fitness of both (Trivers 1971; Chagnon and Bugos 1979; Borgerhoff Mulder 1990).

Another major topic of interest in sociobiology is that of marriage patterns. Crook and Crook (1988) applied Darwinian principles to a study of this type in Tibet. Crook and Crook found that, since agriculture was the primary means of subsistence and the limited land holdings would not support divisions of plots among the family members, young men who wished to pursue cultivation on family lands had no

alternative than to share a common wife or remain single. Therefore, polyandrous marriages were extremely common, (but see Beall and Goldstein 1981; Symons 1989).

One of the most frequent topics of research within sociobiology is that of parental investment in offspring. Several different approaches and hypotheses have been generated on this topic, but with mixed results.

P. W. Turke (1988) conducted field research in Ifaluk to determine whether offspring represented a reproductive or an economic investment. Turke found that parents invested significantly more time and effort in the maintenance of their offspring than they would receive from their children later in life. Consequently, offspring among the Ifaluk were considered by Turke to be more of a reproductive investment than an economic one.

Numerous researchers (Trivers 1972; Trivers and Willard 1973; Voland 1984; Betzig 1988; Voland 1988; Sufian and Johnson 1989; Borgerhoff Mulder 1990; Low 1990; Sieff 1990) have investigated gender bias in

parental investment strategies. One avenue of investigation is comparative studies between non-human primates. The results of these studies are many times used as models for the study of human behavior.

Noyes (1982), for example, attempted to correlate maternal attributes and infant survival by gender among Japanese macaques. Analysis of the data showed no correlation, however, between the mother's social position in the dominance hierarchy and the survival rates of her offspring, both male and female.

Silks (1986) attempted a similar study focusing on yellow baboons. Silks found that high-ranking females produced more female offspring and that female offspring had enhanced survivability over males. Conversely, in low-ranking females, male offspring were more plentiful and more likely to survive than female offspring. Based on these results, Silks concluded that when gender bias did exist, it was simply a reflection of the differential survival rates of offspring according to their position in the social hierarchy. Interestingly, these results are the opposite of those predicted by Trivers (1972) and Trivers and Willard (1973).

E. Volland (1984) attempted to reconstruct sex ratios from the seventeenth to the nineteenth centuries using historical records from a German parish. The data showed the females of high-ranking families were subject to higher rates of infant mortality than were males, while low-ranking families exhibited a much greater degree of male-biased mortality.

Boone (1988), in a similar project, using historical documents from fifteenth and sixteenth century Portugal, where land wealth and heritable titles were transmitted through the male line, found that male offspring were favored among high-ranking nobility. However, as status decreased, infant mortality rose among male offspring, while decreasing among female offspring. Boone postulated that the favoring of females as status decreased resulted from the potential ability of the female to marry "up" in the socioeconomic hierarchy, which gave added prestige to the family unit as a whole. Similar marriage opportunities were not available to male offspring of low status; therefore, they were selected against due to their relative lack of reproductive potential.

Boone (1988) also discovered offspring bias according to primogeniture. The eldest children were favored regardless of sex over all other offspring within the family unit. This phenomenon is believed to have been directly linked to the practices of land, wealth, and title heritability among the Portuguese nobility. More specifically, first borns received the bulk of the material wealth, thereby enhancing their marital possibilities and their reproductive potential.

In another study using German parish records, Volland (1988) attempted to correlate gender-biased infant mortality with family composition. The data showed that male offspring exhibited a much higher mortality rate in mother-headed households, presumably due to their high susceptibility to stress and economic difficulties caused by the loss of the chief provider. In short, the sons of mothers were less likely to survive than the daughters of mothers in the absence of the father. However, father-headed households exhibited no significant gender bias in the survivability of offspring. Volland does note a slightly elevated female mortality rate in father-

headed households which suggests a latent bias, although the data are inconclusive.

Despite the claims of Volland (1984, 1988), Brittain et al. (1988) show that the German parish data are inconclusive at best. In fact, a reanalysis of the data showed that neither fluctuations in resource availability or social class differences had much effect on postnatal mortality rates for either gender.

Ethnographic studies, particularly in developing areas of the world, have yielded a wealth of data regarding parental investment strategies and infant mortality rates. Most of these studies adopt either one of two different theoretical stances. The first views infant mortality as a function of biomedical factors, such as poor sanitation or malnutrition (Hirshorn 1982; Nations and Rebhun 1988). The second position views infant mortality as being directly correlated with cultural and/or social factors, such as the importance of female versus male children in the context of a particular society (Shorter 1977; Scrimshaw 1978; Cassidy 1980).

Subsumed under this second theoretical position are the concepts of benign and selective neglect. According to Nations and Rebhun (1988), benign neglect refers to behaviors practiced by those in the parental generation which are inadvertantly harmful to the well-being of the child. In extreme cases, these practices can lead to very high childhood morbidity and mortality. Conversely, selective neglect refers to purposeful behaviors practiced by those in the parental generation that ultimately cause increased mortality among certain infants and children.

Discussed below are several studies that focus on the various mechanisms of parental investment strategies and differential infant mortality rates.

Sufian and Johnson (1989) conducted a study in Bangladesh to assess son preference and child replacement strategies. Islam is the dominant religion in this area. This religion places great emphasis on reproduction and the favoring of male over female offspring. Sufian and Johnson postulate that male offspring are the recipients of increased parental investment which, in turn, enhances male offspring

survivability. Furthermore, in the event that a male child dies, the parents will strive to replace the child with another son. The same does not hold true for female offspring.

Such parental investment strategies serve well to illustrate Scrimshaw's (1978) hypothesis regarding the culture-based causes of infant mortality. According to Scrimshaw, when resources are scarce, parents may selectively neglect one child and favor another. More specifically, the parent may allocate more resources to one child, thereby denying them to another, which could lead to increased malnutrition and mortality. Parental investment strategies such as these may or may not reflect an intentional favoring of one child over another (Scrimshaw 1978; Cassidy 1980; Nations and Rebhun 1988).

Bhuiya, Wojtynak, and Karim (1989), also working in Bangladesh, pursued a project aimed at malnutrition and assessing its affects on child mortality rates. Educational level of the mother was also investigated as a possible factor. Bhuiya et al. found that the risk of death was equal for female offspring regardless of the educational level of the mother.

However, the rate of male offspring mortality decreased significantly as the educational level of the mother increased. In a similar study, Aksit and Aksit (1989) found no correlation among infant mortality, educational level of the mother, and access to medical care for either gender.

Nutrition and medical care have a very strong impact on infant mortality rates. According to Bhuiya et al. (1989), female offspring were selectively neglected with regard to food distribution and adequate medical care. Since male offspring enjoyed higher status, both in the home and within the society, they received better medical care and the bulk of the available foods distributed to offspring. Selective neglect of the females led to increased malnutrition and diarrheal disorders which, in turn, led to increased morbidity and mortality. Similar results were obtained by L. McKee (1984, 1987) in Ecuador.

Bhatia (1989), working in rural Bangladesh, found that female infant mortality, due to infectious disease and malnutrition, greatly exceeded male infant deaths. This would suggest that male offspring received better medical care and better nutrition

within the home. However, Bhatia discovered that enhanced socioeconomic level and education of the mother were factors that corresponded to a reduction of infant mortality in general, and female infant mortality in particular.

Ali (1989) has conducted several studies related to parental investment and the phenomenon of son preference. According to Ali, many societies prefer sons due to the economic returns parents will receive later in life. In addition, the dowries needed to provide daughters with suitable mates are another disincentive to the rearing of female offspring. For example, data from Pakistan showed that those families with two or more sons were much less likely to want additional children than those families with two or more daughters. Therefore, the number of sons present in the family is an important factor in the determination of family size in Pakistan.

Son preference is also found in Korea (Ali 1989). However, recent government policies which have enhanced the position of women have led to a reduction in the fertility rate and to slightly reduced female infant mortality, although the desire for a son is

still frequently expressed. Similar results were also obtained by Engle et al. (1984) among women of Mexican ancestry.

Chae et al. (1989) attempted to determine the extent of the correlation between differential child mortality and ethnic criteria in Nepal. These authors found that the sex of the child was only important during the first year life. During this period, males tended to have an elevated mortality rate. Furthermore, there were no correlations found among socioeconomic, biomedical, and/or environmental variables and ethnic differences in child mortality rates.

A similar project was carried out by Tawaiah (1989) in Ghana, yet with vastly different results. According to Tawaiah, biological factors, such as malnutrition and diarrheal disorders, were the primary causes of neonatal and infant mortality. Once past this crucial stage, socioeconomic factors became the primary predictors of childhood mortality.

According to Tawaiah, place of residence and maternal educational level were extremely important in child mortality rates. Rural and urban mothers who had

little education had significantly higher child mortality rates than did city mothers of comparable education. However, rural mothers exhibited a lower child mortality rate than those in urban areas. This fact was linked to the wider availability of food resources in agricultural areas which led to better nutrition. It should be noted that no significant differences were reported between male and female offspring mortality rates regardless of place of residence or maternal educational levels.

The preceding studies illustrate the diverse applications of sociobiological principles to the analysis of human behavior. The remainder of this chapter will be devoted to a discussion of the Trivers-Willard hypothesis.

The Trivers-Willard hypothesis was first developed in 1972 to explain differential child sex ratios among various cultural groups and within a given culture (Trivers 1972; Trivers and Willard 1973). Since 1972, many researchers have applied this hypothesis to a variety of cultural groups, as well as to non-human primates (Betzig and Turke 1986; Hrdy 1987; Cronk 1989a; Wilkinson et al. 1989).

According to the Trivers-Willard hypothesis, parents will tend to favor one gender over another, depending on which is perceived to have the greatest reproductive success. Conversely, offspring with less potential reproductive success, while not actively neglected, would receive less parental investment, resulting in higher mortality rates and reduced fitness.

Trivers and Willard (1973) state that the favored sex will be determined by the socioeconomic position of those in the parental generation. More specifically, the expected reproductive success of male offspring should be greater at the upper end of the socioeconomic hierarchy, while female offspring should be expected to have greater reproductive success at the lower end of the hierarchy.

In order for the Trivers-Willard hypothesis to apply to a given group, the following criteria must be met. The society or a subsection of a given society must be of low socioeconomic status, based on economic level or ethnic affiliation. Male reproductive success must be less than that of females overall. Lastly, parental investment must be gender-biased (Trivers

1972; Trivers and Willard 1973). Four recent case studies which have utilized the Trivers-Willard hypothesis will now be summarized.

Betzig and Turke (1986) investigated gender-based parental investment strategies on the island of Ifaluk. Results of their analysis showed that parents with high status, either traditional, e.g. leaders in the community, or salaried, e.g. work-related wealth, spent significantly more time with sons than they did with their daughters. Parents lacking traditional or salaried status followed the reverse pattern.

Hrdy (1987) reviewed several previous studies of primate species, including the research of Noyes (1982) and Silks (1986), to analyze the applicability of the Trivers-Willard hypothesis. Hrdy found that in three separate studies, high-ranking females produced significantly more females than males. Two other species exhibited a substantial number of male offspring among high-ranking females, while other species exhibited no gender bias at all. Clearly, the application of the Trivers-Willard hypothesis within this context yielded mixed results, at best.

L. Cronk (1989a) applied the Trivers-Willard hypothesis to the Mukogodo of Africa. The Mukogodo are the "newcomers" to a pastoralist lifeway in the Laikipia District of Kenya. Until the early twentieth century, the Mukogodo were hunter/gatherers who remained relatively isolated from the surrounding populations who had adopted a pastoralist lifeway in an earlier time period. Consequently, the Mukogodo were considered lower in status by the surrounding populations. This perception was reinforced by their relative lack of wealth in the form of livestock.

Cronk found that the Mukogodo favored female offspring, as would be expected according to the Trivers-Willard hypothesis. Females were generally believed to have enhanced probabilities of marrying "up" in the socioeconomic hierarchy through advantageous marriages with surrounding populations. (Recall Boone found a similar situation among the fifteenth and sixteenth century Portuguese, although he was not testing the Trivers-Willard hypothesis per se). Conversely, many males would never marry due to the lack of females within the Mukogodo population and the inability to attract mates from outside this

population. This being the case, Mukogodo males would have less reproductive success than females, thus satisfying the basic tenets of the Trivers-Willard hypothesis.

The study conducted by Wilkinson et al. (1989) in Hawaii utilized subjects of European and Japanese descent. Expected results based on the Trivers-Willard hypothesis consisted of the Japanese having a female-biased sex ratio due to their ethnic minority status. However, final analysis showed significantly female-biased sex ratios in both ethnic groups, leading to a rejection of the Trivers-Willard hypothesis. Based on these results, Wilkinson et al. offered an alternative hypothesis which cited a number of biological factors, such as differential Rh incompatibility rates and maternal age as it relates to parity, that skewed the child sex ratio at birth.

From this brief discussion of the case studies cited above, it is clear that the Trivers-Willard hypothesis has yielded mixed results. In some cases, such as the Mukogodo, the hypothesis seems to explain the differential sex ratios between low and

high status groups. However, in other cases, such as the Hawaiian study, it does not. These differential results would naturally lead one to question the overall utility of the Trivers-Willard hypothesis. Does the hypothesis explain the differential mortality figures present among offspring in societies which meet the aforementioned criteria or is the applicability of the hypothesis coincidental in the cases where it appears to hold true? The remainder of this thesis will be devoted to an analysis of the Trivers-Willard hypothesis in an attempt to assess its relative utility. The data to be examined come from the Boas studies of the Micmac and the Pacific Northwest tribes.

Chapter 3

The Nature of the Data

Franz Boas, who is generally regarded as the father of American anthropology, contributed a vast amount of information to the study of Native American societies. Boas is remembered primarily for his work with the Kwakiutl of the Pacific Northwest Coast. However, he was ultimately responsible for one of the most comprehensive studies of Native American life ever undertaken (Boas 1925; see also Rohner 1966).

While on staff at Clark University in Worcester, Massachusetts, Franz Boas received a grant from the British Association for the Advancement of Science (circa 1888) to study the Pacific Northwestern tribal groups. Three years later, in 1891, Boas was approached by the American Museum of Natural History and the American Philosophical Society to undertake a comprehensive data collection program among Native American tribes across the country. Boas hired approximately 50 observers (Appendix A) to carry out this massive project in a two-year period. As of 1893, 62 American Indian tribes had been surveyed, with

accumulated data on 15,000 individuals (Jantz, personal communication).

Boas completed full reports on only two tribal groups: the Shoshone and the Sioux. Data on Mission Indians of California were presented at the 1893 World's Columbian Exposition in Chicago (Jantz, personal communication).

Boas, serving as coordinator of the Anthropological Section of the Exposition, organized the following exhibits (Anonymous 1893):

- 1) Statistical Applications in Anthropology
- 2) Instruments for Body Measurement.
- 3) Nomenclature and Classification
- 4) Area Investigation - Fingerprints of North American Indians (presented by F. Starr)
- 5) Drawing Instruments
- 6) Composite Photographs/Statues
- 7) The Human Skull - Capacity, Development, Race Identification
- 8) Anthropometry of the Japanese

Sporadic attempts were made to synthesize all materials following the World's Columbian Exposition in 1893. In 1895, partial analysis was reported in an article appearing in Zeitschrift fur Ethnologie (Boas 1895). Boas also continued his work among the Pacific Northwest Coastal tribes, primarily the Kwakiutl, into the twentieth century. A large portion of this work was later edited and published by Helen Codere under the title Kwakiutl Ethnography (Boas 1966; Jantz, personal communication).

Data Rediscovery

While working on a project concerned with the synthesis of Plains Indian material, Dr. Richard Jantz came across a reference to the anthropometric measurements collected by Boas in 1891-93. On the suggestion of Dr. Gerald Schroedl, Jantz wrote to David Hurst Thomas, the curator of the American Museum of Natural History, to inquire about the location of the Boas data sets (Jantz 1983a).

By April 7, 1983, Thomas confirmed the presence of the Boas data sets at the American Museum

of Natural History. Approximately 50 packages of forms were found containing information on both Native Americans and various immigrant groups. Thomas stated that the data sets were available for analysis and arrangements could be made for a loan if necessary (Thomas 1983a).

Jantz acknowledged the letter of Thomas on April 15, 1983. Inquiries were made regarding the possibilities of obtaining post-doctoral fellowships or study grants to expedite the analysis of the data sets. By November 8, 1983, Jantz had secured a grant from the American Philosophical Society for preliminary work on the project. Arrangements were made to visit the American Museum of Natural History to select pertinent materials from the packages containing the original Boas data (Jantz 1983b, 1983c).

Jantz arrived in New York in early December. The next two weeks were spent at the Museum selecting the materials concerned with Native American groups from the Boas data (Jantz 1983c).

By January 17, 1984, arrangements had been made and the selected data sets were shipped from the American Museum of Natural History. On January 19, the

data sets arrived at the University of Tennessee (Jantz, personal communication). To date, the original data sheets are still in the possession of the University.

The original data sheets utilized by Boas and his researchers were divided into male and female subjects. Each data sheet listed the name of the observer, as well as the date and place of observation. The name of each subject was also collected, along with age, tribal affiliation, and the tribal affiliations of the individual's mother and father. Family information was also collected which could be utilized to establish, to a certain extent, family lines. The remaining sections of the data sheets consisted of mode of life, various phenotypic features (e.g. hair color, eye color and shape, facial features, and skin color) and a variety of anthropometric measurements (e.g. standing height, width of shoulders, and various cranial measurements). This type of information was provided for all subjects regardless of sex (Figures 3.1, 3.2, 3.3, 3.4).

Female data sheets were similar to males, but with a few minor alterations. Obvious categories such as beard color were deleted from the female data sheets. One category was added. The female data sheets list the number of children, both alive and dead, for each subject. This information is not provided on the male data sheets (Figure 3.3., 3.4).

Most of the data sheets available are fairly complete; however, there are a few cases where little information is provided beyond the name, age and tribal affiliation of the individual.

Out of the 62 tribal groups available, two were selected for this thesis: the Micmac and the Pacific Northwest tribes. The specifics of these groups will be discussed in the next chapter.

[Number each record in order read and write your name after number.] *ES 51*

No. *17* *Archibald R. Tisdale.*

MALE.

- Place of observation. *Cacouna, Quebec Province.*
- Date of observation. *July 7, 1892*
- Name of individual recorded. *Jim Thomas*
- Age. *72.56, Estimated.*
- Tribe. *Ameleait*
- Place of birth. *Cacouna.*
- Tribe of father. *Ameleait*
- Tribe of mother. *Micmac and Scotch mixtures.*
- Feather of No. *15*
 - Son of No. *15*
 - Brother of No. *16, 19*
 - Mode of life. *Fishing.*
- Beard: *scarcely*
- ~~Beard on upper part of cheeks: full-medium~~
~~scarcely~~ *short, long, none*
~~Beard on lower part of cheeks: full-medium~~
~~scarcely~~ *short, long, none*
~~Beard on chin: full-medium~~ *scarcely*
~~short, long, none~~
- ~~Mustache: full-medium~~ *scarcely*
~~short, long, none~~
- Hair: *black, brown, light brown, blonde, golden-red, grey.*
- Hair: *straight, wavy, curly, frizzly.*
- Eyes: *black, dark brown, light brown, gray, blue.*
- Eyes: *pronounced epicantian.*
- Nose: form of line drawn between eyes: *high-medium, low, broad*
- ~~Outline of union of forehead and nose: 1-2-3~~
~~3-4~~
- ~~Profile of nose: 1-2-3~~
~~4-10-11-12-13-14~~
- Point of nose: *short, long; thin, thick.*
- Nostrils: *1-2-3-4*
- Upper lip: *projecting, slightly inclined forward, vertical.*
Nose and lip *parallel, converging upward, converging downward.*
- Lips: *thin, medium, thick.*
- Ear: *pointed.*
Standing *close to head.*
- First section of helix: *rolled inward, flattened back; thick, thin.*
- Second section of helix: *rolled inward, flat, rolled back; thick, thin.*
- Antihelix: *low-high; wide, narrow.*
- Crura: *ridges flat, high.*
- ~~Lobe: large, small; attached, detached;~~
~~round, triangular, square, inverted.~~
- ~~Color of skin: covered parts~~ *7*
~~uncovered parts~~ *5*
~~palms of hands~~ *2-7*

Figure 3.1

Male Data Sheet-Front View

[Repeat number from other side.]		37
No. 17		
MEASUREMENTS.		
MALE.		
1. Height standing.	1167	7. Length of head.
2. Height of shoulder.	915	8. Breadth of head.
3. Height of point of second finger.	427	9. Height of face.
4. Fingerreach.	1167	10. Breadth of face.
5. Height sitting.	649	11. Height of nose.
6. Width of shoulders.	255	12. Breadth of nose.
[No attention to be paid to lines below this rule.]		
INDICES.		
1. Arm.	41.7	1. Length-breadth.
2. Fingerreach.	100.0	2. Length-height.
3. Height sitting.	-	3. Face.
4. Width of shoulders.	27.5	4. Nose.
[This record when filed to be returned to FRANK ROAN, Worcester, Mass.]		

Figure 3.2

Male Data Sheet-Back View

[Number each record in order used and write your name after number.]

No. 171. *Adibaldit is dah.* *27* *128*
FEMALE

1. Place of observation. *Mission Ph. W.B.*

2. Date of observation. *July 23, 1892.*

3. Name of individual recorded. *Monique Barnaby Weath.*

4. Age. *48 yrs. Estimated.*

5. Tribe. *Micmac.*

6. Place of birth. *Mission Ph.*

7. Tribe of father. *Micmac and English.*

8. Tribe of mother. *Micmac and English.*

9. Mother of No. *99*
 Daughter of No. *99*
 Sister of No. *Housework*

10. Mode of life. *Housework*

32. Number of sons: *alive:*
dead:

33. Number of daughters: *alive:*
dead:

14. Hair: *black, brown, light brown, blonde,*
golden, red, gray.

15. Hair: straight, wavy, curly, frizzy.

16. Eyes: *black, dark brown, light brown, gray,*
blue.

17. Eyes: *black, dark brown, light brown, gray,*
blue.

18. Nose: form of line drawn between eyes:
high, medium, low.

19. Outline of union of forehead and nose: *1-2*
4.

20. Profile of nose: *1-2 3 4 5 6 7 8*
9 10 11 12 13 14 no line

21. Point of nose: *short, long; thin, thick.*

22. Nostrils: *1-2 3 4 5 6*

23. Upper lip: *projection, slightly inclined for-*
ward, vertical.
 Nose and lip parallel, converging upward,
converging downward.

24. Lips: *thin, medium, thick.*

25. Ear: *round, pointed.*
standing, of, close to head.

26. First section of helix: *rolled inward, flat,*
rolled back, thick, thin.

27. Second section of helix: *rolled inward, flat,*
rolled back, thick, thin.

28. Anthelix: *high; wide, narrow.*

29. Crura: *ridges flat, high.*

30. Lobe: *large, small; attached, detached;*
round, triangular, square, divided.

31. Color of skin: covered parts *19*
 uncovered parts *20*
 palms of hands *23*

Figure 3.3
 Female Data Sheet-Front View

No. 171.

[Repeat number from other side.]

128

MEASUREMENTS.

FEMALE.

- | | | | |
|--------------------------------------|---------------------------------|----------------------|-----|
| 1. Height standing | 1608 | 7. Length of head | 194 |
| 2. Height of shoulder. | 1378 | 8. Breadth of head. | 150 |
| 3. Height of point of second finger. | 622 | 9. Height of face. | 114 |
| 4. Fingerreach. | 1696 | 10. Breadth of face. | 140 |
| 5. Height sitting. | 826 (straight - ordinary chair) | 11. Height of nose. | 48 |
| 6. Width of shoulders. | 385 | 12. Breadth of nose. | 38 |

[No attention to be paid to lines below this rule.]

INDICES.

- | | | | |
|------------------------|------|--------------------|------|
| 1. Arm. | 47.5 | 1. Length-breadth. | 77.8 |
| 2. Fingerreach. | | 2. Length-height. | |
| 3. Height sitting. | 51.3 | 3. Face. | 31.7 |
| 4. Width of shoulders. | 337 | 4. Nose. | |

[This record when filled to be returned to FRANZ BOAS, Worcester, Mass.]

Figure 3.4

Female Data Sheet-Back View

Chapter 4

Methodology

As stated earlier, the data sets collected by Franz Boas in 1891-93 contained information on more than 62 separate tribal groups. Within the context of this thesis, it would be impossible to utilize all the data available from this source. With the assistance of David Hunt, two data sets were selected: the Micmac and a composite of Pacific Northwest tribes.

The Micmac and the Pacific Northwest data sets were chosen primarily due to their relatively large and complete samples. However, other criteria were considered as well. The Micmac and the Pacific Northwest tribes traditionally engaged in economic strategies centered around maritime activities such as fishing, as well as hunting and trapping. In addition, both groups had traditionally exhibited similar attitudes toward gender-based divisions of labor (Wallis and Wallis 1955; Boas 1966; Lewis 1970; Averikena 1981; Kehoe 1981; Dunn 1984a, 1984b; Elmendorf 1984; McDonald 1984; Seguin 1984).

Despite the many similarities between the Micmac and the tribes of the Pacific Northwest, there are several differences as well. The Micmac have been in contact with European cultural traditions much longer than the Pacific Northwest tribes. Consequently, the Micmac were much more assimilated into the dominant White culture. Specific factors related to religion, social order, marriage patterns, etc., differed between the two tribal groups. However, due to the similarities in the economic sphere, a comparison between the two with regard to parental investment strategies should yield valuable information with which to assess the Trivers-Willard hypothesis.

With regard to the tribal groups of the Pacific Northwest, justification should be offered for their consolidation into one data set. Included in this set are data from the Coast Salish and Kwakiutl; the Tsimshian; and the Interior (e.g. Shushwap, Thompson, and Okanagan). Although these groups differ in regard to language family and specific cultural factors, these tribes are placed within one culture area. Therefore, in order to maintain a comparable

area. Therefore, in order to maintain a comparable sample size to that of the Micmac, all the available data were subsumed under the heading of the Pacific Northwest (Boas 1966; Kehoe 1981; Seguin 1984).

Ethnicity and Admixture as Determinants of Marriage Patterns

Ethnicity was determined by the measures established by Boas in the original data collection. Those who were listed as above one-half Indian will be considered the same as full-bloods. Those who were listed as one-half and below will be considered the same as non-Indians. For the purposes of analysis, it is assumed that individuals who were above 50% Indian would have retained many more Native American characteristics, both physical and cultural, than would those who fell below this point. Therefore, 50% admixture was utilized as the point of differentiation between Indian and non-Indian.

Ethnicity and marriage patterns will be determined based on the measures of blood quantum listed above. In order for a marriage to be considered Indian/Indian (I-I), both parties have to fall above

one-half Indian. Marriages in which one party falls one-half or below will be classified as Indian/non-Indian (I-N or N-I). Marriages listed as I-N consist of an Indian female and a non-Indian male, while those listed as N-I consist of a non-Indian female and an Indian male. In the event that both parties fall on or below the one-half point, the marriage will be classified as non-Indian/non-Indian (N-N).

The categorizations listed above will be used to determine the number of children by sex which fall into each marriage type for each data set. These categories will then be used to set up a chi-square test of association.

Child Sex Ratios As Indicators of Differential Parental Investment

Numerous researchers (Trivers 1972; Trivers and Willard 1973; Scrimshaw 1978; Voland 1984, 1988; Bhatia 1989; Chae et al. 1989; Cronk 1989a; Wilkinson et al. 1989; Sieff 1990) have utilized child sex ratios within given populations as indicators of differential mortality and parental investment strategies. Generally, child mortality figures are collected for a

given population and subdivided by sex. These figures are then compared to establish differential mortality rates among offspring. Population figures for surviving offspring can also be utilized to extrapolate differential mortality between the sexes.

The figures obtained from demographic data illustrate the potential survivability and mortality, by sex, of the offspring. In many cases, the sex which exhibits the greater degree of survivability is assumed to be the recipient of increased parental investment. Conversely, the sex which exhibits the greater degree of mortality is assumed to suffer from either benign or selective neglect (Shorter 1977; Scrimshaw 1978; Nations and Rebhun 1988).

There is usually a fairly even sex ratio at birth, with male offspring slightly exceeding female offspring (e.g. 104 to 100). However, numerous factors exist which can cause a skewing of the child sex ratio at birth. Discussed below are several factors, both biological and sociodemographic, which have been suggested as causative agents of a skewed sex ratio at birth.

Several biological factors have been suggested as causing a skewing of the sex ratio at birth. Some of the most commonly cited factors include differential motility and survivability of the X- and Y-bearing spermatozoa (Roberts 1978), maternal hormone levels and vaginal acidity at conception (James 1986; Ruder 1986), maternal age and parity (Nortman 1974), and immunological reactions between the mother and the fetus which affect implantation (Gloria-Bottini et al. 1979; Chanazarian 1988).

Exposure to infectious disease in the parental generation can also influence the child sex ratio at birth. For example, Drew et al. (1982), working on Kar Kar Island in Papua, New Guinea, found that exposure to the Hepatitis B virus could affect the child sex ratio of the succeeding generation. More specifically, antigen positive couples had significantly more daughters than did antigen negative couples. However, exposure to the Hepatitis B virus did not appear to affect the likelihood of the couple producing sons. The couples to have the most female offspring were those in which both parents were antigen

positive. Similar results can be found in the works of Robertson and Sherd (1973) and Hesser et al. (1975).

Many other researchers (Ressegue 1977; Bakketeig and Hoffman 1979; Meinik et al. 1979) favor sociodemographic explanations over those in the biological realm. For example, Meinik et al. (1979) state that the correlation between maternal age and perinatal mortality rates is weak, at best. A much stronger correlation is found between birth order and time intervals between births. Therefore, differential mortality must be linked to sociodemographic factors rather than biological ones. Bakketeig and Hoffman (1979) support this view by citing socioeconomic conditions, differential birth weights, and length of birth intervals as factors in the survival rates of offspring.

From the brief discussion above, it is clear that a number of factors can cause a skewing of the sex ratio at birth. Unfortunately, many of these factors are untestable when using previously collected data, as in this thesis. However, they should be kept in mind as they could cause a bias in the data sets and in the resulting analysis.

With this possibility in mind, the child sex ratios at birth for the Micmac and the Pacific Northwest tribes will be analyzed. The data sheets for the surveyed females will be utilized to obtain these figures. The number of children dead will be added to the number of surviving offspring to calculate the total number of females and males born into each tribe. It should be noted that the number of dead and surviving offspring is not available for the surveyed males. This factor, in and of itself, could cause a biasing in the data sets. Furthermore, outside factors influencing differential mortality, such as the clinic visits utilized by Cronk (1989a), are not available. Therefore, it should be kept in mind that there is a potential margin for error in the forthcoming calculations.

Once the child sex ratios are determined for each tribe and further subdivided into the marriage pattern categories, the resulting data were submitted to a chi-square test of association, with the significance level set at .05.

The number of deaths by sex was determined by subtracting the number of survivors from the number of

children born into each tribal group. By doing so, one can test the data to determine if both sexes have an equal probability of dying. If so, then, subsequent sex ratios should reflect the frequencies obtained for the child sex ratio at birth.

Each tribal group and marriage type were tested separately. The mortality figures were used to obtain expected frequencies of deaths. These were submitted to a chi-square test, with the significance level set at .05.

These tests should show if a skewing of the sex ratio after birth is significant, and if so, which sex tends to be favored. The biasing of the sex ratio in favor of either males or females will be taken as evidence for differential parental investment.

A sub-analysis of the child sex ratio of the Pacific Northwest will also be undertaken due to the fact that a number of tribes are represented, ranging from the Coastal areas into the Interior. Three groupings will be established: the Kwakiutl and Coast Salish which are characterized by bilateral descent and rigid hierarchical ranking; the Tsimshian, a matri-

lineal coastal group; and the Interior area, consisting of the Shushwap, Thompson, and Okanagan, which are more egalitarian and have patrilineal descent.

The Coastal area groups, with more complex social organization, as well as enhanced access to wealth, should be more likely, according to the Trivers-Willard hypothesis, to favor male offspring. On the other hand, the more egalitarian Interior groups should tend to favor female offspring. The figures obtained will be submitted to a chi-square test with the significance level set at .05.

These groupings will then be redistributed for a second chi-square test. The Tsimshian will be compared to the remaining Pacific Northwest tribes to determine if matrilineal descent could affect gender-based parental investment. More specifically, the test should show whether descent through the female line could cause the favoring of female offspring.

Mode of Life As An Indicator of Socioeconomic and Acculturational Level

Socioeconomic level is extremely important in the application of the Trivers-Willard hypothesis.

Theoretically, one would assume that Native American peoples would be at the lower end of the socioeconomic hierarchy (Nash 1982; Deloria and Lytle 1984). If this is indeed the case, then female offspring should be favored in Native American societies, at least according to the Trivers-Willard hypothesis. However, I would argue that the level of acculturation of a Native American tribe would have a profound effect on the socioeconomic position of the group.

Occupation, or what Boas termed "mode of life," was provided for each individual within the Micmac sample. A breakdown of these findings will be provided in Chapter 5. Unfortunately, comparable data were not available for the Pacific Northwest. Therefore, to determine the relative economic position of these tribes, ethnographic data will be utilized. These data will be used to determine if there is a difference in "modes of life" for each tribal group and if so, which one follows the more traditional Native American lifeway. In this instance, it will be assumed that those groups which clung to their traditional

lifestyle will be in a subordinate economic position when compared to the dominate White culture and, therefore, will occupy the lower end of the socio-economic hierarchy.

Socioeconomic level, as determined by "mode of life," will be used as a framework for the results of the chi-square tests on the child sex ratios. If each tribal group falls at the lower end of the socioeconomic hierarchy, sex ratios should illustrate a biasing toward female offspring. If expected results fall below the significance level of .05, alternative explanations will then be considered.

Limitations of the Data

As stated in the introduction, these data sets have many limiting factors. Discussed below are the factors present in the data sets which may affect the application of the Trivers-Willard hypothesis.

The lack of an outside measure for differential child mortality could present a problem during data analysis. Biased sex ratio figures could occur for any number of reasons, ranging from a real sex ratio bias to biased reporting during the data

collection. Within the context of this thesis, one can only assume that the biased sex ratios are a result of differential child mortality, which leaves a margin for error in the resulting analysis.

Another drawback to the use of these data sets to assess the Trivers-Willard hypothesis is the inability to test any of the criteria other than socioeconomic level. The other criteria, i.e. overall reproductive success for the females and males of the group and the presence or absence of gender-biased parental investment strategies, cannot be determined directly.

The following analysis will be based on differential child mortality rates and socioeconomic level. However, one should keep these limiting factors in mind since they may lead to a wide margin for error.

Chapter 5

Analysis and Discussion

As illustrated in the previous chapter, several variables are of interest within the context of this thesis: marriage patterns, child sex ratios, (both at birth and after birth), and socioeconomic level. The analysis of the data provided below will follow the order established in the preceding chapter.

Analysis of Marriage Patterns

As stated earlier, marriage patterns or mating patterns were examined based on the ethnicity of the two individuals. Each tribe's calculations were plotted separately to give a clear representation of the relative frequencies of the marriage compositions.

The Micmac (N=346) had a moderately high frequency of I-I marriages (190 or 55%), which would be expected in Native American tribal groups. Marriages categorized as I-N were the next highest in frequency at 59 (17%). N-I marriages totalled 53 (15%),

followed by N-N marriages, totalling 44 (13%) (Figure 5.1).

The Pacific Northwest tribes (N=406) follow much the same pattern as that exhibited by the Micmac. The frequency of I-I marriages was, by far, the highest at 368 (91%). The next highest in frequency was I-N marriages at 30 (7%), followed by N-I at 7 (1%) and N-N at 1 (1%) (Figure 5.2).

From the percentages above, it is clear that the Micmac and the Pacific Northwest tribes have high frequencies of I-I marriages. However, the Pacific Northwest tribes have far more marriages in this category than do the Micmac (91% vs. 55%) (Figure 5.1; 5.2). A partial explanation for this phenomenon could lie in differential sample sizes, but other factors may be involved as well. A discussion of these factors will be undertaken in a later section of this chapter.

After determining the marriage or frequencies for each tribal group, the number of surviving children was calculated for each tribe and separated according to sex. A plot of each tribe was then generated to

Marriage Type	#	%
I-I	190	55
I-N	59	17
N-I	53	15
N-N	44	13

Figure 5.1 Distribution of Marriage
Patterns Among the Micmac

Marriage Type	#	%
I-I	368	91
I-N	30	7
N-I	7	1
N-N	1	1

Figure 5.2 Distribution of Marriage
Patterns Among the Pacific
Northwest Tribes

illustrate the relative frequencies of males and females.

The Micmac exhibited a male dominated sex ratio for all marriage groupings (Figure 5.3). In the I-I category, male offspring (N=187) surpassed female offspring (N=123) by a substantial margin. The frequencies of male offspring also surpassed female offspring in the I-N (N=45 vs.34), N-I (N=61 vs.43), and N-N (N=61 vs. 53) categories, although not by as wide a margin as found in the I-I marriages. A distribution such as this would suggest a definite male bias among the Micmac.

Most of the sampled offspring in the Pacific Northwest tribes fall under the heading of I-I marriages (Figure 5.4). In this case, female offspring (N=283) surpassed male offspring (N=266), which is the opposite of the situation among the Micmac. In all other cases, male offspring frequencies are equal to, or surpass, the female frequencies. A distribution such as this would suggest a possible female bias in the I-I marriages among the Pacific Northwest tribes, while a male bias may exist in the other marriage categories.

Marriage Type	# of males	# of females
I-I	187	123
I-N	45	34
N-I	61	43
N-N	61	53

Figure 5.3 Distribution of Children By Sex
Among the Micmac Controlling
For Marriage Type

Marriage Type	# of males	# of females
I-I	266	283
I-N	32	28
N-I	6	2
N-N	1	2

Figure 5.4 Distribution of Children By
Sex Among the Pacific North-
west Tribes Controlling for
Marriage Type

As stated earlier, the data on the child sex ratios discussed above were submitted to a chi-square analysis to determine the probability of obtaining these distributions by chance. In addition, a chi-square analysis of the child sex ratio at birth was made to determine if differential mortality rates existed between male and female offspring. Each analysis was controlled for marriage patterns with a significance level of .05.

Child Sex Ratio At Birth

The combined samples of I-I marriages for the Micmac and the Pacific Northwest tribes totalled 1312, of which 641 were daughters and 671 were sons. The total Micmac sample consisted of 193 females and 257 males. The Pacific Northwest tribes sample consisted of 448 daughters and 414 sons. These figures alone reflect the differential birth patterns between the two tribal groups (Figure 5.5).

Expected values were calculated as a comparison for the observed frequencies. The expected frequency for female offspring in the Micmac sample was 219.9, while male offspring were expected to total

	Males	Females	
PNW			
observed	414	448	862
expected	440.9	421.1	
Micmac			
observed	257	193	450
expected	230.1	219.9	
Total	671	641	1312
	48.86	51.14	
$\chi^2=9.762$	$P=.002$		

Figure 5.5 Chi-Square Analysis of Child
Sex Ratios At Birth for I-I
Marriages for the Micmac and
The Pacific Northwest Tribes

230.1. In short, given the number of offspring, there should be a lesser number of males and a greater number of females. The data for the Pacific Northwest tribes were the opposite of the Micmac. The expected frequency for females was 421.1, while the expected frequency for males was 440.9. These values show that the frequency of females should be lower and the number of males should be higher (Figure 5.5).

A chi-square analysis of the two tribal groups yielded a value of 9.6762, with an associated probability of .002, well within the significance level of .05. Obviously, there are factors affecting the child sex ratio at birth for the sampled tribes (Figure 5.5). Possible explanations for this will be discussed in a subsequent section of this chapter.

The combined sample size of the I-N marriages for the Micmac and the Pacific Northwest tribes totalled 191 children. The Micmac sample contained 55 daughters and 67 sons. The Pacific Northwest tribes sample consisted of 33 daughters and 36 sons (Figure 5.6).

	males	females	
PNW			
observed	36	33	69
expected	37.2	31.8	
Micmac			
observed	67	55	122
expected	65.8	56.2	
Total	88	103	191
	46.07	53.93	
$\chi^2=.134$	$P=.715$		

Figure 5.6 Chi-Square Analysis of
 Child Sex Ratios At Birth
 For I-N Marriages for the
 Micmac and the Pacific North-
 west Tribes

The expected frequency for the Micmac totalled 56.2 females and 65.8 males, neither of which was significantly different from the observed frequencies. The Pacific Northwest tribes exhibit much the same distribution, having expected frequencies of 31.8 females and 37.8 males. A comparison of the expected frequencies with the observed counts of 33 and 36, respectively, shows no significant difference between the two (Figure 5.6).

A chi-square analysis of the I-N data set resulted in a value of .134, with an associated probability of .715, clearly above the significance level of .05 (Figure 5.6).

The observed frequencies for the Micmac in the N-I data set totalled 57 daughters and 89 sons out of a total sample of 154. The Pacific Northwest tribes N-I marriages exhibited significantly reduced values of 2 daughters and 6 sons (Figure 5.7).

The expected frequencies follow much the same pattern as in the I-N data set. The Micmac exhibited expected frequencies of 55.9 females and 90.1 males, which is little different from the observed frequencies

	males	females	
PNW			
observed	6	2	8
expected	4.9	3.1	
Micmac			
observed	89	57	146
expected	90.1	55.9	
Total	95	59	154
	38.31	61.69	

$\chi^2 = .633$

$P = .426$

Fisher's Exact (two-tailed) $P = .711$

Figure 5.7 Chi-Square Analysis of
Child Sex Ratios At Birth
For N-I Marriages of the
Micmac and the Pacific
Northwest Tribes

listed above. The Pacific Northwest tribes exhibited expected frequencies of 3.1 females and 4.9 males, counts which are also not significantly different from the observed frequencies (Figure 5.7).

Due to the small sample sizes for the Pacific Northwest tribes, the Fisher's Exact test was used in place of the standard chi-square analysis used in the previous comparisons. Specific values for the Fisher's Exact test are not provided. However, the resulting probability of .711 for a two-tailed test clearly falls below the significance level of .05 (Figure 5.7).

Data for the N-N marriages yielded observed frequencies of 72 daughters and 78 sons for the Micmac and 2 daughters and 1 son for the Pacific Northwest tribes. The grand total of the sample was 153 (Figure 5.8).

Expected frequencies for Micmac N-N marriages totalled 72.5 daughters and 77.5 sons. Expected frequencies for the Pacific Northwest tribes totalled 1.5 females and 1.5 males. Neither the Micmac nor the Pacific Northwest tribes exhibit expected frequencies significantly different from the observed (Figure 5.8).

	males	females	
PNW			
observed	1	2	3
expected	1.5	1.5	
Micmac			
observed	78	72	150
expected	77.5	72.5	
Total	79	74	153
$\chi^2 = .410$	$P = .522$		
Fisher's Exact (two-tailed) $P = .610$			

Figure 5.8 Chi-Square Analysis of Child
Sex Ratio At Birth for N-N
Marriages Among the Micmac and
The Pacific Northwest Tribes

As in the N-I data set, some cell values were extremely low. Therefore, a two-tailed Fisher's Exact test was used. The associated probability totalled .610, a figure well below the significance level of .05 (Figure 5.8).

A summary table of the chi-square and Fisher's Exact tests discussed above is provided in Figure 5.9.

In summary, the only data set regarding child sex ratios at birth that meets the significance level of .05 was the I-I marriages for both tribal groups, with sons predominating among the Micmac and just the reverse for the Pacific Northwest tribes. In this case, certain factors are obviously affecting the child sex ratio beyond random variability. One possible explanation could be a bias in reporting. Another factor which should be considered is the lack of information for the surveyed males with regard to their offspring. However, it would be unusual for both samples in the I-I set to be the only ones affected. Therefore, other possible factors need to be considered. As stated earlier, a discussion of these factors will follow in a subsequent section of this

	Chi-square	Probability
I-I	9.762	.002
I-N	.134	.715
N-I	----	.711
N-N	----	.610

Figure 5.9 Summary Table of the Chi-Square
Sex Ratios At Birth

chapter.

Child Sex Ratio After Birth

The combined total sample size for the I-I data set was 859 children. Compared to the sample size of 1312 at birth, it is clear that a high rate of mortality is present in both tribal groups (Figure 5.10).

The Micmac sample contained 124 daughters and 187 sons, while the Pacific Northwest tribes contained 283 daughters and 266 sons. These figures show that child mortality rates overall were much higher among the Pacific Northwest tribes than among the Micmac (Figure 5.10). This finding was surprising, given the fact that the Pacific Northwest tribes would appear to have been in a better economic position than the Micmac. If this is indeed the case, one would expect the Pacific Northwest tribes to exhibit less child mortality overall than the Micmac. However, the introduction of new diseases into a virgin soil population, such as the Pacific Northwest tribes during the late nineteenth century, could account for the elevated rate of mortality evident in the data.

	Born	Alive	Deaths
males	257	187	70
	(.571)		
females	193	123	70
	(.429)		
total	450		140

	observed	expected
males	70	79.94
females	70	60.06

$\chi^2=2.88$ $P>.05$

Figure 5.10 Chi-Square Analysis of Child
Mortality Rates In I-I Mar-
riages Among the Micmac

The survivorship values above were subtracted from the birth figures discussed previously to obtain differential mortality rates. The resulting data were then submitted to a chi-square analysis with the significance level set at .05.

The Micmac exhibited mortality rates of 70 daughters and 70 sons. Expected values were 60.06 females and 79.94 males. Analysis yielded a chi-square value of 2.88 with a P value of less than .05. A comparison of the observed and expected frequencies show that the Micmac should exhibit a lesser rate of female mortality, while males should exhibit a greater rate. However, the values obtained did not meet the significance level (Figure 5.10).

An analysis of the Pacific Northwest tribes yielded mortality counts of 165 daughters and 148 sons. Expected frequencies totalled 162.45 females and 150.24 males. A chi-square test yielded a chi-square value of .073 ($P > .05$). Clearly, this distribution could have been obtained by chance (Figure 5.11).

Observed mortality frequencies in the I-N classification included 21 daughters and 22 sons among

	Born	Alive	Dead
males	414	266	148
	(.480)		
females	448	283	165
	(.519)		
total	862		313

	observed	expected
males	148	150.24
females	165	162.45

$$\chi^2 = .073$$

$$P > .05$$

Figure 5.11 Chi-Square Analysis of Child
Mortality Rates Among Pacific
Northwest I-I Marriages

the Micmac, and 5 daughters and 4 sons among the Pacific Northwest tribes (out of a total sample size of 139). Expected frequencies were 19.39 and 23.60 for the Micmac and 4.30 and 4.69 for the Pacific Northwest tribes. The expected frequencies for both tribes were not significantly different from the observed frequencies (Figure 5.12, 5.13).

A chi-square analysis resulted in a chi-square product of .026 for the Micmac and .216 for the Pacific Northwest tribes, both having a P Value greater than .05. (Figure 5.12, 5.13).

The total sample size for the N-I data set was 112. Of this sample, Micmac observed mortality rates contained 14 daughters and 28 sons. The Pacific Northwest tribes did not exhibit any child mortality. Analysis showed that expected frequencies for the Micmac did not vary significantly from the observed, totalling 16.38 and 25.58, respectively (Figure 5.14).

Since the Pacific Northwest tribes did not exhibit child mortality in this grouping, a chi-square analysis was not undertaken. However, survivorship

	Born	Alive	Dead
males	67	45	22
	(.549)		
females	55	34	21
	(.451)		
total	122		43

	observed	expected
males	22	23.60
females	21	19.39

$$\chi^2 = .026$$

$$P > .05$$

Figure 5.12 Chi-Square Analysis of Child
Mortality Rates Among the
Micmac I-N Marriages

	Born	Alive	Dead
males	36	32	4
	(.522)		
females	33	28	5
	(.478)		
total	69		9

	observed	expected
males	4	4.69
females	5	4.30

$$\chi^2 = .016$$

$$P > .05$$

Figure 5.13 Chi-Square Analysis of Child
Mortality Rates Among the Pacific
Northwest I-N Marriages

	Born	Alive	Dead
males	89	61	28
	(.609)		
females	57	43	14
	(.309)		
total	146		42

	observed	expected
males	28	25.58
females	14	16.38

$$x^2 = .575$$

$$P > .05$$

Figure 5.14 Chi-Square Analysis of Child
Mortality Rates Among the Micmac
N-I Marriages

figures are provided in the text.

The N-N data set had a total sample size of 117. The Micmac mortality count included 19 daughters and 17 sons. Expected frequencies were not significantly different, at 17.28 and 18.72, respectively. As child mortality did not occur in the Pacific Northwest tribes, a similar analysis was not undertaken (Figure 5.15).

A chi-square analysis of the Micmac mortality data yielded a value of .329 ($P > .05$). Once again, the analysis failed to meet the established significance level (Figure 5.15).

Chi-square tests on child mortality data failed to meet the significance level of .05 in all cases. However, based on the child sex ratios at birth, both the Micmac and the Pacific Northwest tribes exhibit slightly enhanced mortality in the expected gender. For example, in the Micmac I-I marriages, 70 females died while the expected mortality rate was 60.06. This may suggest a female bias in death rates, even though the analysis failed to meet the

	Born	Alive	Dead
males	78	61	17
	(.52)		
females	72	53	19
	(.48)		
total	150		36

	observed	expected
males	17	18.72
females	19	17.28

$\chi^2 = .329$ $P > .05$

Figure 5.15 Chi-Square Analysis of Child
Mortality Rates Among the Micmac
N-N Marriages

significance criterion. Furthermore, analysis of other data sets showed very little difference between the observed and expected mortality figures. This being the case, the I-I marriages, especially for the Micmac, may be the only affected category with regard to gender-bias. However, given the results of the chi-square analyses above, the results are inconclusive.

Differential Child Sex Ratios in the Pacific Northwest

As stated earlier, a number of different tribes are represented in the Pacific Northwest data set. These tribal groups range from the Coastal areas of the Pacific to the Interior. The Coastal groups, here including the Coast Salish, Tsimshian and the Kwakiutl, have highly structured social and class systems. In contrast, the Interior groups, notably the Shushwap, Thompson, and the Okanagan, are much simpler, more egalitarian societies. These differential social systems could affect the child sex ratios of the tribes.

The first test contrasted the Coastal groups with the Interior groups. Observed frequencies

	males	females	
Coast			
Observed	168	181	349
Expected	172	177	
Interior			
Observed	137	134	271
Expected	133	138	
Total	305	315	620

$$\chi^2 = .52$$

$$P > .05$$

Figure 5.16 Chi-Square Analysis of Child
Sex Ratio of the Pacific North-
west: Coast vs. Interior

	males	females	
Tsimshain			
observed	43	54	97
expected	48	49	
Other			
observed	262	261	523
expected	247	265	
total	305	315	
	$\chi^2=2$	P>.05	

Figure 5.17 Chi-Square Analysis of Child
Sex Ratios of the Pacific North-
west: Tsimshian vs. Other

totalled 168 sons and 181 daughters for the Coastal peoples and 137 sons and 134 daughters for the Interior groups. Expected frequencies were 172, 177, 133, and 138, respectively (Figure 5.16).

A chi-square analysis yielded a value of .52 ($P > .05$). Clearly, this test does not meet the predetermined significance level (Figure 5.16).

The Tsimshian sample was then removed from the other Coastal tribes. The remaining Coastal groups were recombined with those from the Interior to determine if descent pattern could affect gender-biasing in the child sex ratio. Analysis of the data showed that matrilineal descent did not affect the child sex ratio (Figure 5.17).

Analysis of Mode of Life

As stated in the preceding chapter, mode of life will be considered as a possible determinant of socioeconomic status. Data of this type are available on the original sheets collected among the Micmac. Unfortunately, however, comparable information is not available for the Pacific Northwest tribes. This being the case, ethnographic and historical data will be

utilized to reconstruct the general economic patterns for the Northwest.

From the frequency table (Figure 5.18) provided for the Micmac, it is clear that both males and females contributed importantly to the economic systems of the tribe. Historically, the Micmac had engaged in a variety of occupations centered around the fur trade and the fishery industries, as had the Pacific Northwest tribes. However, the data show that traditional occupations were beginning to give way to others imposed upon the Micmac. For example, a large number of males were engaged in farming, although traditional occupations were still fairly common in the tribe. Aside from farming, very few engaged in occupations traditionally dominated by Euroamericans. In descending order of frequency, these include carpentry/lumbering, boat building, firefighting, and shopkeeping. Similar occupational distributions can be found in other highly admixed tribes, such as the Osage (Swan and Campbell 1989).

Females also engaged in activities outside the domestic realm, although the largest number remained in the home. Those employed outside the home

	males	females
farming	78	0
In School	37	9
hunt/fish	30	24
Gen. Labor	25	0
basketmaking	20	44
carpentry	6	0
farm/fish	5	0
boatbuilding	4	0
storekeeping	1	0
housework	0	57
In School	37	9
Total	207	134

Figure 5.18 Frequency Table for Mode
of Life Among the Micmac

engaged in basket-making and hunting/fishing. The latter category is surprising given the Micmac's traditional separation of labor by sex (Figure 5.18).

In summary, Micmac society was characterized by a combination of European and traditional economic pursuits. Furthermore, the Micmac were deeply embedded in a monetary economy. Consequently, as in the Tiv of Nigeria (Bohannan 1959), the Micmac could have been in a precarious situation with regard to subsistence. In addition, White perceptions of the Micmac would have tended to view them as inferior. Moreover, most Micmac were likely to be of low socioeconomic level. Both ethnographic and historical data tend to support the latter conclusion (Wallis and Wallis 1955; Kehoe 1981; Baker 1989; Debo 1989). This being the case, the Micmac, according to Trivers (1972) and Trivers and Willard (1973), should favor female offspring at the expense of male offspring. However, analysis of the data on child sex ratios shows this was not the case.

The Pacific Northwest tribes engaged in several economic enterprises. As stated previously, the Kwakiutl, Tsimshian, and the Salish viewed the

the Kwakiutl, Tsimshian, and the Salish viewed the incoming White settlers as a new market for their products. Many tribal members were hired as loggers, factory workers, and transportation personnel. For example, the Tsimshian were heavily engaged in the freighting business, hauling furs from the interior to the coastal areas for shipping. According to McDonald (1984), the Tsimshian drove the price of freighting from approximately \$5 a ton in 1871 to \$60 a ton by 1890. In addition, Tsimshian males were found in numerous occupations, such as fishing, cannery work, logging, mill work, railroad construction, and longshoring, just to name a few. Also, women dominated the packing industry (McDonald 1984). In short, the Pacific Northwest tribes would appear to have been in a better economic position than were the Micmac. However, these tribes were still economically subordinate to non-Indians.

In summary, investigation into the modes of life among the Micmac and the Pacific Northwest tribes shows both to be in subordinate economic and social positions compared to Whites. However, the Northwest

peoples would appear to have had a better economic position than that enjoyed by the Micmac. Therefore, between the two, one would expect a greater number of males in the Pacific Northwest region, which is not the case.

Discussion

From the data presented above, it would appear that the Micmac fail to support the Trivers-Willard hypothesis. Results for the Pacific Northwest tribes, however, are consistent with this hypothesis. As stated in the introduction, several factors may account for these anomalous results.

The first possibility which should be considered is biased reporting during the initial data collection. More specifically, for a variety of reasons, some individuals may have chosen not to report certain offspring. Possible factors in non-reporting could range from purposeful infanticide (c.f. Balikci 1970; Langer 1972; Lizot 1977) and benign or selective neglect (c.f. Shorter 1977; Scrimshaw 1978; Nations and Rebhun 1988) to natural mortality among individuals too

young to be considered full tribal members (c.f. Scheper-Hughes 1989).

Purposeful infanticide is practiced in many cultures throughout the world. A large number of these societies (e.g. Netsilik Eskimo, Yanamamo, Chinese, etc.), favor male offspring. Conversely, female offspring are often the victims of infanticide, in addition to natural mortality due to disease and/or neglect, which skews the sex ratio of the population in favor of male offspring (Balikci 1970; Lizot 1977).

Selective neglect, i.e. the purposeful favoring of one sex over another, is closely linked to infanticide. However, all instances of neglect are not purposeful. For example, Cronk (1989a) states that female offspring are favored among the Mukogodo, at the expense of male offspring. More specifically, female offspring are the recipients of enhanced medical care, food supplies, and other basic necessities. Male offspring, although not actively neglected, do not receive equal parental investment when compared to their female counterparts. Consequently, male offspring mortality is significantly higher than that for females.

Instances of benign neglect, such as that illustrated in the example above, could be linked to the non-reporting of very young victims of natural mortality, if a certain threshold age must be reached before the individual is considered a full tribal member. For example, in Brazil, young children are often buried without a name or baptism. To many, these children were meant to be "angels" and were never part of the natural world. Consequently, these children are not considered when the number of offspring in a population is determined (Scheper-Hughes 1989).

Could any or all of these factors have affected the child sex ratios of the Micmac and the Pacific Northwest tribes? Ethnographic data provide only partial evidence that these factors may have been involved.

Children are and were extremely important to the Micmac. Soon after birth, the infant is given a name and is considered to be a full tribal member. Therefore, purposeful infanticide is rare. However, while all children are important in the tribe, male children are especially cherished by their parents,

possibly due to the patrilineal descent of the tribe (Wallis and Wallis 1955; Kehoe 1981). Another possible factor was the predominance of the fur trade in the Micmac economy, which was conducted almost exclusively by males (Bishop 1986; Morantz 1986; Nash and Miller 1987; Baker 1989). Regardless of the primary reason behind the importance of male offspring, every aspect of their development was marked by ceremony, from the first step to the killing of a moose (marking the transition to manhood). Similar ceremonies were not conducted for female offspring (Wallis and Wallis 1955; Kehoe 1981).

Purposeful infanticide and selective neglect, leading to mortality among the very young may have affected the child sex ratio among the Micmac, although this cannot be substantiated. Benign neglect of females could also have been a factor in the skewed mortality rates. This may have favored a male supremacy complex, as defined by Divale and Harris (1976). According to Divale and Harris, female offspring may be neglected, while male offspring are eliminated later in life through warfare. In this way, a certain number of female and male offspring are

eliminated from the population, thereby controlling population growth in small, economically unstable societies. However, due to the early induction of the infant into tribal society, the non-reporting of deaths among either sex would appear to be unlikely.

As among the Micmac, children of both sexes are extremely important to the Pacific Northwest tribes. Four days after birth, the infant is given a name and becomes a full tribal member. Generally, the only children destroyed were deformed or illegitimate, both being conditions unacceptable to these tribal groups. Even in these cases, the infant was destroyed directly after birth (Ford 1941; Boas 1966; Spradley 1969; Kehoe 1981). The destruction of deformed or illegitimate children may not have been reported, however. This, in turn, could have skewed the sex ratio during data collection.

Unlike the Micmac, offspring in many Pacific Northwest tribes were not ranked by sex, but by birth order. In some societies, such as the Kwakiutl, that have bilateral social organization, a patrilineal bias in wealth distribution still existed. For example,

tribal positions were inherited through the patrilineal line. Inheritance from the mother was possible, but was associated with a loss of status. Furthermore, according to Averikena (1981), material wealth was transmitted through the female line to the son-in-law; the tribal status attached depending on the placement of the female in the birth order (Sapir 1915; Boas 1920; 1966; Spradley 1969; Averikena 1981; Kehoe 1981).

The analysis of differential child sex ratios among the Kwakiutl and the Coast Salish showed a fairly equal sex ratio. Based on the bilateral descent of the tribe, a relatively equal sex ratio would be expected (Figure 5.16).

The Tsimshian are characterized by a matrilineal descent pattern, within a highly organized society. Analysis of the data showed that the Tsimshian possibly exhibit a slight female bias in their child sex ratio, but the differences were not statistically significant (Figure 5.16).

Some Salish groups live along the coastal area and are extremely similar to such tribes as the Kwakiutl. However, there are some Salish groups which live in the Interior in simple, egalitarian societies.

Although the data were inconclusive, a slight female bias in the child sex ratio may exist for the Interior groups. If this is indeed the case, this would suggest that these interior groups favored females due to their ability to marry up in the socioeconomic hierarchy. For example, a Shushwap female would be more likely to marry a Tsimshian or White male than a Shushwap male would be to marry a Tsimshian or White female. However, a cursory glance at the data for these Interior groups shows that, with very few exceptions, the Shushwaps, Thompsons, and Okanagans marry within their tribe.

Both sexes were also important within the economic structure of the Pacific Northwest tribes. The economy of these tribes centered around the salmon industry. Both males and females participated, with males involved in the collection and transport of the fish, while a large number of females were employed in the canneries (Boxberger 1988).

Ethnographic evidence suggests that purposeful infanticide and selective neglect most likely played only a minimal role in the gender-biased

child sex ratios exhibited for the Pacific Northwest tribes, However, some young offspring may have been selectively neglected, due to their position in the birth order. Benign neglect may have also been a factor for much the same reason.

In summary, ethnographic materials for the Micmac and the Pacific Northwest tribes suggest the possibility of benign, and in some cases, selective neglect of offspring of I-I marriages. As stated earlier, the gender-biased child sex ratio favoring female offspring for the Pacific Northwest provides support for the Trivers-Willard hypothesis. In this case, low socioeconomic and/or ethnic minority status may have resulted in the selective or benign neglect of male offspring. However, the Micmac (with a male biased sex ratio) do not follow this pattern, even though outward appearances would suggest they meet the socioeconomic criteria set forth by Trivers (1972) and Trivers and Willard (1973) much better than do the the Pacific Northwest tribes. Discussed below are several factors pertaining to the Micmac which may account for the failure of the Trivers-Willard hypothesis when applied to this group.

The Micmac, despite outward appearances, may not have satisfied the criteria for the Trivers-Willard hypothesis. Possibly, the Micmac were not considered ethnic minorities or of low socioeconomic status.

In view of the prevailing attitudes in the late nineteenth century among Euroamericans, it is unlikely the Micmac would have been considered socioeconomic "equals." Beginning in the fifteenth and sixteenth centuries, Euroamerican populations had regarded Native American cultures as simplistic and inferior. Those who practiced such lifeways were savages or children who needed guidance into civilization (Martin 1978; Upton 1979; Olson and Wilson 1984; Bourque 1985; Battiste 1987; Bradley 1987; Matisjasic 1987; Smits 1987; Snow and Lamphear 1988; Becker 1989; Debo 1989; Dobyns 1989). Clearly, this general perception would have led to the identification of the Micmac as ethnic minorities, but is this factor important in light of relative socioeconomic status?

While most Native American groups were confined to reservations and there subsisted in abject poverty, a few managed to retain control of the

economic resources of their homeland. For example, Bishop (1986) states that during the post-contact period, the eastern Algonquins subdivided their territory into family hunting areas. By so doing, these groups gained a monopoly over the economic resources in the area (e.g. furs, fishing) which, in turn, provided increased economic and political opportunities. Similar interpretations can be found in Morantz (1987) and Nash and Miller (1987). Based on these observations, one could postulate that the Micmac retained the economic resources of their native area and, therefore, were not of low socioeconomic status. However, ethnographic evidence for the Micmac does not support this claim (Wallis and Wallis 1955; Upton 1979). In cases where economic independence was retained for a considerable period of time, as among the Kwakiutl (Boas 1966), a female-biased sex ratio was observed.

From the brief discussion above, it appears that ethnic minority status alone can not explain the presence of a male-biased sex ratio among Micmac I-I marriages. Therefore, other factors need to be considered. One such factor might be that the Micmac

were more acculturated than the Pacific Northwest tribes.

As stated earlier, the Micmac had been in contact with European cultures since the seventeenth century. In time, many European traits were adopted by the Micmac through a variety of mediums. Various modes of incorporation included enforced cooperation, political and economic coercion, and other less forceful means, such as intermarriage (Wallis and Wallis 1955; Upton 1979; Kehoe 1981). In addition to the outward adoption of European traits - such as Catholicism, farming, and western dress - many social ideals may have been adopted into Micmac culture as well. One such notion could have been a "preference" for male offspring, although it should be noted that Divale and Harris' male supremacy complex could also lead to this preference.

European and American history show that western society has always been male dominated. Consequently, male offspring received the bulk of available resources, while female offspring were typically ignored, even neglected. During the period

of European expansion, the vast differences between male and female were deeply rooted in the social structure of non-Indian America (Wolf 1982). Constant contact and pressure from the Whites could have led to an increased preference for male offspring among the Micmac.

Another possible avenue favoring the development of an increased preference for males was the extensive intermarriage between Micmac and Whites. A cursory glance at the data (Appendix B) shows that the Micmac and Whites were extremely intermixed. The preference for male offspring exhibited by these White mates may have caused a shift in Micmac perceptions as well. Similar interpretations have been postulated for the Osage by Swan and Campbell (1989) and by Unrau (1989).

One other possible avenue leading to the development for son preference could lie in Divale and Harris' (1976) male supremacy complex. In the pre-contact period, resources were relatively abundant. However, with the adoption of Euroamerican occupations, resources, such as land and food stuffs, became increasingly scarce. Therefore, an increased need to

control population growth may have developed. Males were generally killed in warfare or in hunting and fishing accidents, which would leave a surplus of females in the population. Consequently, female offspring may have been selectively neglected to stabilize the population ratio and, thereby, provide for population control.

In summary, it is clear that the Micmac do not support the Trivers-Willard hypothesis, even though the criteria as set forth by Trivers (1972) and Trivers and Willard (1973) would seem to apply. Other factors are clearly involved. However, it is impossible at this point to determine exactly what those factors may be. On the other hand, the Pacific Northwest tribes exhibit a female biased sex ratio at birth but do not appear to satisfy the criteria of the Trivers-Willard hypothesis. Additional studies should be conducted using current societies to test the Trivers-Willard hypothesis. In cases where the data do not support the hypothesis, additional cultural factors, such as level of acculturation and extent of intermarriage with outside societies, need to be examined. Biological

factors, such as maternal age, mother-fetus incompatibility, and exposure to infectious disease in the parental generation, should also be considered.

Chapter 6

Conclusion

A brief review of this thesis shows that only partial support surfaces for the Trivers-Willard hypothesis. The Micmac data led to a rejection of the hypothesis due to a male bias in the child sex ratio, even though the Micmac were of low socioeconomic and ethnic minority status. However, the Pacific Northwest tribes, which exhibited a female-biased sex ratio, led to an acceptance of the hypothesis.

It should be noted that overall male and female reproductive success and parental investment strategies, measured by factors other than differential sex ratios, could not be investigated with the data available. Therefore, the reliability of the Trivers-Willard hypothesis could not be determined, given the nature of the data at hand.

As stated previously, if these tribal groups were of low socioeconomic status all should exhibit a female-biased sex ratio. However, this is obviously

not the case. Therefore, certain factors must override the effects of socioeconomic status and ethnicity skewing child sex ratios.

Biological factors which skew the sex ratio at birth could be involved. However, when using a previously collected data set, as in this thesis, it is impossible to determine if biological factors (maternal age at parity, Rh incompatibility, etc.) are skewing the sex ratio at birth, or if there is simply a bias in reporting, which could seriously jeopardize the accuracy of the survivorship figures drawn from the data sets. In the case of the sex ratios at birth, one can only say a bias exists in the data; the reasons being unclear.

With regard to the sex ratios after birth, there is a possibility that cultural factors did indeed produce a gender bias. The data showed higher mortality rates along gender lines for each tribe. The Micmac exhibited female-biased mortality, while the Pacific Northwest tribes showed a male bias, although the analyses of the mortality rates failed to meet the .05 significance level. However, as stated earlier, the survival and mortality figures may not be totally

accurate. Furthermore, other conditions which may effect infant and early childhood mortality are not available. Consequently, one can only say that, given the nature of the data and its limitations, the Pacific Northwest tribes could lend support for the Trivers-Willard hypothesis; while the Micmac do not.

I would argue that the Micmac's level of acculturation and intermarriage with non-Indians could seriously affect the applicability of the Trivers-Willard hypothesis. Among the Micmac, a high level of acculturation and intermarriage between Indian and White had taken place by 1891. Contact and interrelationships between the Micmac and western society could have caused the adoption of a preference for male offspring. In short, the incorporation of western ideals could have overridden the effects of low socioeconomic or ethnic status. The Pacific Northwest tribes, which exhibited the expected female bias in the child sex ratio, did not show the level of acculturation or the rate of intermarriage with Whites that the Micmacs did. At the least, one can assume that the Trivers-Willard hypothesis explains gender-biased sex ratios among low socioeconomic minority

groups, in the absence of overriding factors such as level of acculturation or high rates of intermarriage.

An alternative hypothesis which should also be considered is Divale and Harris' (1976) male supremacy complex. If females were traditionally neglected and males were lost in large numbers due to warfare, this complex would have served as a population controlling mechanism. As warfare decreased and the loss of males was slowed, a male bias in the sex ratio would become increasingly apparent.

Additional factors could also be involved in the falsifiability of the Trivers-Willard hypothesis, but ones not identifiable with the type of data available for this thesis. Research in contemporary societies is necessary to follow this line of questioning.

As noted previously, the data used for this thesis have many limitations. Additional information which would have been useful in the assessment of the Trivers-Willard hypothesis include outside measures of gender-biased parental investment strategies, such as clinic visits and feeding practices. Family information, such as age at marriage, number of

marriages, and age at death for offspring would have been helpful. Another factor which would have helped in this analysis is the number of male and female offspring for each sampled male. More precise measures of socioeconomic status and level of acculturation would have also enhanced this study. Unfortunately, historical data, such as tribal rolls, census distributions, and courthouse records were not available. Without these and other types of information, it is impossible to say with certainty that the survivorship and mortality rates seen in the Boas data are accurate representations of differential parental investment strategies.

In summary, it is clear from the results of this analysis, as well as the literature review provided in Chapter 2, that the Trivers-Willard hypothesis cannot be used to explain gender biased sex ratios in all societies of low socioeconomic or ethnic minority status. A variety of factors ranging from religious affiliation to intermarriage with outside societies can override the effects of socioeconomic status or ethnic affiliation on biased sex ratios.

Additional research in contemporary societies is necessary in order to isolate these factors and determine the extent of their effects on what Trivers and Willard predicted. Until these projects are conducted, the relative value of the Trivers-Willard hypothesis cannot be determined with certainty. In the meanwhile, it would be advisable to question the validity of this hypothesis and to consider alternative interpretations of the data at hand.

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Correspondence

Jantz, R. L.

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1983b Letter to D. H. Thomas April 15

1983c Letter to D. H. Thomas November 8

1984 Letter to B. Kaye January 23.

Kaye, B.

1984 Letter to R. L. Jantz January 17

Thomas, D. H.

1983a Letter to R. L. Jantz April 7

1983b Letter to R. L. Jantz October 10

1983c Letter to R. L. Jantz November 16

Appendices

Appendix A

List of Data Collectors 1891-93

1891-

F. Boas - Clark University, Worcester,
Mass.

T. L. Bolton - Clark University,
Worcester, Mass.

T. P. Hall - Clark University,
Worcester, Mass.

M. Fiddle - Harvard University,
Cambridge, Mass.

G. M. West - Clark University,
Worcester, Mass.

Rev. E. T. Wilson - Sault Ste.
Marie, Ontario

1892-93

H. Z. Batchelder - Leland Stanford Jr.
University, Palo Alto,
Cal.

F. S. Bateman - Harvard Medical School,
Boston, Mass.

R. Baxter - Bowdoin College, Brunswick,
Me.

C. L. Biendenbach - University of
California, Berkeley

A. F. Brown - Leland Stanford Jr.
University, Palo Alto,
Cal.

E. N. Brown - Clark University,
Worcester, Mass.

R. J. Buchanan - Leland Stanford Jr.
University, Palo Alto,
Cal.

A. F. Chamberlain - Clark University,
Worcester, Mass.

V. K. Clement - University of
California, Berkeley

F. W. Cooke - Harvard University,
Cambridge, Mass.

* I. Cowie - Edmonton N. W. Canada

A. W. Fairbanks - Harvard Medical
School, Boston, Mass.

S. K. Fenollosa - Harvard University,
Cambridge, Mass.

W. W. Greene - Leland Stanford Jr.
University, Palo Alto,
Cal.

W. A. Hamilton - Harvard University,
Cambridge, Mass.

C. A. Helvine - University of Nebraska,
Lincoln

Rev. J. Ervine - Garden River, Ontario

* Rev. Sheldon Jack - Washington, British
Columbia

W. Matthews - Fort Wingate, N. M. in
charge of N. M. projects

C. Lyman Hodgkins - Harvard Medical
School, Boston, Mass.

G. A. Kanen - Harvard University,
Cambridge, Mass.

F. C. Kenyon - University of Nebraska,
Lincoln

A. K. Lawrence - Leland Stanford Jr.
University, Palo Alto,
Cal.

G. A. Lawrence - Leland Stanford Jr.
University, Palo Alto,
Cal.

F. Lengfield - University of California,
Berkeley

A. McDonald - Sydney, N. S.

Dr. McVay - U. S. A. Fort Wingate, N. M.

* D. S. Montcrieff - Portland, Oregon

H. B. Montague - Harvard University,
Cambridge, Mass.

G. W. Moorehouse - University of
Wisconsin, Madison

E. O'Neill - University of California,
Berkeley

A. Cuimby - Bowdoin College, Brunswick,
Me.

H. W. Ruoff - Harvard University,
Cambridge, Mass.

W. A. Shaw - Leland Stanford Jr.

University, Palo Alto,
Cal.

G. W. Schurtleff - Harvard Medical

School, Boston, Mass.

M. C. Smith - Harvard Medical School,

Boston, Mass.

F. Starr - University of Chicago,

Chicago, Ill.

A. J. Street - University of California,

Berkeley

Dr. Shunthser - Idaho

A. Tisdale - Harvard University,

Cambridge, Mass.

Lt. Wales - U. S. A.

J. D. Wellingford - Leland Stanford Jr.

University, Palo Alto,
Cal.

* D. H. Watt - Victoria, British Columbia

P. R. Waughop - Harvard Medical School,

Boston, Mass.

G. M. West - Clark University,

Worcester, Mass.

* A. Wilgus - Yakima Agency, Washington

W. N. Wilson - Harvard University,

Cambridge, Mass.

(Boas unpublished manuscript)

Appendix B

Form #	Sex	Age	Purity	Father's Tribe	Mother's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
4040047	M	58	Full	Micmac	Micmac	0	0	0	0
4040048	M	16	Full	Micmac	Micmac	0	0	0	0
4040049	F	53	Full	Micmac	Micmac	1	5	0	6
4040062	M	09	Full	Micmac	Micmac	0	0	0	0
4040065	F	46	Full	Micmac	Micmac	2	0	0	5
4040066	M	24	Full	Micmac	Micmac	0	0	0	0
4040068	M	30	Full	Micmac	Micmac	0	0	0	0
4040070	M	56	Full	Micmac	Micmac	0	0	0	0
4040071	M	42	Full	Micmac	Micmac	0	0	0	0
4040072	F	11	Full	Micmac	Micmac	0	0	0	0
4040073	F	09	Full	Micmac	Micmac	0	0	0	0
4040074	F	07	Full	Micmac	Micmac	0	0	0	0
4040075	M	33	Full	Micmac	Micmac	0	0	0	0
4040076	F	08	Full	Micmac	Micmac	0	0	0	0
4040081	M	78	Full	Micmac	Micmac	0	0	0	0
4040082	M	08	Full	Micmac	Micmac	0	0	0	0
4040083	F	40	Full	Micmac	Micmac	1	4	1	4
4040084	F	06	Full	Micmac	Micmac	0	0	0	0
4040085	F	22	Full	Micmac	Micmac	3	1	1	0
4040096	M	48	Full	Micmac	Micmac	0	0	0	0

Micmac-2

Form #	Sex	Age	Purity	Father's Tribe	Mother's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
4040100	M	03	Full	Micmac	Micmac	0	0	0	0
4040107	F	41	Full	Micmac	Micmac	3	4	3	2
4040109	F	65	Full	Micmac	Micmac	0	0	1	0
4040111	F	19	Full	Micmac	Micmac	0	0	0	0
4040113	M	06	Full	Micmac	Micmac	0	0	0	0
4040114	M	14	Full	Micmac	Micmac	0	0	0	0
4040117	F	29	Full	Micmac	Micmac	3	4	0	4
4040118	M	02	Full	Micmac	Micmac	0	0	0	0
4040122	F	18	Full	Micmac	Micmac	0	0	0	0
4040143	F	44	Full	Micmac	Micmac	4	0	1	4
4040150	F	12	Full	Micmac	Micmac	0	0	0	0
4040172	M	70	Full	Micmac	Micmac	0	0	0	0
4040175	M	33	Full	Micmac	Micmac	0	0	0	0
4040176	M	19	Full	Micmac	Micmac	0	0	0	0
4040178	F	37	Full	Micmac	Micmac	3	4	2	0
4040179	F	22	Full	Micmac	Micmac	0	0	0	0
4040180	M	04	Full	Micmac	Micmac	0	0	0	0
4040181	F	08	Full	Micmac	Micmac	0	0	0	0
4040182	F	11	Full	Micmac	Micmac	0	0	0	0
4040203	M	24	Full	Micmac	Micmac	0	0	0	0

Hicmac-3

Form #	Sex	Age	Purity	Father's Tribe	Mother's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
4050050	F	45	$\frac{1}{2}$	Hicmac	Scotch	2	2	1	1
4050052	M	47	Full	Ameleate	$\frac{1}{2}$ Ameleate/ $\frac{1}{2}$ Hicmac	0	0	0	0
4050053	F	44	Full	Ameleate	Hicmac	0	0	0	0
4050059	M	84	$\frac{1}{2}$	Hicmac	Scotch	0	0	0	0
4050060	M	49	$\frac{1}{2}$	Hicmac/Scotch	Hicmac/Scotch	0	0	0	0
4050061	M	15	$\frac{1}{2}$	Hicmac/Irish	Hicmac/Scotch	0	0	0	0
4050063	M	09	$\frac{1}{2}$	French	Hicmac	0	0	0	0
4050064	F	09	$\frac{1}{2}$	Hicmac	French	0	0	0	0
4050067	M	23	$\frac{1}{2}$	Hicmac	Irish	0	0	0	0
4050069	F	12	$\frac{1}{2}$	French	Hicmac/English	0	0	0	0
4050077	M	45	$\frac{1}{2}$	Hicmac	Hicmac/French	0	0	0	0
4050078	F	35	$\frac{1}{2}$	Hicmac/English	Hicmac	0	3	3	1
4050079	F	16	$\frac{1}{2}$	Hicmac/Scotch	Hicmac	0	0	0	0
4050080	F	05	$\frac{1}{2}$	Hicmac/English	Hicmac	0	0	0	0
4050086	F	05	$\frac{1}{2}$	Hicmac	Hicmac/Scotch	0	0	0	0
4050087	M	04	$\frac{1}{2}$	Hicmac	Hicmac/Scotch	0	0	0	0
4050088	F	67	$\frac{1}{2}$	Hicmac/Scotch	Hicmac/Scotch	0	4	1	5
4050089	F	30	$\frac{1}{2}$	Hicmac	English	2	0	2	1
4050090	M	05	$\frac{1}{2}$	Hicmac/English	Hicmac/Scotch	0	0	0	0
4050091	F	03	$\frac{1}{2}$	Hicmac/English	Hicmac/Scotch	0	0	0	0

Hiemac-4

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
4050092	F	55	1	Hiemac/French	Hiemac/American	2	4	5	1
4050093	F	32	2	French	Hiemac	2	3	1	2
4050094	M	02	1	Hiemac/French	Hiemac	0	0	0	0
4050095	F	09	1	Hiemac/Scotch	Hiemac/English	0	0	0	0
4050097	F	08	1	Hiemac/English	Hiemac/English	0	0	0	0
4050093	F	45	1	Hiemac	Hiemac/English	1	0	2	0
4050099	F	78	1	Hiemac	Hiemac/French	1	4	1	4
4050101	M	78	1	Hiemac	Hiemac/French	0	0	0	0
4050102	F	49	1	Hiemac	Hiemac/French	2	4	0	0
4050103	F	23	1	Hiemac	Hiemac/French	0	1	2	0
4050104	F	0.8	1	Hiemac/French	Hiemac	0	0	0	0
4050105	F	75	Full	Abenakis	Hiemac	3	3	3	5
4050106	M	44	1	Hiemac	Hiemac/Scotch	0	0	0	0
4050108	F	20	1	Hiemac	Hiemac/Scotch	0	0	0	0
4050110	F	20	1	Hiemac	Hiemac/Scotch	0	1	0	0
4050112	F	11	1	Hiemac/English	Hiemac	0	0	0	0
4050115	M	08	1	Hiemac/English	Hiemac	0	0	0	0
4050116	F	35	1	Hiemac/English	Hiemac/English	2	0	2	3
4050119	M	53	1	Hiemac/French	Hiemac	0	0	0	0

Micmac-5

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
4050120	F	38	1	Micmac	English	4	5	0	0
4050121	F	07	1	Micmac	French	0	0	0	0
4050122	M	09	1	Micmac/English	Micmac/French	0	0	0	0
4050123	M	13	1	Micmac/English	Micmac/French	0	0	0	0
4050124	M	44	1	Micmac	Micmac/Scotch	0	0	0	0
4050125	M	23	1	Micmac	Micmac/English	0	0	0	0
4050126	M	75	1	Micmac/French	Micmac	0	0	0	0
4050127	F	16	1	Micmac	Micmac/French	0	0	0	0
4050128	F	15	1	Micmac/French	Micmac/French	0	0	0	0
4050129	F	10	1	Micmac/French	Micmac/French	0	0	0	0
4050130	F	06	1	Micmac/French	Micmac/French	0	0	0	0
4050131	M	14	1	Micmac/French	Micmac/French	0	0	0	0
4050133	M	65	1	Micmac/French	Micmac	0	0	0	0
4050134	F	50	1	Micmac	Micmac/French	3	4	0	2
4050135	F	21	1	Micmac/French	Micmac/French	0	0	0	0
4050136	F	19	1	Micmac/French	Micmac	0	0	0	0
4050137	F	12	1	Micmac/Scotch	Micmac/Scotch	0	0	0	0
4050138	F	14	1	Micmac/Scotch	Micmac/English	0	0	0	0
4050139	F	04	1	Micmac/Scotch	Micmac/English	0	0	0	0
4050140	F	09	1	Micmac/Scotch	Micmac/English	0	0	0	0

Micmac-6									
Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
4050141	M	1 1/2	1	Micmac/Scotch	Micmac/English	0	0	0	0
4050142	F	12	1	Micmac/Scotch	Micmac/English	0	0	0	0
4050143	F	32	1	Micmac/English	Scotch	1	1	5	0
4050144	M	42	1	Micmac/French	Micmac	0	0	0	0
4050145	F	13	1	Micmac/French	Micmac/French	0	0	0	0
4050146	M	67	1	Micmac	Micmac/French	0	0	0	0
4050147	F	53	1	Micmac	Micmac/English	1	3	0	3
4050149	M	67	1	Micmac/French	Micmac/French	0	0	0	0
4050151	M	06	1	Micmac	Micmac/French	0	0	0	0
4050152	M	04	1	Micmac	Micmac/French	0	0	0	0
4050153	F	06	1	Micmac/French	Micmac/French	0	0	0	0
4050154	F	03	1	Micmac/French	Micmac/French	0	0	0	0
4050155	F	17	1	Micmac/French	Micmac/French	0	0	0	0
4050156	M	16	1	Micmac/French	Micmac	0	0	0	0
4050157	F	09	1	Micmac/French	Micmac/French	0	0	0	0
4050158	F	56	1	Micmac	Micmac/French	0	4	4	2
4050159	F	24	1	French	Micmac/English	3	1	1	0
4050160	M	07	1	Mic/French/English	Micmac/English	0	0	0	0
4050161	F	15	1	Micmac/French	Micmac/French	0	0	0	0

Hiemac-7

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
4050162	M	19	1	Hiemac/French	Hiemac/French	0	0	0	0
4050163	F	28	1	Hiemac	English	3	0	0	1
4050164	M	10	1	Hiemac/French	Hiemac/English	0	0	0	0
4050165	F	07	1	Hiemac/French	Hiemac/English	0	0	0	0
4050166	F	04	1	Hiemac/French	Hiemac/English	0	0	0	0
4050167	F	02	1	Hiemac/French	Hiemac/English	0	0	0	0
4050168	M	37	2	Hiemac/English	Hiemac	0	0	0	0
4050169	M	39	1	Hiemac/French	Hiemac/French	0	0	0	0
4050170	M	25	1	Hiemac/English	Hiemac/English	0	0	0	0
4050171	F	48	1	Hiemac/English	Hiemac/English	0	0	0	0
4050173	M	10	2	Hiemac/French	Hiemac	0	0	0	0
4050174	M	39	2	Hiemac/French	Hiemac	0	0	0	0
4050177	M	48	Full	Amelecote	Hiemac	0	0	0	0
4050219	M	47	1	Hiemac	French	0	0	0	0
5060003	M	50	Full	Hiemac	Hiemac	0	0	0	0
5060004	M	59	2	Hiemac/French	Hiemac	0	0	0	0
5060005	M	52	Full	Hiemac	Hiemac	0	0	0	0
5060006	M	09	Full	Hiemac	Hiemac	0	0	0	0
5060007	M	07	Full	Hiemac	Hiemac	0	0	0	0

17.

Niemic-8

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
5060008	F	24	$\frac{1}{2}$	Niemic/French	Niemic/French	0	0	0	0
5060009	F	03	$\frac{1}{2}$	Niemic/French	Niemic/French	0	0	0	0
5060010	F	20	$\frac{1}{2}$	Niemic/French	Niemic/French	0	0	0	0
5060011	F	44	$\frac{1}{2}$	Niemic/French	Niemic/French	0	0	0	0
5060012	F	29	Full	Niemic	Niemic	1	0	0	5
5060013	F	16	$\frac{1}{2}$	Niemic	Niemic/Hegro	0	0	0	0
5060014	M	09	$\frac{1}{2}$	Niemic/French	Niemic/French	0	0	0	0
5060015	F	16	Full	Niemic	Niemic	0	0	0	0
5060016	F	27	Full	Niemic	Niemic	0	0	0	0
5060017	F	10	Full	Niemic	Niemic	0	0	0	0
5060018	F	13	$\frac{1}{2}$	Niemic/Hegro	Niemic	0	0	0	0
5060019	F	16	$\frac{1}{2}$	Niemic/Hegro	Niemic	0	0	0	0
5060020	F	15	Full	Niemic	Niemic	0	0	0	0
5060021	F	17	Full	Niemic	Niemic	0	0	0	0
5060022	M	57	$\frac{1}{2}$	Niemic/French	Niemic/French	0	0	0	0
5060023	M	20	$\frac{1}{2}$	Niemic/French	Niemic/French	0	0	0	0
5060024	F	48	$\frac{1}{2}$	Niemic	Niemic/French	0	0	0	0
5060025	F	18	$\frac{1}{2}$	Niemic/French	Niemic/French	0	0	0	0
5060026	F	15	$\frac{1}{2}$	Niemic/French	Niemic/French	0	0	0	0
5060027	M	46	$\frac{1}{2}$	Niemic	Niemic/French	0	0	0	0

Micmac-9										
Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead	
5060028	M	19	$\frac{1}{2}$	Micmac	Micmac/French	0	0	0	0	
5060029	M	13	$\frac{1}{2}$	Micmac	Micmac/Negro	0	0	0	0	
5060030	M	11	$\frac{1}{2}$	Micmac	Micmac/Negro	0	0	0	0	
5060031	F	52	Full	Micmac	Micmac	0	0	0	0	
5060032	M	66	Full	Micmac	Micmac	0	0	0	0	
5060033	M	29	$\frac{1}{2}$	English	Micmac	0	0	0	0	
5060034	F	47	Full	Micmac	Micmac	0	4	4	0	
5060035	F	24	$\frac{1}{2}$	Irish	Micmac	0	1	0	0	
5060036	F	23	Full	Micmac	Micmac	0	0	0	0	
5060037	F	07	Full	Micmac	Micmac	0	0	0	0	
5060038	M	63	Full	Micmac	Micmac	0	0	0	0	
5060039	M	20	Full	Micmac	Micmac	0	0	0	0	
5060040	M	16	$\frac{1}{2}$	English	Micmac	0	0	0	0	
5060041	M	17	Full	Micmac	Micmac	0	0	0	0	
5060042	M	43	Full	Micmac	Micmac	0	0	0	0	
5060043	F	37	Full	Micmac	Micmac	0	0	3	3	
5060044	F	24	Full	Micmac	Micmac	0	0	0	0	
5060045	M	28	$\frac{1}{2}$	Micmac/Negro	Micmac	0	0	0	0	
5060046	M	24	$\frac{1}{2}$	Micmac/Negro	Micmac	0	0	0	0	

Micmac-10

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
5060047	M	27	Full	Micmac	Micmac	0	0	0	0
5060048	M	34	Full	Micmac	Micmac	0	0	0	0
5060049	M	55	Full	Micmac	Micmac	0	0	0	0
5060050	M	21	Full	Micmac	Micmac/Mountaineer	0	0	0	0
5060051	F	46	Full	Micmac	Micmac	2	4	0	3
5060052	F	22	?	Micmac/Scotch	Micmac	1	0	0	0
5060053	F	21	?	Micmac/English	Micmac	0	0	0	0
5060054	F	15	Full	Micmac	Micmac	0	0	0	0
5060055	M	20	?	English	Micmac	0	0	0	0
5060056	M	12	Full	Micmac	Micmac	0	0	0	0
5060057	M	09	Full	Micmac	Micmac	0	0	0	0
5060058	M	06	Full	Micmac	Micmac	0	0	0	0
5060059	F	53	Full	Micmac	Micmac	3	1	0	1
5060060	M	09	Full	Micmac	Micmac	0	0	0	0
5060061	M	06	Full	Micmac	Micmac	0	0	0	0
5060062	M	38	Full	Micmac	Micmac	0	0	0	0
5060063	M	32	?	Micmac/French	Micmac	0	0	0	0
5060064	M	22	Full	Micmac	Micmac	0	0	0	0
5060065	M	37	Full	Micmac	Micmac	0	0	0	0
5060066	M	22	?	Micmac/French	Micmac/French	0	0	0	0

Micmac-11

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
5060067	M	18	$\frac{1}{2}$	Micmac/French	French	0	0	0	0
5060068	M	13	Full	Micmac	Micmac	0	0	0	0
5060069	F	50	$\frac{1}{2}$	Micmac/French	English	3	0	1	1
6060001	M	75	Full	Micmac	Micmac	0	0	0	0
6060002	M	41	$\frac{3}{4}$	$\frac{1}{2}$ Micmac/ $\frac{1}{2}$ Irish	Micmac	0	0	0	0
6060003	F	46	$\frac{1}{2}$	French	Micmac	1	6	1	0
6060004	M	18	Full	Micmac	Micmac	0	0	0	0
6060005	M	15	Full	Micmac	Micmac	0	0	0	0
6060006	M	11	$\frac{1}{2}$	French	Micmac	0	0	0	0
6060007	M	08	$\frac{1}{2}$	Micmac/French	Micmac/French	0	0	0	0
6060008	M	03	$\frac{1}{2}$	French/English	Micmac	0	0	0	0
6060009	F	09	$\frac{1}{2}$	Not Known	Micmac/Irish	0	0	0	0
6060010	F	13	$\frac{1}{2}$	Micmac/French	Micmac	0	0	0	0
6060011	M	55	$\frac{1}{2}$	Micmac	French	0	0	0	0
6060012	M	09	$\frac{3}{4}$	Micmac	Micmac/French	0	0	0	0
6060013	M	06	$\frac{1}{2}$	Micmac	Micmac/French	0	0	0	0
6060014	M	03	$\frac{1}{2}$	Micmac	Micmac? French	0	0	0	0
6060015	F	43	Full	Micmac	Micmac	4	3	0	1
6060016	M	44	Full	Micmac	Micmac	0	0	0	0
6060017	M	79	Full	Micmac	Micmac	0	0	0	0

Hiemac-12

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
6060018	F	67	Full	Hiemac	Hiemac	0	0	0	0
6060019	M	38	Full	Hiemac	Hiemac	0	0	0	0
6060020	F	21	Full	Hiemac	Hiemac	0	1	0	1
6060021	M	28	Full	Hiemac	Hiemac	0	0	0	0
6060022	M	46	Full	Hiemac	Hiemac	0	0	0	0
6060023	M	51	Full	Hiemac	Hiemac	0	0	0	0
6060024	M	19	Full	Hiemac	Hiemac	0	0	0	0
6060025	M	21	Full	Hiemac	Hiemac	0	0	0	0
6060026	M	37	?	Hiemac/English	Hiemac	0	0	0	0
6060027	M	28	Full	Hiemac	Hiemac	0	0	0	0
6060028	M	15	Full	Hiemac	Hiemac	0	0	0	0
6060029	F	16	Full	Hiemac	Hiemac	0	0	0	0
6060030	M	27	?	Hiemac/French	Hiemac	0	0	0	0
6060031	M	60	?	French	Hiemac	0	0	0	0
6060032	M	10	Full	Hiemac	Hiemac	0	0	0	0
6060033	M	09	Full	Hiemac	Hiemac	0	0	0	0
6060034	M	12	7/8	1/2 French/1/2 Hiemac	Hiemac	0	0	0	0
6060035	M	16	Full	Hiemac	Hiemac	0	0	0	0
6060036	F	29	?	Hiemac/French	Hiemac	1	1	2	0
6060037	F	15	Full	Hiemac	Hiemac	0	0	0	?

Niemic-13

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
6060038	M	17	Full	Niemic	Niemic	0	0	0	0
6060039	M	14	Full	Niemic	Niemic	0	0	0	0
6060040	F	14	Full	Niemic	Niemic	0	0	0	0
6060041	F	47	1/2	Niemic/French	Niemic/Scotch	3	3	1	6
6060042	F	62	Full	Niemic	Niemic	0	6	1	4
6060043	F	12	Full	Niemic	Niemic	0	0	0	0
6060044	F	07	1/2	Niemic	Niemic/French	0	0	0	0
6060045	F	05	1/2	Niemic/French	Niemic	0	0	0	0
6060046	M	05	1/2	Niemic/Scotch	Niemic	0	0	0	0
6060047	M	15	Full	Niemic	Niemic	0	0	0	0
6060048	M	15	Full	Niemic	Niemic	0	0	0	0
6060049	F	22	1/2	Niemic/Scotch	Niemic	0	1	0	0
6060050	F	20	Full	Niemic	Niemic	0	0	0	0
6060051	F	16	Full	Niemic	Niemic	0	0	0	0
6060052	F	15	1/2	Niemic/Scotch	Niemic	0	0	0	0
6060053	F	18	1/2	Niemic	French	0	0	0	0
6060054	F	30	Full	Niemic	Niemic	0	0	0	0
6060055	F	17	Full	Niemic	Niemic	0	0	0	0
6060056	F	09	Full	Niemic	Niemic	0	0	0	0
6060057	F	52	Full	Niemic	Niemic	0	2	0	2

Niacmac-H

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
6060053	F	09	1/2	Niacmac/French	Niacmac	0	0	0	0
6060059	F	14	Full	Niacmac	Niacmac	0	0	0	0
6060060	M	65	Full	Niacmac	Niacmac	0	0	0	0
6060061	F	19	Full	Niacmac	Niacmac	0	0	0	0
6060062	F	09	Full	Niacmac	Niacmac	0	0	0	0
6060063	F	18	1/2	Mulatto	Niacmac	0	0	0	0
6060064	F	22	1/2	Niacmac/French	Niacmac	0	0	0	0
6060065	F	24	1/2	Niacmac/French	Niacmac	0	1	0	0
6060066	M	56	1/2	Niacmac	English	0	0	0	0
6060067	F	45	Full	Niacmac	Niacmac	2	1	2	5
6060068	M	30	Full	Niacmac	Niacmac	0	0	0	0
6060069	M	22	Full	Niacmac	Niacmac	0	0	0	0
6060070	M	23	Full	Niacmac	Niacmac	0	0	0	0
6060071	M	13	1/2	Niacmac/Irish	Niacmac	0	0	0	0
6060072	F	77	Full	Niacmac	Niacmac	2	2	3	5
6060073	M	71	1/2	Niacmac/French	Niacmac	0	0	0	0
6060074	F	23	Full	Niacmac	Niacmac	0	0	0	0
6060075	F	12	Full	Niacmac	Niacmac	0	0	0	0
6060076	M	39	1/2	French	Niacmac	0	0	0	0
6060077	M	04	1/2	Niacmac/Irish	Niacmac	0	0	0	0

Hiemac-15

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
6060078	M	16	?	Hiemac/Irish	Hiemac	0	0	0	0
6060079	M	12	?	Hiemac/Scotch	Hiemac	0	0	0	0
6060080	M	14	?	Hiemac/French	Hiemac	0	0	0	0
6060081	F	34	Full	Hiemac	Hiemac	0	0	2	0
6060082	M	20	Full	Hiemac	Hiemac	0	0	0	0
6060083	M	55	Full	Hiemac	Hiemac	0	0	0	0
6060084	M	13	Full	Hiemac	Hiemac	0	0	0	0
6060085	M	11	Full	Hiemac	Hiemac	0	0	0	0
6060086	M	25	Full	Hiemac	Hiemac	0	0	0	0
6060087	M	69	Full	Hiemac	Hiemac	0	0	0	0
6060088	M	17	Full	Hiemac	Hiemac	0	0	0	0
6060089	F	20	?	Hiemac/English	Hiemac	1	0	0	0
6060090	M	55	Full	Hiemac	Hiemac	0	0	0	0
6060091	M	11	Full	Hiemac	Hiemac	0	0	0	0
6060092	F	35	Full	Hiemac	Hiemac	2	1	1	2
6060093	F	21	Full	Hiemac	Hiemac	0	0	0	0
6060094	F	09	Full	Hiemac	Hiemac	0	0	0	0
6060095	M	06	Full	Hiemac	Hiemac	0	0	0	0
6060096	M	20	?	Hiemac/English	Hiemac	0	0	0	0

Micmac-6

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
6060097	M	16	$\frac{1}{4}$	Micmac	$\frac{3}{4}$ Micmac/ $\frac{1}{4}$ Negro	0	0	0	0
6060098	M	14	Full	Micmac	Micmac	0	0	0	0
6060099	M	12	Full	Micmac	Micmac	0	0	0	0
6060100	M	13	Full	Micmac	Micmac	0	0	0	0
6060101	M	20	$\frac{1}{4}$	$\frac{3}{4}$ Micmac/ $\frac{1}{4}$ White	Micmac	0	0	0	0
6060102	M	14	Full	Micmac	Micmac	0	0	0	0
6060103	M	32	Full	Micmac	Micmac	0	0	0	0
6060104	M	30	Full	Micmac	Micmac	0	0	0	0
6060105	M	10	$\frac{1}{4}$	$\frac{3}{4}$ Micmac/ $\frac{1}{4}$ White	Micmac	0	0	0	0
6060106	M	12	$\frac{1}{4}$	$\frac{3}{4}$ Micmac/ $\frac{1}{4}$ Negro	Micmac	0	0	0	0
6060107	M	14	Full	Micmac	Micmac	0	0	0	0
6060108	M	10	$\frac{1}{4}$	Micmac	$\frac{3}{4}$ Micmac/ $\frac{1}{4}$ White	0	0	0	0
6060109	M	03	Full	Micmac	Micmac	0	0	0	0
6060110	M	11	Full	Micmac	Micmac	0	0	0	0
6060111	M	07	Full	Micmac	Micmac	0	0	0	0
6060112	M	08	Full	Micmac	Micmac	0	0	0	0
6060113	M	06	$\frac{1}{4}$	Micmac	$\frac{3}{4}$ Micmac/ $\frac{1}{4}$ White	0	0	0	0
6060114	M	13	Full	Micmac	Micmac	0	0	0	0
6060115	M	11	$\frac{1}{4}$	Micmac	Micmac? English	0	0	0	0
6060116	M	09	$\frac{1}{4}$	Micmac	Micmac/English	0	0	0	0

Micmac-17

Form A	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
6060117	M	09	1/2	Micmac	Micmac/English	0	0	0	0
6060118	M	07	1/2	Micmac	Micmac/English	0	0	0	0
6060119	F	56	Full	Micmac	Micmac	3	1	2	4
6060120	F	36	1/2	Micmac/Irish	English/French	4	3	0	1
6060121	M	04	5/8	1/2 Micmac/1/4 White	Micmac	0	0	0	0
6060122	F	62	Full	Micmac	Micmac	.2	6	2	3
6060123	M	19	Full	Micmac	Micmac	0	0	0	0
6060124	M	54	1/2	Micmac	English	0	0	0	0
6060125	M	47	Full	Micmac	Micmac	0	0	0	0
6060126	M	14	Full	Micmac	Micmac	0	0	0	0
6060127	M	48	Full	Micmac	Micmac	0	0	0	0
6060128	M	77	Full	Micmac	Micmac	0	0	0	0
6060129	F	13	1/2	Micmac	Irish	0	0	0	0
6060130	F	26	Full	Micmac	Micmac	0	0	0	0
6060131	F	43	1/2	Micmac/French	Micmac	0	3	1	7
6060132	F	80	1/2	Micmac	Micmac/French	1	4	1	3
6060133	F	27	3/4	3/4 Micmac/1/4 French	Micmac	0	1	1	1
6060134	F	27	1/2	Micmac	English	3	0	2	1
6060135	F	04	5/8	1/2 Micmac/1/4 French	Micmac	0	0	0	0
6060136	M	03	Full	Micmac	Micmac	0	0	0	0

Hicmac-8

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
6060137	M	23	$\frac{1}{2}$	$\frac{1}{2}$ Hicmac/ $\frac{1}{2}$ French	Eng/Negro/French	0	0	0	0
6060138	M	60	$\frac{3}{4}$	$\frac{3}{4}$ Hicmac/ $\frac{1}{4}$ French	Liulatto	0	0	0	0
6060139	M	65	$\frac{1}{2}$	$\frac{1}{2}$ Hicmac/ $\frac{1}{2}$ French	$\frac{1}{2}$ Hicmac/ $\frac{1}{2}$ French	0	0	0	0
6060140	M	33	Full	Hicmac	Hicmac	0	0	0	0
6060141	F	38	Full	Hicmac	Hicmac	1	2	0	0
6060142	M	04	$\frac{3}{4}$	Hicmac	$\frac{1}{2}$ Hicmac/ $\frac{1}{2}$ French	0	0	0	0
6060143	M	51	$\frac{3}{4}$	$\frac{1}{2}$ Hicmac/ $\frac{1}{2}$ French	Liulatto	0	0	0	0
6060144	M	38	$\frac{1}{2}$	$\frac{1}{2}$ Hicmac/ $\frac{1}{2}$ French	$\frac{1}{2}$ Hicmac/ $\frac{1}{2}$ French	0	0	0	0
6060145	M	07	$\frac{1}{2}$	$\frac{1}{2}$ Hic/ $\frac{1}{2}$ Fre/ $\frac{1}{2}$ Hul	$\frac{1}{2}$ Hicmac/ $\frac{1}{2}$ French	0	0	0	0
6060146	M	05	$\frac{1}{2}$	$\frac{1}{2}$ Hic/ $\frac{1}{2}$ Fre/ $\frac{1}{2}$ Hul	$\frac{1}{2}$ Hicmac/ $\frac{1}{2}$ French	0	0	0	0
6060147	F	36	$\frac{1}{2}$	Hicmac	Eng/Fre/Negro	4	2	0	2
6060148	F	20	$\frac{3}{4}$	Hicmac	$\frac{3}{4}$ Hicmac/ $\frac{1}{4}$ French	0	0	0	0
6060149	F	19	$\frac{3}{4}$	Hicmac	$\frac{1}{2}$ Hicmac/ $\frac{1}{2}$ French	0	0	0	0
6060150	M	29	Full	Hicmac	Hicmac	0	0	0	0
6060151	M	44	Full	Hicmac	Hicmac	0	0	0	0
6060152	F	40	Full	Hicmac	Hicmac	3	0	3	0
6060153	M	43	Full	Hicmac	Hicmac	0	0	0	0
6060154	M	21	$\frac{1}{2}$	English	Hicmac	0	0	0	0
6060155	M	34	Full	Hicmac	Hicmac	0	0	0	0

Niemic-19

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
0000156	M	03	Full	Niemic	Niemic	0	0	0	0
0000157	M	11	Full	Niemic	Niemic	0	0	0	0
0000158	M	60	Full	Niemic	Niemic	0	0	0	0
0000159	M	67	Full	Niemic	Niemic	0	0	0	0
0000160	M	60	$\frac{3}{4}$	$\frac{3}{4}$ Niemic/ $\frac{1}{4}$ French	$\frac{3}{4}$ Niemic/ $\frac{1}{4}$ French	0	0	0	0
0000161	M	19	$\frac{7}{8}$	$\frac{3}{4}$ Niemic/ $\frac{1}{4}$ English	Niemic	0	0	0	0
0000162	M	12	$\frac{7}{8}$	$\frac{3}{4}$ Niemic/ $\frac{1}{4}$ English	Niemic	0	0	0	0
0000163	M	05	$\frac{7}{8}$	$\frac{3}{4}$ Niemic/ $\frac{1}{4}$ English	Niemic	0	0	0	0
0000164	M	06	$\frac{3}{4}$	Niemic/English	Niemic	0	0	0	0
0000165	M	08	Full	Niemic	Niemic	0	0	0	0
0000166	M	10	$\frac{5}{8}$	$\frac{3}{4}$ Niemic/ $\frac{1}{4}$ French	Irish/Niemic	0	0	0	0
0000167	M	37	$\frac{3}{4}$	$\frac{3}{4}$ Niemic/ $\frac{1}{4}$ Irish	$\frac{3}{4}$ Niemic/ $\frac{1}{4}$ French	0	0	0	0
0000168	F	10	$\frac{3}{4}$	Niemic/English	Niemic	0	0	0	0
0000169	F	10	$\frac{5}{8}$	Niemic/French	$\frac{3}{4}$ Niemic/ $\frac{1}{4}$ French	0	0	0	0
0000170	F	13	$\frac{3}{4}$	Niemic/English	Niemic	0	0	0	0
0000171	M	03	$\frac{5}{8}$	$\frac{3}{4}$ Niemic/ $\frac{1}{4}$ French	Niemic/Mulatto	0	0	0	0
0000172	M	43	Full	Niemic	Niemic	0	0	0	0
0000173	F	11	$\frac{3}{4}$	Niemic/English	Niemic	0	0	0	0
0000174	F	10	Full	Niemic	Niemic	0	0	0	0
0000175	F	08	$\frac{3}{4}$	Niemic/English	Niemic	0	0	0	0

Hiemac-20

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Now Alive	Now Dead
0000176	F	08	$\frac{1}{2}$	Hiemac	Hiemac/Irish	0	0	0	0
0000177	F	15	$\frac{7}{8}$	Hiemac	$\frac{1}{2}$ Hiemac/ $\frac{1}{2}$ English	0	0	0	0
0000178	M	18	Full	Hiemac	Hiemac	0	0	0	0
0000179	M	46	$\frac{1}{2}$	$\frac{1}{2}$ Hiemac/ $\frac{1}{2}$ Scotch	Hiemac	0	0	0	0
0000180	F	53	$\frac{1}{2}$	Hiemac	English	2	2	5	1
0000181	F	26	Full	Hiemac	Hiemac	0	2	3	0
0000182	M	05	$\frac{1}{2}$	Hiemac/English	Hiemac	0	0	0	0
0000183	F	45	Full	Hiemac	Hiemac	6	3	2	0
0000184	F	11	Full	Hiemac	Hiemac	0	0	0	0
0000185	F	21	Full	Hiemac	Hiemac	0	0	0	0
0000186	F	25	Full	Hiemac	Hiemac	0	0	0	0
0000187	F	40	Full	Hiemac	Hiemac	1	1	2	2
0000188	M	15	Full	Hiemac	Hiemac	0	0	0	0
0000189	M	51	Full	Hiemac	Hiemac	0	0	0	0
0000190	M	33	Full	Hiemac	Hiemac	0	0	0	0
0000191	M	49	$\frac{1}{2}$	$\frac{1}{2}$ Hiemac/ $\frac{1}{2}$ French	Hiemac	0	0	0	0
0000192	M	18	Full	Hiemac	Hiemac	0	0	0	0
0000193	M	42	$\frac{1}{2}$	Hiemac	Hiemac/American	0	0	0	0
0000194	M	27	$\frac{1}{2}$	Hiemac	Irish	0	0	0	0
0000195	M	23	$\frac{9}{16}$	$\frac{1}{2}$ Hiemac/ $\frac{1}{2}$ French	$\frac{1}{2}$ Hiemac/ $\frac{1}{2}$ French	0	0	0	0

Micmac-21

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
6060196	F	23	$\frac{1}{2}$	Micmac/French	Micmac/French	1	0	1	1
6060197	M	50	Full	Micmac	Micmac	0	0	0	0
6060198	M	17	Full	Micmac	Micmac	0	0	0	0
6060199	M	22	Full	Micmac	Micmac	0	0	0	0
6060200	M	18	$\frac{3}{4}$	Micmac	Micmac/French	0	0	0	0
6060201	M	12	$\frac{3}{4}$	French/Micmac	Micmac	0	0	0	0
6060202	M	09	Full	Micmac	Micmac	0	0	0	0
6060203	M	85	Full	Micmac	Micmac	0	0	0	0
6060204	M	44	$\frac{1}{2}$	Micmac/French	Micmac/French	0	0	0	0
6060205	M	23	Full	Micmac	Micmac	0	0	0	0
6060206	M	22	$\frac{1}{2}$	Micmac	English	0	0	0	0
6060207	M	22	Full	Micmac	Micmac	0	0	0	0
6060208	M	25	Full	Micmac	Micmac	0	0	0	0
6060209	M	39	Full	Micmac	Micmac	0	0	0	0
6060210	M	24	$\frac{1}{2}$	Micmac	Scotch	0	0	0	0
6060211	M	16	Full	Micmac	Micmac	0	0	0	0
6060212	M	35	$\frac{3}{4}$	Micmac	$\frac{3}{4}$ Micmac/ $\frac{1}{4}$ French	0	0	0	0
6060213	M	26	$\frac{3}{4}$	$\frac{3}{4}$ Micmac/ $\frac{1}{4}$ French	$\frac{3}{4}$ Micmac/ $\frac{1}{4}$ French	0	0	0	0
6060214	M	48	Full	Micmac	Micmac	0	0	0	0

Hicmac-22

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
0060215	F	23	Full	Hicmac	Hicmac	0	0	0	0
0060216	F	32	$\frac{1}{2}$	Hicmac	French	1	0	3	2
0060217	H	45	$\frac{3}{4}$	Hicmac	Hicmac/French	0	0	0	0
0060218	H	44	$\frac{2}{4}$	Hicmac/French	Hicmac	0	0	0	0
0060219	H	18	$\frac{3}{4}$	Hicmac	$\frac{3}{4}$ Hicmac/ $\frac{1}{4}$ French	0	0	0	0
0060220	F	19	Full	Hicmac	Hicmac	0	0	1	0
0060221	F	18	$\frac{3}{4}$	$\frac{3}{4}$ Hicmac/ $\frac{1}{4}$ French	Hicmac	0	0	0	0
0060222	H	43	Full	Hicmac	Hicmac	0	0	0	0
0060223	H	17	Full	Hicmac	Hicmac	0	0	0	0
0060224	H	22	$\frac{2}{4}$	Hicmac	Hicmac/French	0	0	0	0
0060225	H	54	$\frac{1}{2}$	Hicmac/Scotch	Hicmac/French	0	0	0	0
0060226	H	21	$\frac{1}{2}$	Hicmac	English	0	0	0	0
0060227	H	56	$\frac{1}{2}$	Hicmac/French	Hicmac/French	0	0	0	0
0060228	H	14	$\frac{2}{4}$	Hicmac/Scotch	Hicmac	0	0	0	0
0060229	H	18	$\frac{2}{4}$	Hicmac/Scotch	Hicmac	0	0	0	0
0060230	H	46	$\frac{2}{4}$	Hicmac	Hicmac/Scotch	0	0	0	0
0060231	H	12	$\frac{3}{4}$	Hicmac/French	$\frac{3}{4}$ Hicmac/ $\frac{1}{4}$ Scotch	0	0	0	0
0060232	F	10	$\frac{2}{4}$	Hicmac/Scotch	Hicmac	0	0	0	0
0060233	F	27	$\frac{2}{4}$	Hicmac	Hicmac/English	1	0	1	1
0060234	F	23	$\frac{2}{4}$	$\frac{3}{4}$ Hicmac/ $\frac{1}{4}$ Scotch	$\frac{3}{4}$ Hicmac/ $\frac{1}{4}$ French	1	1	0	1

Micmac-25									
Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
6060355	M	22	Full	Micmac	Micmac	0	0	0	0
6060356	F	40	1	Micmac	Scotch	?	4	2	2
6060357	M	38	2	Micmac	Micmac/French	0	0	0	0
6060358	F	11	1/2	English	French/Micmac	0	0	0	0
6060359	M	66	2	Micmac	Micmac/French	0	0	0	0
14650750	M	43	1	1/2 Micmac/1/2 French	1/2 Micmac/1/2 English	0	0	0	0

Pacific Northwest Coastal Tribes-1

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Daughters Alive	Daughters Dead
12020003	M	06	Full	Shushwap	Shushwap	0	0	0	0
12020004	F	36	Full	Shushwap	Shushwap	1	0	2	0
12020005	F	18	Full	Okanagan	Okanagan	0	0	0	0
12020006	M	13	?	Shushwap	White	0	0	0	0
12020007	M	16	Full	Shushwap	Shushwap	0	0	0	0
12020008	M	11	Full	Shushwap	Shushwap	0	0	0	0
12020009	M	09	?	1/2 Siletz/1/2 White	Shushwap	0	0	0	0
12020010	M	10	Full	Shushwap	Shushwap	0	0	0	0
12020011	M	12	Full	Okanagan	Okanagan	0	0	0	0
12020012	M	12	?	Shushwap	1/2 French/1/2 Shushwap	0	0	0	0
12020013	M	11	?	Okanagan	Mexican Halfblood	0	0	0	0
12020014	M	11	?	Okanagan	White	0	0	0	0
12020015	M	12	Full	Ntlakypamning	Ntlakypamning	0	0	0	0
12020016	M	12	?	Ntlakypamux	White	0	0	0	0
12020017	M	12	Full	Shushwap	Shushwap	0	0	0	0
12020018	M	12	Full	Shushwap	Shushwap	0	0	0	0
12020019	F	09	Full	Shushwap	Shushwap	0	0	0	0
12020020	F	08	?	Shushwap	1/2 French/1/2 Shushwap	0	0	0	0
12020021	F	13	?	1/2 Shushwap/1/2 White	Shushwap	0	0	0	0
12020022	F	10	Full	Shushwap	Shushwap	0	0	0	?

Pacific Northwest Coastal Tribes-2

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Man Alive	Man Dead
10020023	F	11	Full	Htlakypamux	Htlakypamux	0	0	0	0
10020024	F	10	1/2	Shushwap	English	0	0	0	0
10020025	F	12	Full	Nicola	Okanagan	0	0	0	0
10020026	F	11	Full	Shushwap	Shushwap	0	0	0	0
10020027	F	12	Full	Shushwap	Shushwap	0	0	0	0
10020028	F	13	Full	Shushwap	Shushwap	0	0	0	0
10020029	F	14	Full	Shushwap	Shushwap	0	0	0	0
10020030	F	16	Full	H. Thompson	Shushwap	0	0	0	0
10020031	F	22	1/2	Shushwap	1/2 French/1/2 Shushwap	1	1	0	0
10020034	F	18	1/2	Shushwap	1/2 French/1/2 Shushwap	0	0	0	0
10020035	F	23	Full	Okanagan/1/2 Shushwap	Shushwap	0	0	1	0
10020041	F	26	Full	Htlakypamux	Htlak./1/2 Shushwap	0	0	0	0
10020042	H	75	Full	Htlakypamux	Shushwap	0	0	0	0
10020043	H	50	Full	Htlakypamux	Htlakypamux	0	0	0	0
10020044	F	65	Full	1/2 Htlak./1/2 Shush.	Htlakypamux	1	1	0	4
10020045	F	70	Full	Htlakypamux	Htlakypamux	0	6	0	3
10020046	H	11	1/2	Htlakypamux	Scotch	0	0	0	0
10020047	F	43	Full	Htlakypamux	Htlakypamux	0	0	0	0
10020048	F	16	1/2	Spuzzum/1/2 Hlalto	Shushwap	0	0	0	0

Pacific Northwest Coastal Tribes-3

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
12020049	F	35	Full	Ntlakvspamuts	Ntlakvspamuts	2	2	1	2
12020050	F	37	Full	Spuzzum	Spuzzum	4	0	5	0
12020051	F	05	Full	Ntlakypamux	Ntlakypamux	0	0	0	0
12020052	M	08	‡	Spuzzum	German Jew	0	0	0	0
12020053	M	05	‡	Spuzzum	German Jew	0	0	0	0
12020054	F	20	‡	Ntlakypamux	German Jew	0	0	0	0
12020055	M	21	Full	Ntlakvopamix	Ntlakvopamix	0	0	0	0
12020056	M	75	Full	Ntlakvopamix	Ntlakvopamix	0	0	0	0
12020057	M	55	Full	Ntlakvopamix	Ntlakvopamix	0	0	0	0
12020058	M	12	‡	Ntlakvopamix	American	0	0	0	0
12020059	F	06	Full	‡Okanagan/‡Ntlak.	Ntlakvopamix	0	0	0	0
12020060	M	31	Full	Ntlakvopamux	Ntlakvopamux	0	0	0	0
12020061	F	19	Full	Ntlakvspamux	Ntlakvspamux	0	0	0	0
12020062	F	16	Full	Ntlakvspamux	Ntlakvspamux	0	0	0	0
12020063	F	17	Full	Ntlakvspamux	Ntlakvspamux	0	0	0	0
12020064	M	38	Full	Ntlakvspamux	Ntlakvspamux	0	0	0	0
12020065	M	38	Full	Ntlakvspamux	Ntlakvspamux	0	0	0	0
12020066	F	37	Full	Ntlakvspamux	Ntlakvspamux	0	0	0	0
12020067	M	67	Full	Ntlakvspamux	Ntlakvspamux	0	0	0	0
12020068	F	68	Full	Ntlakvspamux	Ntlakvspamux	1	0	0	4

Pacific Northwest Coastal Tribes-4

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
10020069	M	95	Full	Htlakvapamux	Htlakvapamux	0	0	0	0
10020070	M	70	Full	Htlakvapamux	Htlakvapamux	0	0	0	0
10020071	M	40	Full	Htlakvapamux	Htlakvapamux	0	0	0	0
10020072	F	12	?	Lillooet	Htlakvapamux/White	0	0	0	0
10020073	F	40	Full	Htlakvapamux	Htlakvapamux	0	0	0	1
10020074	F	60	Full	Htlakvapamux	Htlakvapamux	2	5	0	2
10020075	F	17	Full	Htlakvapamux	Htlakvapamux	0	0	0	0
10020076	F	30	Full	Htlakvapamux	Htlakvapamux	0	0	0	0
10020077	M	13	Full	Htlakvapamux	Htlakvapamux	0	0	0	0
10020078	F	40	Full	Htlakvapamux	Htlakvapamux	1	0	2	1
10020079	M	18	Full	Htlakvapamux	Htlakvapamux	0	0	0	0
10020080	F	26	Full	Htlakvapamux	Htlakvapamux	1	5	0	1
10020081	F	24	Full	Htlakvapamux	Htlakvapamux	0	0	0	0
10020082	F	30	Full	Htlakvapamux	Htlakvapamux	0	2	0	0
10020083	F	32	Full	Htlakvapamux	Htlakvapamux	0	3	0	3
10020084	F	40	Full	Htlakvapamux	Htlakvapamux	4	0	3	1
10020085	F	60	Full	Htlakvapamux	Htlakvapamux	0	0	1	1
10020086	F	09	Full	Htlakvapamux	Htlakvapamux	0	0	0	0
10020087	F	05	?	Htlakvapamux	Htlakvapamux/White	0	0	0	0
10020088	F	06	Full	Htlakvapamux	Htlakvapamux	0	0	0	0

Pacific Northwest Coastal Tribes-5

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
10020089	F	24	Full	Ntlakypapamux	Ntlakypapamux	0	1	2	1
10020090	M	21	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020091	M	15	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020092	M	06	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020093	F	04	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020094	F	30	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020095	M	73	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020096	M	75	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020097	M	65	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020098	M	50	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020099	M	45	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020100	M	02	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020101	F	19	Full	Ntlakypapamux	Ntlakypapamux	0	0	0	0
10020102	F	11	Full	Ntlakypapamux	Ntlakypapamux	1	0	0	0
10020103	M	11	Full	Sishialt	Ntlakypapamux	0	0	0	0
10020104	M	09	1	Douglas	Sishialt	0	0	0	0
10020105	M	11	Full	Husgriviam	Douglas	0	0	0	0
10020106	M	13	Full	Cumma	Husgriviam	0	0	0	0
10020107	M	09	Full	Taxelis	Quetic	0	0	0	0
					Taxelis	0	0	0	0

Pacific Northwest Coastal Tribes-6

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Lau Alive	Lau Dead
1-020108	M	13	Full	Tsxelis	Tsxelis	0	0	0	0
1-020109	M	10	Full	Cumar	Sqaueelitch	0	0	0	0
1-020110	M	09	1/2	Welsh/Sumas	Sumas	0	0	0	0
1-020111	M	10	Full	Tsxelis	Tsxelis	0	0	0	0
1-020112	M	07	Full	Taam	Taam	0	0	0	0
1-020113	M	10	Full	Teiliwak	Teiliwak	0	0	0	0
1-020114	M	09	Full	Kogoolik	Kogoolik	0	0	0	0
1-020115	M	13	Full	Skoatate	Skoatate	0	0	0	0
1-020116	M	14	Full	Tsxelis	Tsxelis	0	0	0	0
1-020117	M	11	Full	Skoatate	Skoatate	0	0	0	0
1-020118	M	13	Full	Hope Tegals	Hope Tegals	0	0	0	0
1-020119	M	13	Full	Sqaetatus	Sqaetatus	0	0	0	0
1-020120	M	13	Full	Skoatate	Yale	0	0	0	0
1-020121	M	09	Full	Taam	Taam	0	0	0	0
1-020122	M	12	Full	Sqaueelitik	Sqaueelitik	0	0	0	0
1-020123	M	07	Full	Chillukweyuk	Chillukweyuk	0	0	0	0
1-020124	F	18	Full	Yale	Ruby Creek	0	0	0	0
1-020125	F	08	Full	Tsxelis	Tsxelis	0	0	0	0
1-020126	F	09	1/2	Saamio	Mexican	0	0	0	0
1-020127	F	12	1/2	Saamio	Mexican	0	0	0	0

Pacific Northwest Coastal Tribes-7

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
12020128	F	06	1/2	Squamish	Mexican	0	0	0	0
12020129	F	05	Full	Sishialt	Sishialt	0	0	0	0
12020130	F	10	Full	Kanaka	Chilliwack	0	0	0	0
12020131	F	09	Full	Kanaka	Chilliwack	0	0	0	0
12020132	F	08	Full	Kanaka	Chilliwack	0	0	0	0
12020133	F	12	Full	Chilliwack	Chilliwack	0	0	0	0
12020134	F	10	Full	Chilliwack	Chilliwack	0	0	0	0
12020135	F	14	Full	Chilliwack	Squamelitik	0	0	0	0
12020136	F	11	Full	Squamelitik	Chilliwack	0	0	0	0
12020137	F	11	Full	Chilliwack	Chilliwack	0	0	0	0
12020138	F	11	1/2	Squamish	1/2 White/1/2 Mitikium	0	0	0	0
12020139	F	14	Full	Oeste	Neskorim	0	0	0	0
12020140	F	13	Full	Tillamook	Triam	0	0	0	0
12020141	F	17	Full	Tulalip	Tillamook	0	0	0	0
12020142	F	15	Full	Thompson	Nekamen	0	0	0	0
12020143	F	17	Full	Tulalip	Hope	0	0	0	0
12020144	F	12	Full	Tulalip	Seattle	0	0	0	0
12020145	F	16	Full	Hope	Hope	0	0	0	0
12020146	F	08	Full	Triam	Triam	0	0	0	0

Pacific Northwest Coastal Tribes-8

Fam #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
12020147	F	09	Full	Tixelis	Hone	0	0	0	0
12020148	F	15	Full	Qeste	Qeste	0	0	0	0
12020149	F	12	$\frac{7}{8}$	Triam	$\frac{3}{4}$ Cat. Landine/ $\frac{1}{4}$ White	0	0	0	0
12020150	F	16	Full	Saquelish	Saquelish	0	0	0	0
12020151	F	07	Full	Triam	Triam	0	0	0	0
12020152	F	12	Full	Triam	Thompson	0	0	0	0
12020153	F	12	Full	Chilliwick	Hegamen	0	0	0	0
12020154	F	12	Full	Ruby Creek	Ruby Creek	0	0	0	0
12020155	F	11	Full	Sistialt	Sistialt	0	0	0	0
12020156	F	11	Full	Saquelish	Saquelish	0	0	0	0
12020157	F	11	Full	Qextse	Knikokrn	0	0	0	0
12020158	F	11	Full	$\frac{1}{2}$ Misquelm/ $\frac{1}{2}$ Kanaka	Warnuck	0	0	0	0
12020159	M	35	Full	Hamsleleasla	Kuetela	0	0	0	0
12020163	M	60	Full	Hbais	Hbais	0	0	0	0
12020164	F	16	Full	Haxxa	Haxxa	0	0	0	0
12020164	F	26	Full	Haxxa	Haxxa	0	0	0	0
12020167	M	67	Full	Temishian	Temishian	0	0	0	0
12020168	F	11	Full	Nicca	Temishian	0	0	0	0
12020168	M	09	$\frac{1}{2}$	French	Haxxa	0	0	0	0

Pacific Northwest Coastal Tribes-9

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
12020170	M	11	Full	Gystrkam	Nasxu	0	0	0	0
12020171	M	14	Full	Nasxa	Nasxa	0	0	0	0
12020172	M	10	Full	Nisxa	Nisxa	0	0	0	0
12020175	M	13	Full	Nisxa	Nisxa	0	0	0	0
12020176	M	10	Full	Nisxa	Nisxa	0	0	0	0
12020177	M	10	Full	Nisxa	Nisxa	0	0	0	0
12020178	F	09	Full	Nisxa	Nisxa	0	0	0	0
12020179	F	06	Full	Nisxa	Nisxa	0	0	0	0
12020180	F	07	Full	Nisxa	Nisxa	0	0	0	0
12020181	F	05	Full	Nisxa	Nisxa	0	0	0	0
12020183	M	06	Full	Nisxa	Nisxa	0	0	0	0
12020184	M	06	Full	Nesoa	Nesqa	0	0	0	0
12020186	F	30	Full	Nisqua	Nisqua	0	1	0	1
12020187	F	40	Full	Nisqua	Nisqua	0	1	0	0
12020188	M	17	Full	Nisqua	Nisqua	0	0	0	0
12020189	F	32	Full	Nisqua	Nisqua	1	1	1	0
12020190	F	28	Full	Nisqua	Nisqua	1	0	3	1
12020192	M	16	Full	Nisqa	Nisqa	0	0	0	0
12020197	M	16	Full	Nisxa	Nisxa	0	0	0	0

Pacific Northwest Coastal Tribes-10									
Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
12020199	M	67	Full	Nisqua	Nisqua	0	0	0	0
12020200	F	20	Full	Nisqua	Nisqua	0	0	0	0
12020201	F	18	Full	Nisqua	Nisqua	0	1	2	0
12020202	M	17	Full	Nass	Nass	0	0	0	0
12020204	M	03	1/2	1/2 Naska/1/2 White	American	0	0	0	0
12020205	F	12	Full	Nisxa	Nisxa	0	0	0	0
12020206	F	08	Full	Nisxa	Nisxa	0	0	0	0
12020207	F	32	1/2	1/2 Tsimshian	Scotch	1	0	1	0
12020208	M	16	1/2	1/2 Naska	Spanish	0	0	0	0
12020209	F	16	Full	Nisxa	Nisxa	0	0	0	0
12020210	F	35	Full	Naska	Naska	2	0	4	3
12020211	M	15	Full	Nisxa	Nisxa	0	0	0	0
12020212	F	60	Full	Nisqua	Nisqua	0	1	1	0
12020213	M	16	Full	Nisxa	Nisxa	0	0	0	0
12020216	F	30	Full	Nisqua	Nisqua	1	0	0	0
12020217	F	02	Full	Nisxa	Nisxa	0	0	0	0
12020218	F	22	Full	Nisqua	Nisqua	0	0	0	0
12020219	F	26	Full	Nisqua	Nisqua	2	1	2	0
12020220	M	05	1/2	1/2 Nisxa	1/2 Nisxa/1/2 Dutch	0	0	0	0

Pacific Northwest Coastal Tribes-II

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
12020221	F	55	Full	Nisqua	Nisqua	1	4	0	5
12020222	F	25	Full	Nisqua	Nisqua	0	1	0	0
12020224	F	06	?	Nisxa	1/2 Nisxa/1/2 Dutch	0	0	0	0
12020225	F	17	Full	Nisxa	Nisxa	0	0	0	0
12020226	F	45	Full	Nisqua	Nisqua	2	2	2	1
12020227	M	14	Full	Nisxa	Nisxa	0	0	0	0
12020228	F	35	Full	Nisqua	Nisqua	1	0	1	0
12020229	M	14	Full	Tietsaut	Tietsaut	0	0	0	0
12020230	M	21	Full	Tietsaut	Tietsaut	0	0	0	0
12020231	F	25	?	Nisqua	White	0	0	0	0
12020234	M	55	Full	Tietiaut	Tietiaut	0	0	0	0
12020235	M	14	Full	Nisna	Nisna	0	0	0	0
12020238	F	20	Full	Gitksan	Nisqua	1	0	0	0
12020239	F	12	Full	Nisqa	Nisqa	0	0	0	0
12020241	F	54	Full	Nisqua	Nisqua	0	0	0	0
12020243	F	60	Full	Nisqua	Nisqua	3	3	3	3
12020244	F	20	Full	Nisqua	Nisqua	0	1	1	0
12020240	F	50	Full	Okanagan	Okanagan	0	2	1	1
12020241	F	50	Full	Spennor's Bridge	Okanagan	0	1	0	1
12020242	F	09	?	Nlaka'pamux	English	0	0	0	0

Waskiutl-1'	Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Daugh. Alive	Daugh. Dead
	12020160	F	35	Full	Tlatlankit	Hagamkyish	0	0	0	1
	12020161	M	45	Full	Tlatlankosh	Hagumryvitisata	0	0	0	0
	12020162	F	35	Full	Hagumryvitisata	Hagumryvitisata	0	0	0	0
	12020247	F	58	Full	Aekyepox	Heitkok	0	3	1	4
	12020248	M	60	Full	Hakoastog	Hakoastog	0	0	0	0
	12020249	M	36	Full	Hamaleleala	Walackiwinkiuith	0	0	0	0
	12020250	M	30	Full	Gaiqims	Gaiqims	0	0	0	0
	12020251	M	45	Full	Kyopenox	Kyopenox	0	0	0	0
	12020252	M	26	Full	Walackiwinkiuith	Knexa	0	0	0	0
	12020254	F	25	Full	Aekyepox	Hakoastog	0	2	0	2
	12020255	F	38	Full	Himouish	Himouish	1	2	1	1
	12020256	M	18	Full	Hakoaitoz	Hakoaitoz	0	0	0	0
	12020257	F	78	Full	Himouish	Himouish	1	0	1	0
	12020258	M	42	Full	Walackiwinkiuith	Walackiwinkiuith	0	0	0	0
	12020259	F	60	Full	Hakoastog	Hakoastog	0	3	0	1
	12020260	M	50	Full	Knexvi	Walackiwinkiuith	0	0	0	0
	12020261	F	22	Full	Cosrimo	Cosrimo	0	0	0	0
	12020262	F	45	Full	Walackiwinkiuith	Walackiwinkiuith	0	0	0	0
	12020263	F	60	Full	Cosrimo	Cosrimo	0	1	1	2

Kwakiutl-213

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Daugh Alive	Daugh D.
12020264	M	70	Full	Koskimo	Koskimo	0	0	0	0
12020265	M	25	Full	Nakoastoy	Nakoastoy	0	0	0	0
12020266	M	26	Full	Kosquinis	Kosquinis	0	0	0	0
12020267	M	35	Full	Gysipenox	Koskimo	0	0	0	0
12020268	M	20	1/2	Walackoskuts	White	0	0	0	0
12020269	F	70	Full	Kuexa	Kuexa	0	3	0	0
12020270	M	60	Full	Qomoyue	Walackwakiuts	0	0	0	0
12020271	F	60	Full	Walackwakiutl	Walackwakiutl	0	3	0	7
12020272	F	40	Full	Koskimo	Koskimo	0	0	0	0
12020273	F	23	Full	Koskimo	Koskimo	0	0	0	0
12020274	M	28	Full	Kosksiuv	Kosksiuv	0	0	0	0
12020275	F	40	Full	Koskimo	Koskimo	0	1	0	3
12020276	F	60	Full	Koskimo	Koskimo	0	0	0	0
12020277	M	45	Full	Gyopenox	Koskimo	0	0	0	0
12020278	M	45	Full	Koskimo	Koskimo	0	0	0	0
12020279	F	30	Full	Koskimux	Koskimux	0	0	0	0
12020280	M	20	Full	Koskimo	Koskimo	0	0	0	0
12020281	M	32	Full	Kosouim	Kosouim	0	0	0	0
12020282	F	40	Full	Gyopenox	Gyopenox	0	2	0	1
12020283	F	18	Full	Koskimo	Koskimo	0	0	0	0

Kwakiutl-374

Form	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons alive	Sons dead	Daugh Alive	Daugh dead
12020284	M	58	Full	Goiqimo	Goiqimo	0	0	0	0
12020285	M	55	Full	Isagenox	Oosqimo	0	0	0	0
12020286	F	35	Full	Gyapenox	Gyapenox	0	2	0	1
12020287	M	48	Full	Goiqimo	Ooiqimo	0	0	0	0
12020288	F	22	Full	Gyspenox	Gyspenox	1	1	0	2
12020289	F	28	Full	Himkis	Himkis	3	0	1	0
12020290	F	35	Full	Gyapenox	Gyapenox	0	1	0	0
12020291	F	40	Full	Gosqimux	Gosqimux	0	1	0	2
12020292	F	40	Full	Knexu	Hummelelepela	1	0	0	0
12020293	M	33	Full	Heiltonr	1 Heiltonr/1 Knukit	0	0	0	0
12020294	F	36	Full	1 Kwak/2 Jalak.	Hummelelepela	3	3	0	1
12020295	M	26	Full	Kwakiuts	Iroquois	0	0	0	0
12020296	F	30	Full	Tenetox	1 Knexu/1 Tenetox	0	0	0	1
12020297	M	31	Full	Makowky	Gwairo	0	0	0	0
12020298	F	50	Full	Makowsky	Kwakiutl	0	2	0	8
12020299	M	30	Full	Makosilok	Makosilok	0	0	0	0
12020300	M	50	Full	Makooritok	Makooritok	0	0	0	0
12020301	F	28	Full	Makoastok	Makoastok	0	2	0	0
12020302	F	50	Full	Makoastok	Makoastok	0	0	0	1
12020303	M	50	Full	Gorgino	Gorgino	0	0	0	0

Kwakiutl-15

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
12020304	M	35	Full	Oosimo	Oosimo	0	0	0	0
12020305	F	35	Full	Tsamasisatx	Tsamasisatx	0	0	1	0
12020306	F	40	Full	Oosimo	Oosimo	1	4	0	0
12020307	F	23	Full	Tserlisatx	Tserlisatx	0	1	0	0
12020308	F	50	Full	Oosimo	Oosimo	0	0	1	1
12020309	M	60	Full	Oosimo	Oosimo	0	0	0	0
12020310	M	50	Full	Oosimo	Oosimo	0	0	0	0
12020311	F	42	Full	Oosimo	Oosimo	0	0	1	0
12020312	M	40	Full	Hahoastoh	Hahoastoh	0	0	0	0
12020313	M	60	Full	Hagomgyhats	Hagomgyhats	0	0	0	0
12020314	M	70	Full	Oosimo	Oosimo	0	0	0	0
12020315	F	18	Full	Hagumgyhats	Tlatiasikoala	2	1	0	0
12020316	M	35	Full	Kwakiut	Pavohenox	0	0	0	0
12020317	F	18	Full	Awikvenox	Hakoastok	0	0	0	0
12020318	M	15	Full	Hahoastoh	Lasariwoala	0	0	0	0
12020319	M	18	Full	Hakoushth	Hakoushth	0	0	0	0
12020320	F	65	Full	Hakoastok	Hakoastok	0	2	2	1
12020321	M	16	Full	Hahoetik	Hahoetik	0	0	0	0
12020322	M	39	Full	Kwakiut	Hakoastoh	0	0	0	0
12020323	M	16	Full	Gossila	Gossila/Hakoatik	0	0	0	0

Kwakiutl 276

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
12020324	M	49	Full	Gouisla	Hakoath	0	0	0	0
12020325	F	04	Full	Hamalelegala	Hamalelegala	0	0	0	0
12020326	M	70	Full	Goanla	Goanla	0	0	0	0
12020327	F	60	Full	Goasila	Goasila	0	3	1	2
12020328	F	30	Full	Goasila	Goasila	0	1	0	2
12020329	M	16	Full	Hakoaloh	Hakoaloh	0	0	0	0
12020330	M	09	Full	Ooquma	Ooquma	0	0	0	0
12020331	F	11	Full	Hamalelegala	Hamalelegala	0	0	0	0
12020332	M	13	Full	Lauitis	Oumoyut	0	0	0	0
12020333	M	10	Full	Lacasigula	Kwakiut	0	0	0	0
12020334	M	08	Full	Lacasigula	Kwakiut	0	0	0	0
12020335	M	18	Full	Katashnokiut	Hemais	0	0	0	0
12020336	F	13	Full	Kwakiut	Hemais	0	0	0	0
12020337	F	08	Full	Kwakiut	Hemais	0	0	0	0
12020338	F	06	Full	Hamalelegala	Hamalelegala	0	0	0	0
12020339	M	39	Full	Ooquimo	Ooquimo	0	0	0	0

Pacific Northwest Coastal Tribes-B

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Daughters Alive	Daughters Dead
1.020343	M	35	Full	Spenor's Bridge	Spenor's Bridge	0	0	0	0
1.020344	M	40	Full	Lytton	{Sp. Brg./}Lytton	0	0	0	0
1.020345	M	42	Full	Lytton	{Sp. Brg./}Lytton	0	0	0	0
1.020346	M	58	Full	Spenor's Bridge	Spenor's Bridge	0	0	0	0
1.020347	M	70	Full	Spenor's Bridge	Lytton	0	0	0	0
1.020348	M	60	Full	Spenor's Bridge	Okanagan	0	0	0	0
1.020349	M	53	Full	Lytton	Lytton	0	0	0	0
1.020350	M	23	?	Lytton	German	0	0	0	0
1.020351	M	50	Full	Spenor's Bridge	Spenor's Bridge	0	0	0	0
1.020352	M	25	Full	Spenor's Bridge	Spenor's Bridge	0	0	0	0
1.020353	M	53	Full	Lillooet	Lytton	0	0	0	0
1.020354	F	32	Full	Spenor's Bridge	Spenor's Bridge	1	4	0	1
1.020355	F	60	Full	Lytton	Lytton	0	2	0	2
1.020356	M	51	Full	Spenor's Bridge	Spenor's Bridge	0	0	0	0
1.020357	F	52	Full	Spenor's Bridge	Spenor's Bridge	0	7	0	5
1.020358	M	12	?	Spenor's Bridge	White	0	0	0	0
1.020359	F	06	Full	Spenor's Bridge	Spenor's Bridge	0	0	0	0
1.020360	M	29	Full	Thompson	English	0	0	0	0
1.020361	F	33	Full	Lytton	Okanagan	1	2	2	1
1.020362	F	03	Full	Okanagan	;	0	0	0	0

Pacific Northwest Coastal Tribes-H

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
12020363	M	33	Full	Spenor's Bridge	Spenor's Bridge	0	0	0	0
12020364	M	54	Full	Spenor's Bridge	Spenor's Bridge	0	0	0	0
12020365	F	53	Full	Wakayab	1/2 Shushwap/1/2 Wakayab	3	5	0	2
12020366	M	07	Full	Spenor's Bridge	Spenor's Bridge	0	0	0	0
12020367	F	29	Full	Lytton	Nicola	0	1	0	1
12020368	M	48	Full	1/2 Spen. Brg./1/2 Shushwap	Wakayab	0	0	0	0
12020369	F	39	Full	Spenor's Bridge	Lytton	0	0	0	1
12020370	M	09	1	1/2 Thompson/1/2 Mulatto	Shushwap	0	0	0	0
12020371	F	37	Full	Spenor's Bridge	Spenor's Bridge	0	3	0	1
12020372	M	46	Full	Spuzzum	Lytton	0	0	0	0
12020374	M	15	Full	Lytton	Lytton	0	0	0	0
12020375	F	32	1	Lytton	Scotch	1	0	0	1
12020376	M	33	Full	Lytton	Spuzzum	0	0	0	0
12020377	F	37	Full	Nicola	Lytton	2	0	0	4
12020378	F	16	Full	Lytton	Lytton	0	0	0	0
12020379	M	32	Full	Lytton	Spuzzum	0	0	0	0
12020380	M	25	Full	Lytton	Spuzzum	0	0	0	0
12020381	M	58	Full	Spuzzum	Spuzzum	0	0	0	0
12020382	M	25	Full	Lytton	North Bend	0	0	0	0
12020383	F	16	Full	Lytton	Lytton	0	0	0	0

Pacific Northwest Coastal Tribes--10

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
1000334	F	53	Full	Lytton	Lytton	0	1	0	2
1000335	F	16	$\frac{1}{2}$	Lytton	French	0	0	0	0
1000336	F	36	Full	Lytton	Spuzzum	0	0	1	0
1000337	F	33	Full	Lytton	Lytton	2	2	1	3
1000338	M	07	Full	Lytton	Lytton	0	0	0	0
1000339	F	55	Full	Lytton	Lytton	0	2	0	0
1000340	M	13	Full	$\frac{1}{2}$ Lytton/ $\frac{1}{2}$ Spenore	Lytton	0	0	0	0
1000341	M	65	Full	Lytton	Lytton	0	0	0	0
1000342	F	09	Full	Lytton	Lytton	0	0	0	0
1000343	M	09	Full	?	?	0	0	0	0
1000344	M	11	$\frac{1}{2}$	Lytton	White	0	0	0	0
1000345	M	12	Full	Lytton	Lytton	0	0	0	0
1000346	M	22	Full	Lytton	Lytton	0	0	0	0
1000347	M	22	$\frac{1}{2}$	Spenore's Bridge	Seotch	0	0	0	0
1000348	M	65	Full	Lytton	Lytton	0	0	0	0
1000349	F	06	$\frac{1}{2}$	$\frac{1}{2}$ Malak/ $\frac{1}{2}$ White	$\frac{1}{2}$ Malak/ $\frac{1}{2}$ White	0	0	0	0
1000350	M	04	Full	Spenore's Bridge	Spenore's Bridge	0	0	0	0
1000351	F	09	$\frac{1}{2}$	$\frac{1}{2}$ Malak/ $\frac{1}{2}$ White	$\frac{1}{2}$ Malak/ $\frac{1}{2}$ White	0	0	0	0
1000352	F	45	Full	Lytton	Lytton	0	0	0	0
1000353	F	39	$\frac{1}{2}$	Lytton	White	2	0	2	0

Pacific Northwest Coastal Tribes-21

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
12020404	M	24	Full	Lytton	Lytton	0	0	0	0
12020405	M	22	Full	Lytton	Lytton	0	0	0	0
12020406	M	45	Full	Lytton	Lytton	0	0	0	0
12020407	F	11	Full	Lytton	Lytton	0	0	0	0
12020408	F	30	Full	Lytton	Lytton	1	1	0	4
12020409	F	13	Full	Lytton	Lytton	0	0	0	0
12020410	M	28	Full	Lytton	Lytton	0	0	0	0
12020411	F	40	Full	Lytton	Lytton	1	1	1	1
12020412	F	60	Full	Lytton	Lytton	0	0	0	0
12020413	M	08	$\frac{1}{2}$	$\frac{1}{2}$ White	Spenor's Bridge	0	0	0	0
12020414	F	10	Full	Lytton	Lytton	0	0	0	0
12020415	M	28	Full	Lytton	Lytton	0	0	0	0
12020417	M	65	Full	Lytton	Lytton	0	0	0	0
12020418	F	30	Full	Lytton	Spenor's Bridge	0	1	2	3
12020419	F	10	Full	Lytton	Lytton	0	0	0	0
12020420	F	13	Full	Lytton	Lytton	0	0	0	0
12020421	M	45	Full	Lytton	Lytton	0	0	0	0
12020422	M	60	Full	Lytton	Lytton	0	0	0	0
12020423	F	18	Full	Lytton	Lytton	0	0	0	0
12020424	F	19	Full	Lytton	Lytton	0	0	0	0

Pacific Northwest Coastal Tribes-22

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Dau Alive	Dau Dead
12020425	F	32	Full	Lytton	Lytton	2	2	2	2
12020426	M	55	Full	Lytton	Lytton	0	0	0	0
12020427	M	05	Full	Lytton	Lytton	0	0	0	0
12020428	M	47	Full	Lytton	Lytton	0	0	0	0
12020429	F	32	Full	North Bend	Lytton	3	1	1	1
12020430	F	52	Full	Lytton	Lytton	0	1	1	1
12020431	M	06	Full	Lytton	Lytton	0	0	0	0
12020432	M	06	Full	Lytton	Lytton	0	0	0	0
12020433	F	07	Full	Lytton	Lytton	0	0	0	0
12020434	F	06	Full	Lytton	Lytton	0	0	0	0
12020435	F	60	Full	Lytton	Lytton	0	2	2	3
12020436	M	60	Full	Lytton	Lytton	0	0	0	0
12020437	F	12	Full	Lytton	Lytton	0	0	0	0
12020438	F	18	Full	Lytton	Lytton	0	0	0	0
12020439	M	58	Full	Lytton	Lytton	0	0	0	0
12020440	M	50	Full	Lytton	Spenor's Bridge	0	0	0	0
12020441	M	65	Full	Lytton	Lytton	0	0	0	0
12020442	M	48	Full	Lytton	Lytton	0	0	0	0
12020443	M	38	Full	Lytton	Lytton	0	0	0	0

Pacific Northwest Coastal Tribes-23

Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons' Alive	Daughters Alive	Daughters' Alive	Lead
12020444	F	35	Full	Lytton	Lytton	1	2	2	4	
12020445	F	40	Full	Frazer River	Frazer River	3	1	2	1	
12020446	F	19	Full	Poster Bar	Lytton	0	0	0	0	
12020447	M	11	Full	Fork Bar	Lytton	0	0	0	0	
12020448	F	40	Full	Lytton	Lytton	1	2	0	3	
12020449	F	09	Full	Lytton	North Bend	0	0	0	0	
12020450	M	55	Full	Lytton	Lytton	0	0	0	0	
12020451	F	75	Full	Lytton	Lytton	0	0	2	9	
12020452	F	55	Full	Lytton	Lytton	1	1	3	2	
12020453	M	10	Full	Lytton	Lytton	0	0	0	0	
12020454	F	55	Full	Lytton	Lytton	0	0	1	9	
12020455	F	58	Full	Lytton	Lytton	2	4	1	4	
12020456	M	09	Full	Lytton	Lytton	0	0	0	0	
12020457	M	20	Full	Lytton	Lytton	0	0	0	0	
12020458	M	16	Full	Lytton	Lytton	0	0	0	0	
12020459	M	35	Full	North Bend	North Bend	0	0	0	0	
12020460	M	53	Full	Boston Bar	Boston Bar	0	0	0	0	
12020461	M	09	Full	Boston Bar	Boston Bar	0	0	0	0	
12020462	M	09	Full	Boston Bar	Boston Bar	0	0	0	0	

Pacific Northwest Coastal Tribes-24									
Form #	Sex	Age	Purity	Mother's Tribe	Father's Tribe	Sons Alive	Sons Dead	Daughters Alive	Daughters Dead
15010467	F	11	Full	Boston Bar	Boston Bar	0	0	0	0
15010463	M	09	Full	Boston Bar	Boston Bar	0	0	0	0
15010469	M	09	Full	Boston Bar	Boston Bar	0	0	0	0
15010470	M	12	Full	Boston Bar	Boston Bar	0	0	0	0
15010471	M	55	Full	Boston Bar	Boston Bar	0	0	0	0
15010472	M	60	Full	Boston Bar	Boston Bar	0	0	0	0
15010473	M	60	Full	Boston Bar	Boston Bar	0	0	0	0
15010474	M	65	Full	Boston Bar	Boston Bar	0	0	0	0
15010475	M	56	Full	Boston Bar	Boston Bar	0	0	0	0
15010476	M	65	Full	Lytton	Lytton	0	0	0	0
15010477	M	55	Full	Boston Bar	North Bend	0	0	0	0
15010478	M	05	Full	?	Boston Bar	0	0	0	0
15010479	M	05	Full	Boston Bar	Boston Bar	0	0	0	0
15010480	F	25	Full	Boston Bar	Boston Bar	1	1	1	1
15010481	F	06	Full	Boston Bar	Boston Bar	0	0	0	0
15010482	F	60	Full	Boston Bar	Boston Bar	0	3	1	2
15010483	F	42	Full	Boston Bar	Boston Bar	1	0	0	3
15010484	F	55	Full	Boston Bar	Boston Bar	2	1	1	0
15010485	F	60	Full	Spuzzum	Spuzzum	0	2	0	3
15010486	F	40	Full	Boston Bar	$\frac{1}{2}$ Lytton/ $\frac{1}{2}$ Bos. Bar	4	4	2	2

Pacific Northwest Coastal Tribes-25

Para #	Sex	Age	Purity	Herb's Tribe	Father's Tribe	Sons Alive	Sons Dead	Daughters Alive	Daughters Dead
12020487	F	05	Full	Boston Bar/Lytton	Lytton	0	0	0	0
12020488	F	03	Full	3/4 Bos. Bar/Lytton	Lytton	0	0	0	0
12020489	F	10	3/4	Boston Bar	3/4 Breed?	0	0	0	0
12020490	F	25	Full	Boston Bar/Lytton	Lytton	0	0	0	0
12020491	M	55	Full	Spuzzum	Spuzzum	0	0	0	0
12020492	F	53	Full	Spuzzum	Spuzzum	0	0	0	5
12020493	F	33	Full	Boston Bar	Boston Bar	2	2	3	4
12020494	F	55	Full	Spuzzum	Spuzzum	0	0	0	0
12020495	F	53	Full	Spuzzum	Spuzzum	0	3	1	2
12020496	M	15	Full	Spuzzum	Spuzzum	0	0	0	0
12020497	M	45	Full	Spuzzum	Spuzzum	0	0	0	0
12020498	M	53	Full	Spuzzum	Spuzzum	0	0	0	0
12020499	M	55	Full	Spuzzum	Spuzzum	0	0	0	0
12020500	M	55	Full	Spuzzum	Spuzzum	0	0	0	0
12020501	M	45	Full	Spuzzum	Spuzzum	0	0	0	0
12020502	M	40	Full	Spuzzum 3/4	Spuzzum	0	0	0	0
12020503	M	23	Full	Spuzzum	Spuzzum	0	0	0	0
12020504	F	42	Full	North Bend	Lytton	0	0	0	0
12020505	M	48	Full	Boston Bar	Boston Bar	0	0	0	0

Vita

Sheralyn D. Robinette was born in Staunton, Va. on September 17, 1963. She grew up in Staunton Va. and Bluefield W. Va.. She attended the University of Tennessee at Knoxville where she obtained a Bachelor of Arts degree in Anthropology in 1988.

Miss Robinette entered the graduate program at the University of Tennessee at Knoxville in 1988. Since that time, she has worked toward a Master of Arts degree in Anthropology.

Beginning in the Fall of 1990, Miss Robinette will begin the program leading to a Doctor of Philosophy degree in Anthropology at the University of Tennessee at Knoxville. In addition, she will begin work as a Graduate Teaching Assistant in Cultural Anthropology.

Current topics of interest include evolutionary theory, Native American societies, and culture's role in health and disease. This coming year, she will be a research assistant on a grant through Child and Family Studies, focusing on drug abuse prevention in the Knoxville area.