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Geographic Variation in Native American Anthropometrics: a Spatial Analysis of the Boas and Gifford Datasets

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To the Graduate Council:

I am submitting herewith a dissertation written by Paul Christopher Dillingham entitled "Geographic Variation in Native American Anthropometrics: a Spatial Analysis of the Boas and Gifford Datasets." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Anthropology.

Richard L. Jantz, Major Professor

We have read this dissertation and recommend its acceptance:

Andrew Kramer, Lyle W. Konigsberg, Mary Sue Younger

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Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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and recommend its acceptance:

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GEOGRAPHIC VARIATION IN NATIVE AMERICAN ANTHROPOMETRICS: A SPATIAL ANALYSIS OF THE BOAS AND GIFFORD DATASETS

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Paul Christopher Dillingham
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ABSTRACT

In 1982, anthropometric data that had been lost for decades was rediscovered, and, with it, another chance was granted to add to our knowledge of the physical anthropology of the American Indian.

Because previous spatial analysis studies either utilized only a portion of the Boas data and either utilized no statistical analyses or were not published, a more comprehensive spatial analysis is still needed. The purpose of this study is to more comprehensively re-analyze the Boas and Gifford datasets using spatial analysis methods to discover the patterns of variation revealed by the data. The following questions using spatial autocorrelation analysis were addressed. First, is there significant heterogeneity in the anthropometric data? Second, what spatial patterns are revealed by the data? Third, do the data show significant spatial structure? Fourth, do the patterns revealed by the analysis show evidence of the migration or migrations that brought Native Americans to the New World? Matrix correlation analysis utilized to examine what influence language may have had on the variation displayed in the Boas and Gifford data sets. This was thought to be important because languages that are mutually unintelligible can affect the amount of gene flow between populations.

The sample sizes consisted of 9024 individuals subdivided into 120 populations for the head dimensions and 8445 individuals spread over 119 populations for the body dimensions. The variables used in the analysis consisted of 12 anthropometric dimensions and 2 additional dimensions, arm length, calculated by subtracting finger height from shoulder height, and leg length, calculated by subtracting sitting height from standing height. The head and body measurements were analyzed separately.

After the data were corrected for inter-observer error, and age and sex variation, a variety of univariate and multivariate methods were used to address the above questions. Canonical discriminant analysis was performed to allow the spatial autocorrelation analysis to be done multivariately. For the spatial autocorrelation analysis, fifteen distance classes were chosen and Moran's I and Geary's c coefficients were calculated. Because the one-dimensional correlograms used cannot give the direction of the spatial pattern, two-dimensional correlograms were constructed. Six distance classes were used.

Because spatial autocorrelation does not take the influence of language on the variation into account, matrix correlation analysis was utilized to assess this influence as well as the role of the interplay between language and geographical distance on the variability of the data. Analyses were run checking for correlations between anthropometrics and geographic distance, anthropometrics and language distance, anthropometrics and geographic distance holding language constant, and anthropometrics and language holding geographic distance constant. In order to check for boundaries to gene flow, Wombling was applied to the data. Plots were generated to show the boundaries discovered by this method.

The results of the canonical discriminant analysis, spatial autocorrelation analysis, matrix correlation and Wombling revealed very little evidence for linguistic or geographic patterning in the head data, but evidence of this type was revealed by the body data.

Overall, the results showed that the head data produced little evidence for inter-continental migrations, but the body data revealed evidence for at least one such migration. In addition, a complex network of gene drift, regional gene flow, and natural selection was mainly responsible for the variation in the data.

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CHAPTER ONE

INTRODUCTION

In 1982, anthropometric data that had been lost for decades was rediscovered (Jantz et al., 1992), and, with this discovery, another chance was granted to add to our knowledge of the physical anthropology of the American Indian. This anthropometric data had been collected by, or collected under, the supervision of one of the most renowned anthropologists of the nineteenth century, Franz Boas. These measurements were part of some of the most ambitious projects ever undertaken in the history of anthropology, the results of several expeditions supported by the British Association for the Advancement of Science from 1888 to 1897 (Pacific Northwest and southern California), the Jesup North Pacific expedition from 1897 to 1902 (Northwest North America and Siberia), the Huntington California expedition from 1897 to around 1902, and the World's Columbian Exposition from 1891 to 1892 (most major areas of the United States and Canada) (Jantz, 1995; Jantz et al., 1992).

These expeditions generated anthropometric and pedigree data from thousands of individuals collected by approximately 50 observers. The anthropometric data included 15 measurements from the body, head, and face. Anthropologists know pedigree data was collected because the original data sheets have survived, and they provide blanks for recording birthplace, tribal affiliation of mothers and fathers, number of children alive or dead, and parental affiliation (identified by parent's I.D. number) (Jantz et al., 1992). Boas apparently intended to use the pedigree data as an aid in his hereditary, morphological, demographic and growth studies (Boas, n.d.; Boas, 1889; Boas, 1892; Boas, 1894; Boas, 1895; Boas 1899c; Boas, 1902; Boas, 1905; Jantz, 1995; Stocking, 1968).

Boas undertook these ambitious projects for several reasons. First, they were representative of his anthropological philosophy. He believed, according to Rohner (1969) and as detailed in articles written by

Boas from 1886 to 1896 (Boas, 1887b; Boas 1889; Rohner, 1969; Stocking, 1974), that one should collect all the data possible from a culture, including cultural objects, language texts, folk tales, and anthropometric measurements. Then one could expand those studies to other cultures within the same limited geographical area and collect as much data as possible. Information generated from the data, or tribal histories, on each culture, could then be compared and knowledge gained about the historical causes of cultural behavior. Boas hoped that further information would be uncovered about the influence of the environment and psychology on the development of these cultures. Once all data were collected and information obtained about history, behavior, and environmental influences, general laws governing the development of culture could then be searched for.

Second, since Boas began his scientific career as a physicist and geographer, he had gained a good background in mathematics and statistics. One principle of statistics that he adhered to was that one must collect large amounts of data to obtain accurate results (Boas, 1895; Jantz, 1995). Although this practice made the task of data analysis much more difficult with the rather primitive paper and pencil methods of the day, it appears that he was collecting the large amounts of data with the expectation that faster methods of statistical analysis would one day be available. This seems to have been the hope of many biological anthropologists of the day. As Hershkovits (1953:48) wrote: "The protest of one industrious and respected measurer of bones, when asked what use he made of the data he set down, is not atypical. 'It is not for us to do more than record the facts as carefully as we can,' he replied. 'Sooner or later someone will come who will put them to use.'"

The final reason for his collection of such large amounts of anthropometric data was his fear that Native American tribes were rapidly being assimilated into the Euro-American culture. Many anthropologists thought that unless they wanted to study Native American culture in retrospect, they should quickly collect as much data as possible (Dexter, 1976; Langness, 1987; Jantz, 1995). The data that was collected later proved to be a great asset to anthropologists

interested in Native American culture and biology.

This mass collection of data resulted in the publication of several articles by Boas and a few others. The work Boas did for the Committee for the British Association for the Advancement of Science (BAAS) resulted in several reports (Jantz, 1995). (It appears there were twelve reports in all [Boas, 1899c].) The first report (Boas, 1889), for example, covered the work done in the summer of 1888 that included information collected from the Tlingit, Haida, Tsimshian, and Kootanie. The information collected from each tribe included data on food acquisition, housing, social organization, political organization, birth, marriage, and death customs, religion, secret societies, and morphology. The discussion about morphology is mostly descriptive.

Boas (1892) also wrote a paper published by the Committee for the BAAS, but funded by the Bureau of Ethnology. Mainly descriptive in nature, this article was based on anthropometric data collected from Native Americans while he was in Oregon, Washington, and British Columbia and dealt with the morphology of tribes from the Pacific Northwest.

The work done for the World's Columbian Exposition also produced a few papers. Boas' (1895) first paper for the exposition, written in German, contains means, cranial indices, tables and plots of frequency distributions of data from living individuals and human skeletal remains. He provides results from his investigations of half-blood Indians as well, a great interest for him. Boas (1899c) also published on the data collected from the Shoshonean tribes (Shoshoni, Bannock, Unitah, White River, Uncompagre, Moache, Capote, and Ute). He presents tables of averages, standard deviations, sample sizes for each tribe, indices, and frequency distribution tables. In essence, the paper is a presentation of the data, not an analysis. Boas (n.d.) wrote a similar paper but never published it. Here he follows a similar approach to his other papers using the Columbian Exposition data. The data collected for the World's Columbian Exposition also produced a study on Native American-White admixture (Boas, 1894). It was designed to address the hypothesis that admixed Native Americans were not as fertile as non-admixed Native

Americans, and, therefore, these populations would not survive. Boas showed otherwise through his use of frequency curves. Sullivan's (1920) work on the Sioux follows a pattern similar to the work done by Boas. Tables of averages, standard deviations and sample sizes are presented along with tables of frequency distributions of the data and a discussion of White-Native American admixture. However, Sullivan differs from Boas in that he looks at how the measurements correlate with each other through the calculation of correlation coefficients.

According to Jantz (1995), the data collected for the Jesup North Pacific Expedition were never published. Only one publication resulted from the project, a paper written by Dina Jochelson-Brodskya about anthropometric variation of Siberian women (Jochelson-Brodskya, 1906 cited in Jantz, 1995). Apparently, a rift developed between Jesup and Boas because Boas never published the data, which contributed to his leaving the American Museum (Freed et al., 1988).

Finally, like the Jesup North Pacific Expedition, few studies were published connected with the Huntington California Expedition. Boas (1905) did publish the data, however. The study used data from five tribes of central California. As with many of his other studies, he calculates means and constructs frequency tables of each measurement for each tribe, but this study differs from some of his others in that he presents the raw data collected by Roland Dixon for the Huntington California Expedition and V. K. Chesnut for the World's Columbian Expedition.

In all these studies, Boas seems to have followed a pattern in his presentation of the data. He presented tables of means, sometimes including standard deviations, as well as frequency distributions of all measurements. To aid in his descriptions of the data, he often presented frequency plots. In no study does he show statistical analyses. The fact that there were no computers available to perform complex statistical analyses forced anthropologists to make calculations manually on paper. What can be done quickly, easily, and accurately today was a huge

undertaking in the days before the invention of the high-speed computer (Jantz et al., 1992; Jantz, 1995).

In the two decades since the rediscovery of the data, several studies have been done using complex statistical analyses on high-speed computers. Falsetti (1989) used the data from western North America, various data transformation methods, and principal components analysis, canonical discriminant analysis, and canonical correlation analysis to study the affects of temperature, humidity, and precipitation on morphology. The "first general analysis of anthropometric variation based on Boas' data" (Jantz et al., 1992:437) used canonical disciminant analysis and principal components analysis. Hall and Hall (1995) used the Boas data from the panhandle of Alaska, British Columbia, Washington, Oregon, California, and Nevada to study the effects of geography, habitat, rainfall, and January temperature on morphology. The authors utilized regression and correlation methods. Ousley (1995) used canonical analysis and the UPGMA clustering technique to test Boas' Eskimo wedge theory. Konigsberg and Ousley (1995) used data collected from the Cherokee, Chippewa, Micmac, Mississauga, and Ojibwa, and employed maximum likelihood estimates, likelihood ratio tests, Mahalanobis D^2, and least-squares procrustes analysis to test the appropriateness of anthropometric data in population genetic studies. In addition, Jantz and Meadows (1995) used data on the Algonquian speaking tribes in the Boas data. The authors utilized multivariate statistical techniques offered by the Rmet computer software package, canonical analysis, and matrix correlation and partial correlation methods to study the genetic relationships of these tribes. Most recently, Wescott and Jantz (1999) have also applied the Rmet package, canonical analysis and ANOVA to test the hypothesis that the Assiniboine split from the Yankton Sioux in the early seventeenth century. The availability of high-speed computers to perform the complex statistical methods employed by the authors discussed above have greatly added to the knowledge of Native American variability.

However, as Jantz noted in 1995, "there is much more that might be done" (Jantz, 1995:352).

Statement of Problem and Justification

One of the goals of anthropological genetics is to study the patterns of geographical variation in order to infer the micro-evolutionary processes that caused the pattern. This is no less important in the understanding of Native American variability. The use of spatial analysis methods can be used to accomplish this goal. With respect to anthropometric data, in general and the Boas and Gifford datasets specifically, this problem has previously only been touched upon. There have only been two attempts to spatially analyze these datasets. The first was by Boas himself who constructed maps of the geographical distribution of stature and cranial index in his data (Jantz, 1995). However, it appears that no statistical analyses were employed in mapping these variables and, therefore, any inferences made about the geographical variation of the data would be suspect. The second was by Falsetti (1993) who presented a paper at the annual meeting of the American Association of Physical Anthropologists in Toronto, Ontario, Canada. Falsetti used data from 80 tribes from North America and constructed one-dimensional and two-dimensional plots of the spatial autocorrelation coefficients he calculated. Unfortunately, this paper was never published, so the details of his findings are unavailable. Therefore a thorough spatial analysis of the data is still needed.

The purpose of this study is to re-analyze the Boas dataset more comprehensively, to discover the spatial patterns that are revealed by the data, using spatial autocorrelation analysis, which Falsetti did use, matrix correlation, and Wombling analysis, which Falsetti did not employ, as well as data that Falsetti did not use in his paper. In this dissertation data from Siberia, collected under the direction of Boas as part of the Jesup North Pacific Expedition, and data collected in California by Edward Winslow Gifford, Alfred Kroeber, and Samual Barrett in the 1920's are included. Gifford appears to have published only two papers using his data--*Californian Anthropometry* (Gifford, 1926a) and *Californian Indian Physical Types* (Gifford, 1971). However, the methods of Gifford, Kroeber, and Barrett are similar to Boas' method, and, therefore, appear to be comparable to the Boas dataset.

When values of a variable are associated with values of the same variable spatial autocorrelation is said to exist (Sokal and Oden, 1978a; Sokal, 1979). In this sense, spatial autocorrelation has to do with the degree that populations are similar to each other over geographical distance. Closer populations tend to be more similar than populations that are located relatively far away from each other. The amount of autocorrelation can be measured by calculating a spatial coefficient as a correlation coefficient, Moran's I, or a distance coefficient, Geary's c. High positive values of these coefficients often mean that populations are similar and located near to each other, while low negative values mean that populations are dissimilar and located at greater distances apart. When either of these coefficients is plotted against distance, the resulting plot is called a one-dimensional correlogram because only distance is plotted against the coefficient. When compass direction is taken into account the resulting plot of concentric rings is called a two-dimensional correlogram because both distance and direction are taken into account. The interpretation of these plots allows for the inference of micro-evolutionary mechanisms and two-dimensional correlograms allow for the determination of the direction of the influence of these mechanisms. (See chapter 4 for a detailed discussion about spatial analysis methods.) There are certain questions that are routinely asked as part of this type of analysis such as: 1) is there statistically significant heterogeneity in the data? 2) What spatial patterns are revealed by the data? 3) Do the data show high levels of spatial structure? The first question is perhaps the most important because if non-significant heterogeneity is found, it means the analysis should be stopped because statistically significant differences between the population means do not exist. Fortunately, this appears to be a very rare occurrence in anthropological genetics (Barbujani, 2000; Sokal, 1979; Sokal, 1984; Sokal, 1986; Sokal and Oden, 1978a; Sokal and Wartenberg, 1981). The second question is important because the patterns revealed by the correlograms allow for the inference of such evolutionary mechanisms as natural selection and gene flow. The third question is also important. If no significant spatial structure is found, that means that only random processes, such as gene

drift, are affecting the variation in the data, and implies that the populations are isolated.

Another question that is of interest, connected more with question 2, is: do the patterns revealed by the analysis show evidence of the migration or migrations that brought Native Americans to the New World? This is a question that has concerned anthropologists for centuries. For example, both Boas and Hrdlicka formed hypotheses about the population of the New World (Ousley, 1995). Green et al. (1986) formed a hypothesis based on language, dentition, and genetic evidence suggesting three migrations. Recently, Powell and Neves (1999) analyzed samples of crania from Paleoindian, and Archaic crania, and compared them to a large worldwide late Holocene cranial sample. Their results convinced them that there might have been more reasons for the appearance of Native Americans in the New World than one or more migrations. Barbujani (1987a), Binkley (1985), Sokal et al (1989), Sokal et al. (1996), Sokal and Livshits (1993), and Sokal et al. (1997) have successfully used spatial autocorrelation methods to uncover evidence in favor of the Indo-European demic diffusion model. In addition, O'Rourke et al. (1992) have used spatial autocorrelation methods to reveal clinal patterns, an indicator of migration, in allele frequency data of Native Americans in North, Central, and South America. Because spatial autocorrelation methods account for patterns other than just clinal patterns, it is hoped that this methodology can reveal further information about the complex mechanisms involved in the peopling of the New World.

If languages are mutually unintelligible, they can interfere with the exchange of genes between populations and therefore influence gene flow (Crawford, 1998). Spatial autocorrelation analysis does not allow the study of the effects of language on human variation. For this reason, I want to look at the possible influence that language may have had on the variation displayed by the Boas and Gifford datasets by utilizing matrix correlation. Other studies that have examined the effects of language on the variation of the Boas and Gifford data sets have found that Native American languages have not had any statistically significant affects on

the variation (See for example, Byrd, 1993; Dillingham, 2000; Jantz and Meadows, 1995). However, these studies have examined the influence of language on only a portion of the dataset rather than on the entire dataset as is done here.

Finally, I also apply a method that has not often been used in Native American biological studies. This method is Wombling, a name given by Barbujani et al. (1989) who developed the method in honor of the man who was responsible for suggesting it, William Womble (1951). The importance of this method is shown by the fact that topography as well as language can erect barriers that affect the variation of populations by cutting off gene flow or influencing the environment that must be adapted to. Again, spatial autocorrelation analysis does not take this into account. So, other means of analysis to reveal these barriers must be used.

In conclusion, this dissertation employs a wide range of statistical techniques to elucidate the variation present in the Boas and Gifford datasets. The re-discovery of the Boas and Gifford datasets has given biological anthropologists of the present day a chance to analyze data with equipment that did not exist in the late nineteenth and early twentieth centuries. As a result, I have also benefited from this re-discovery, and have been given a unique opportunity to use methods that Boas could only have dreamed of in his day. Therefore, it is my hope that the research done in this dissertation will contribute to the knowledge of Native American variability.

CHAPTER TWO

HISTORICAL BACKGROUND

The purpose of this study is to analyze a set of anthropometric measurements collected in the late nineteenth and early twentieth centuries by, among others, Edward Winslow Gifford, Alfred Kroeber, Samuel Barrett, and Franz Boas.

Although it might seem logical to discuss the historical background of the projects that resulted in the collection of the data used in this dissertation, a discussion of this nature has already been presented in Falsetti's (1989) dissertation. Therefore, it appears more appropriate to discuss the backgrounds of the individuals involved and their experiences that may eventually have resulted in the collection of the data. If the events that occurred in these individuals' lives had not happened, the large dataset used in this dissertation might never have been collected, preventing anthropologists, both past and present, from having the opportunity to study the biology of many Native American tribes before their culture was either eradicated or changed forever.

In this chapter, I will first discuss the background of Franz Boas and the circumstances that more than likely brought him to the study of anthropology. Second, I will deal with the relationship between Boas' physical anthropology and his ethnology and the role this connection may have had in collection of data used in this study. Finally, I will treat briefly the historical background of those involved in the collection of Gifford's Californian anthropometric data.

Franz Boas was perhaps one of the most influential anthropologists in the history of our relatively young science. Some have called him a "prophet" or the "father of American anthropology" (Mead, 1959:30; Holloway, 1997:86). Ironically, he was not trained in anthropology. He was educated first at the Universities of Heidelberg and Bonn, but he did not become a serious student until he enrolled at the University of Kiel (Herskovits, 1953; Kluckhohn and Prufer, 1959; Goldstein, 1981). His primary training was in physics, mathematics and geography (Rohner,

1969), interests that he no doubt had developed in high school. He was granted his doctorate from the University of Kiel in physical science [physics with a minor in geography (Herskovits, 1953)] in 1881 (Falsetti, 1989:20). Benison (1949) adds that before Boas began to devote his time to ethnography he made a significant contribution to geography. He attempted to make a case for geography as a separate discipline and wrote reviews that stressed the application of geographical methodology to sociology. So with this being said, how did he become the great anthropologist that we know today?

Boas was born in Minden, Prussian Westphalia (Germany), in July of 1858 to a father who was a merchant and a mother who was evidently a teacher as she founded the first Froebel Kindergarten in Minden (Herskovits, 1953; Cole, 1985). Both parents were Jewish and liberal (Cole, 1985). Toward the end of his life Boas wrote:

> The background of my early thinking is a German home in which the ideals of the Revolution of 1848 were a living force. My father, liberal, but not active in public affairs; my mother, idealistic, with a lively interest in public matters, the founder about 1854 of the kindergarten of my home town, devoted to science (Boas, 1939:19).

Here we see that Boas must have enjoyed a fairly normal childhood, but the phrase "devoted to science" gives a clue that his own early interest in science probably derived from his mother's influence. A hint as to what he was to become emerges from his statement that: "An early intense interest in nature and a burning desire to see everything that I heard or read about dominated my youth" (Boas, 1939:19). Here he mentions his desire for travel and interest in nature, but many young boys have fantasized about travel and wondered about the world around them. However, Kluckhohn and Prufer (1959:6) give us another clue when they write: "at the age of thirteen Boas was already talking like an anthropologist." They also report that in a letter to his sister a teenage Boas wrote that "he would like to go on an expedition to the North or South Pole and travel to Australia or Africa" and "do research in 'all the unknown lands'" (Kluckhohn and Prufer, 1956:6). It seems that as a

high school student he was broadly educated. His curriculum vitae mentions that he studied many areas of science, such as botany, geology, biology, geography, and physics and of the humanities such as English, Greek, and Latin. Boas remarks in his vitae that he liked geography the most but that he was very interested in mathematics and natural sciences as well (Kluckhohn and Prufer, 1959). He adds that "I was most interested in cultural history and was very sorry that it was very meagerly or not at all touched upon in school" (cited in Kluckhohn and Prufer, 1959:6). This is perhaps our greatest clue as to what was to come since an interest in culture history reflects an interest in culture itself and is the main component in the discipline of anthropology. His interest in history, of course, later influenced his approach to anthropology.

While working on his dissertation, he raised questions about how an observer might perceive certain phenomena (i.e., the color of water in this case) and how this perception might affect the ability to measure the phenomenon in question (Stocking, 1974). These questions developed because Boas' judgment involving determining the amount of light absorbed by various samples of water was quite subjective at times. He realized that it was sometimes difficult to tell the difference between light intensities that differed only slightly (Stocking, 1968). His daughter related that "Boas was disappointed in his results of the paper on colors of seawater because they were subjective and he could not figure out any way of making them exacting as he felt should have been done" (cited in Herskovits, 1957:115). To solve this problem he turned to psychophysics, an attempt at applying experimentation to psychology (Kroeber, 1959). He also wrote several articles on the subject of psychophysics while serving out his military obligation, but he soon gave this up because, as he wrote in a letter to his uncle, it led him "too far afield" and because his military obligations prevented him from performing experiments (cited in Stocking, 1968:137). Apparently, he had plans to return to psychophysics because he wrote in a letter sometime later that he had the exact outline prepared for a book on the subject (Stocking, 1968).

It also appears that Boas' dissatisfaction with the results of his dissertation lead him to make plans to go to Baffin land in the Arctic in 1883. However, there is some controversy as to the motivation for this trip. For example, one of his students, Ruth Benedict, presented a story about the reason for Boas' trip to the Arctic that had circulated among his students for years (Stocking, 1968). In Boas' obituary she wrote:

> . . . his first act after receiving his degree was typical of the man. He had already arrived at his life-long conviction that for most scientific problems mere examination of the existing data or cunningly devised laboratory experiments are not enough; he saw the necessity of gathering new first-hand material on conditions as they actually exist in human experience. He wanted in fact, to investigate sea water and ice under winter conditions in the Arctic (Benedict, 1943:60).

Boas himself may have encouraged this idea as evidenced by what he wrote shortly before his death. He stated in 1939 that he decided to go to the Arctic to discover new information about an unknown region and to obtain new knowledge about how humans reacted, psychologically, to the environment (Boas, 1939). However, Herskovits (1953) implies that this was of suspect authenticity, perhaps, merely the ramblings of an old man whose memory had grown fuzzy with age. Herskovits adds that there was ample evidence that the motivation of Boas' trip was essentially geographical; he wanted to map the region. The idea that Boas wanted to study how the Eskimos perceived the color of water was not even mentioned in any of the reports he wrote between 1884 and 1888. Herskovits also quotes a letter Boas wrote to his uncle in November of 1882 as evidence for his position, but Stocking (1968:137) reports that this letter was one of the "least informative of a series of letters written during 1882 and 1883 by Boas to his uncle." Stocking then writes that the more important letters of this series yield evidence that backs up Benedict's report of Boas' motivation for going to the Arctic. In this letter Boas writes:

> In the course of time I became convinced that my previous materialistic *Weltanschaung*--for a physicist a very understandable

> one--was untenable, and I gained thus a new standpoint which revealed to me the importance of studying the interaction between the organic and the inorganic, above all between the life of a people and their physical environment. Thus arose my plan to regard as my life's task the [following] investigation: How far may we consider the phenomena of organic life, and especially those of the psychic life, from a mechanistic point of view, and what conclusions can be drawn from such a consideration? . . . At present I am studying the dependence of the migration of present-day Eskimo on the configuration and physical conditions of the land . . . I am taking it up chiefly from a methodological standpoint, in order to discover how far one can get, by studying a very special and not simple case, in determining the relationship between the life of a people and environment (cited in Stocking, 1968:138-139).

Boas' states that his main purpose for going to the Arctic was to gather information about what the inhabitants knew about their geographical surroundings. He then planned to make a psychological study about what might hinder the inhabitant's migrations and prepare geographical maps, collect plant and animal specimens, as well as investigate the ethnology and anthropology of the region. Boas believed that to carry this study out he had to find a group of people living in the simplest conditions possible. He thought the Eskimos were such a group (Stocking 1968). These letters written in this series appear to yield more evidence in favor of Benedict's story than for Herskovit's.

In any event, Boas' preparation for this trip was quite comprehensive. He felt that to accomplish his goals he would have to gain a knowledge of such subjects as physiology, psychology, and sociology (Boas, 1882 cited in Stocking, 1974). Geographically, Boas wrote to his uncle that he had learned "how to make astronomical place determinations and meteorological predictions and other things necessary in planning a voyage" (cited in Herskovits, 1957:113). In order for Boas to make his anthropological investigations, he learned the Eskimo language and how to take anthropometric measurements (Cole, 1985). Kluckhohn and Prufer (1959) write that Virchow instructed him on the proper method of collecting anthropometric data while in Berlin.

There has been some disagreement as to what caused Boas'

transformation from physicist to anthropologist. Was it his experiences in Baffin land that influenced him to become an anthropologist, was it some later experience that caused it, or did it happen gradually? In writing Boas' obituary, Benedict stated:

> He set out as a young philosophic materialist accustomed to seek 'causes' in the natural environment; as he said much later, he went to the Arctic with 'an exaggerated belief in the importance of geographical determinants.' He returned with an abiding conviction that if we are ever to understand human behavior we must know as much about the eye that sees as about the object seen. . . . He turned therefore to the study of culture (Benedict, 1943:60).

This passage seems to imply that Boas went to the Arctic and, while there, had a life changing experience that immediately caused him to change his career focus from geography and physics to anthropology. Likewise, Herskovits writes:

> How many of us, that is, have not had the experience of going to the field with conceptions of the people and their life, and with problems that have had to be revised, often radically, in the face of the actual data? It is logical to assume that this is what happened to Boas. He had studied psychology as well as geography, and he was not so entirely committed to the latter that, on actual contact with the Eskimo, he did not perceive and study problems of quite a different kind than those he went to study (Herskovits, 1957:116).

This passage was based on a letter written to Herskovits by Gladys Reichard who had talked to Boas' daughter. In this letter Reichard writes:

> His life with the Eskimo made him change radically his predisposition to assign geographic influence as primary to the development of culture which he went with after Ratzel's influence. In other words, he was taught to realize the significance of culture by the Eskimo, and the environment seemed to him to be at least secondary. He concluded that they did things in spite of, rather than because of, the environment (Herskovits, 1957:115).

Boas' trip to the Arctic no doubt had a strong affect on him, but nowhere is there an indication that the Arctic trip was so crucial that he left Germany as a geographer-physicist and came back an anthropologist.

Stocking (1968) cites all the above sources and remarks that these people were inclined to interpret Boas' trip as a "conversion experience." Stocking himself looks upon the trip to Baffin land as more of an "abrupt theoretical reorientation, or as a therapeutic sloughing off of methodological and theoretical assumptions which proved to be inappropriate baggage for the traveler into the primitive world" (Stocking, 1968:145). Stocking also writes that the very first fieldwork experience for a student anthropologist goes far beyond the research design that he has prepared beforehand but rather shows him that there is another way of looking at the world. This experience then supposedly converts him into an anthropologist. Boas' letters reveal that he did probably have a kind of conversion experience, but not one that was so strong that it was the single factor that made him decide to make a career in anthropology. In fact, Boas may have been considering switching to anthropology even before he left for the Arctic. He wrote in January of 1883: "I am still considering whether I should let myself be taken up by the anthropologists or not. It will do no harm in any case and it puts me more frequently in touch with different people" (cited in Cole, 1985:103).

Stocking goes on to argue that the letters Boas wrote do not reveal the great conversion experience that Benedict, Reichard, and Herskovits envisioned. Instead, they convey a picture of someone who was pursuing the questions that he had originally set out to explore, the color of sea water and "problems of perception"(Stocking, 1968:145). Stocking also notes that the monographs written by Boas after his return from Baffin land give no indication that he had developed a "new appreciation of the seeing eye as organ of tradition" (Stocking, 1968:145) as Benedict wrote in Boas' obituary; nor is there any proof found in Boas' first monograph that his Arctic trip caused him to reject the geographical determinism he had come to accept. Boas himself wrote:

> A year of life spent as an Eskimo among Eskimos, had a profound influence upon the development of my views, not immediately, but because it led me away from my former interests and toward the desire to understand what determines the behavior of human beings. The first result of my attempts to explain human behavior as a result of geographical environment was a thorough disappointment. The immediate influences are patent, and the results of this study are so shallow that they do not throw any light on the driving forces that mold behavior (Boas, 1939:20-21).

Apparently, even his trip to Baffin land, which he had described as "a profound influence upon the development of my views", was not enough to make him decide to "be taken up by the anthropologists."

In fact, Stocking writes that Boas' explanation of Eskimo life was written in terms of geography not ethnology. Part of the reason may have been the overlap between ethnology and geography, particularly historical geography, in which he was most interested (Stocking, 1968). Another reason may just have been time. In 1887 Boas remarked in a letter to J.W. Powell that the more he examined his data from the Baffin land expedition the more he came to realize that the origins of phenomena such as customs, traditions, and migrations were much too complex to allow the study of their psychological causes unless one had learned the history behind their origins (Stocking, 1968). This revelation caused Boas to turn to the study of the Native Americans of the Northwest Pacific Coast of North America and to master the field of Northwest Coast anthropology, which when added to his expertise in Arctic geography and ethnology, would better qualify him for a job in anthropology (Cole, 1985).

In the spring of 1886 he left on his second expedition to British Columbia. Even at this point he could not be called an anthropologist, for he had been named docent in physical geography at the University of Berlin. However, this trip was, in contrast to his first field trip, almost entirely anthropological. By the spring of 1886 he was much more interested in history than in geography. When he returned to Germany he left his position at the University of Berlin and took a position at *Science* as the geographical editor, indicating that even

though his career aspirations were changing, he was still a geographer (Stocking, 1968).

He published his last geographical article in 1887, "The Study of Geography." Stocking (1968) feels that this article summarized Boas' changes in his scientific perspective since about 1880 and Bunzl (1996) cites Boas as saying that what he wrote in "Geography" was a summary of the general philosophical approach that he used in his later work. I believe there are hints in this geographical paper that may reveal evidence why he changed disciplines. Boas wrote:

> It is very instructive to consider thoroughly their definition of geography. They declare that the domain of this science comprises neither magnetical and meteorological nor geological phenomena and processes. They generously grant it the study of the distribution of animals and plants, as far as physiologists and evolutionists will permit; but all agree that anthropo-geography--the life of man as far as it depends on the country he lives in--is the true domain of geography (1887a: 137).

As was mentioned earlier, Boas was very disappointed in his anthropo-geographical studies in Baffin land. Perhaps this disappointment, which may only have developed after he had thoroughly analyzed his data upon returning, caused him to change to anthropology. Furthermore, Boas (1887a: 137-138) wrote: "It is evident that there is no middle way: geography must either be maintained in its full extent or it must be given up altogether." At the time he wrote this article (1885), he apparently believed that geography was an amalgam of several different sciences, but he felt that geography should be a science all to itself and not a mixture of other sciences. In addition, at the time he wrote "The Study of Geography" he was in Berlin trying to qualify himself for a professorship under the direction of Adolf Bastian and Rudolf Virchow (Stocking, 1968). These individuals no doubt influenced him in the direction of anthropology. Under these conditions, it is interesting to speculate that Boas switched from geography to anthropology because of a combination of frustration over the failure of his geographically oriented study of the Eskimo, because of the scientific orientation of geography at the time of

its development, and because of the influence of Bastian and Virchow. In any event, it seems safe to conclude, as does Stocking (1968), that this switch in career interests was a gradual change that took two years, rather than days, weeks, or months. It certainly was not quick as Benedict, Herskovits, or Reichard seemed to think. Stocking also writes that when he published *The Central Eskimo* a year later it was purely an ethnographic work. Apparently by 1888 he had changed his main career interest from geography to anthropology.

Once he finally turned his full attention to anthropology, he remained interested in the historical aspect of societies and what it could tell us about the psychological causes of "customs, traditions, and migrations" (Stocking, 1968:153). Many of his anthropological papers seem to imply that everything about the origins of cultures and its people boiled down primarily to history and secondarily to psychology. This can be seen in, as Benedict (1943:61) puts it, his "first general theoretical problem," cultural diffusion.

Cultural diffusion is defined as "a process by which a product of culture spreads from one area to another" (Langness, 1987: 221). Stocking (1968:205) notes that Boas was predisposed to his diffusionist perspective because of his background with geography and "his historicist outlook." Stocking states further that Boas believed the evolutionist's position was geographical determinism in disguise, an argument he had rejected after his visit to Baffin land. Therefore, Boas' diffusionist perspective became his reaction to the theory of cultural evolution, the prevailing explanation for cultural variation.

Perhaps Boas' position can best be shown in his dispute with cultural evolutionists Otis T. Mason and John Wesley Powell over the display of cultural items in museums. The story goes that while visiting the Smithsonian's National Museum he found that the Native American collections were scattered among several different exhibits (Cole, 1985). The exhibits had been created in accordance with cultural evolution, the theory that all cultures evolved from a very primitive level to a more advanced one. Because Boas felt this method of exhibition destroyed the context of the pieces, he wrote a strong response in *Science* (Boas,

1887b; 1887c). This response is really a summation of his general philosophical viewpoint of anthropology. Boas (1887b) wrote that Mason had arranged the ethnological collections at the museum as one might arrange the animals in a zoo, by the biological classification system. Boas believed that the development of human inventions did not evolve as species did, and to classify them as such would make ethnological collections useless. According to Boas, Mason believed that the development of human inventions was due to three causes: the migrations of people, migration of ideas, and the idea that "like causes produce like effects" (Mason cited in Boas, 1887b: 485). The first two were forms of diffusion (Stocking, 1968), which Boas agreed with; the third Boas considered to be incorrect. Mason, argued Boas, had omitted one possibility that seemed to contradict all his other hypothesized causes: "unlike causes produce like effects"(Boas, 1887b: 485). Boas believed it would be almost impossible to find evidence of like causes for similar inventions because the things affecting the human mind could not yet be understood. He thought it would be much easier to uncover evidence of unlike causes influencing the development of similar inventions.

As far as the classification of human inventions, Boas believed that rather than try to classify them as one would a newly discovered organism, one should study the individual and his inventions within the context of their corresponding culture, or in his words, "its history" and "its medium" (Boas, 1887b: 485). To try to study a cultural object or individual outside a culture would be to lose the opportunity to understand its meaning. Boas Illustrated his point by saying:

> From a collection of string instruments, flutes, or drums of 'savage' tribes and the modern orchestra, we cannot derive any conclusion but that similar means have been applied by all peoples to make music. The character of their music, the only object worth studying, which determines the form of the instruments, cannot be understood from the single instrument, but requires a complete collection of the single tribe (1887b:486).

Therefore, one should not display human inventions from different tribes or cultures in a progressive way as Mason had done. According to Boas, inventions from a single tribe or culture had to be exhibited together to make sense of how a particular aspect of a culture had developed.

Later that year, after Mason had commented on Boas' argument, Boas wrote--and this I believe is the essence of his philosophical approach--that ethnology was the attempt to understand the ethnological and anthropological aspects of human societies throughout the world. Furthermore, Boas wrote that one must understand these aspects in terms of "their historical development and geographical distribution, and in their physiological and psychological foundation" (Boas, 1887c: 588).

The study of culture, he wrote, must be studied using two approaches. First, one must understand that cultures are the result of what Boas termed "physical and psychical character of man" (Boas, 1887c: 588) as they are influenced by the environment; therefore, one must study first the environment that influenced the development of the culture as well as the relationships of one society to another, not just in the present, but also in the past. Second, one must study the physiological and psychological attributes of a culture from a historical point of view as well as from a contemporary point of view. Boas believed that one must do this research within the context of the culture's environment (i.e., in the field) because the development of culture results from the interaction of environment, psychology, and physiology through time.

Furthermore, Boas advocated the use of the inductive method in this kind of research. In other words, one must study individual cultures and then extract general laws from these individual cases. Boas elaborated on his ideas through his many works (for example: 1889, 1896, 1904, 1908, and 1938) until the early twentieth century when he considered his battle with cultural evolution won (Benedict, 1943). This philosophy was later labeled the historical particularist approach (Langness, 1987; Lett, 1987), but was really his view of cultural diffusion.

Boas' approach to human biology is similar to his philosophy of the

study of culture. He believed that one must adopt an approach that uses biology, ethnology, and language to study thoroughly the history of human populations (Boas, n.d.) His study of human biology was, as Stocking (1968) writes, instrumental in providing him with information about the historical problems that he was interested in and in helping him fight the evolutionists view of culture that was associated with the racial issue. Stocking points out the similarity in Boas' physical anthropology and his debate with Mason over classification. Boas warned that:

> In dividing men into classes for the purposes of comparative study, one must not endow these classes with greater reality than the actual reality of the individuals who composed them, except as rigorously inductive statistical analysis revealed underlying relationships. And one must not mistake a purely statistical relationship for a biological one (cited in Stocking, 1968:169).

Stocking goes on to reveal further evidence of the similarity of Boas' physical anthropology and his ethnography when he writes that the human biological research Boas performed was propelled by his "underlying ethnological purpose"(1968:169). It appears that not only was his approach to physical anthropology similar to his approach to ethnology, but his philosophy seems to have lent itself much better to physical anthropology. Herskovitz (1953) writes that the data that resulted from Boas' studies was much more easily analyzed because of the abilities he had gained during his studies as a physicist. In other words, Boas was better able to apply his mathematical training and the scientific method to human biological data than to ethnological data. Herskovitz (1953:46) noted that "In physical anthropology the data manifest a degree of regularity in structure and functioning that make them susceptible to precise analysis."

However, it seems that he was still able to apply his general historical approach to physical anthropology as he was doing in ethnology. From information gleaned from his papers it appears that along with his interest in cultural diffusion he was also interested in the biological history of human populations--how their origins or migrations might

have effected their biology. His lecture entitled, simply, "Anthropology" (1908) illustrates this:

> We do not discuss the anatomical, physiological, and mental characteristics of man considered as an individual; but we are interested in the diversity of these traits in groups of men found in different geographical areas and in different social classes. It is our task to inquire into the causes that have brought about the observed differentiation, and to investigate the sequence of events that have led to the establishment of the multifarious forms of human life. In other words, we are interested in anatomical and mental characteristics in so far as they are peculiar to groups of men living under the same biological, geographical, and social environment, and as determined by their past. Thus we are concerned with the effects of the climate and products of a country upon human life, with the influence of heat and of cold upon bodily frame, with modifications in the life of communities brought about by geographical isolation, and with those due to the sufficiency or insufficiency of food supply. No less interesting to us are the phenomena of dependence of human life upon those social conditions that find expression in the customary mode of nutrition and occupation; in the effects of contact between neighboring groups of people; in modifications brought about by migrations; and in the forms of life as influenced by the density of population(1908:267-268).

In contrast to his philosophy of ethnology, which fell by the wayside several decades ago, even after over one hundred years of biological investigation of human populations Boas' objectives continue to be the same objectives sought by physical anthropologists of today.

His historical emphasis in physical anthropology can also be seen in the objectives of his expeditions for the British Association for the Advancement of Science (BAAS), the Bureau of American Ethnology (BAE), the World's Columbian Exposition, and the Jesup North Pacific Expedition.

Boas took up physical anthropology only on his second trip to the Pacific Northwest for the BAAS and only because the director of the expedition, Horatio Hale, had requested it (Rohner, 1969; Cole, 1999). It was on this trip that Boas first realized the historical importance of

human biology.

The main objective for the biological work performed for the BAE appears to have been to study the affects of admixture on the tribes living in Oregon and Washington (Boas, 1892). This work can be seen to be historical in that admixture often is connected with the biological history of a population.

The data collected for the World's Columbian Exposition was perhaps the largest data set that he ever assembled. It consisted of approximately 17,000 individuals (Cole, 1985; 1999) spanning a geographical range "from Greenland to the Aleutians and from Nova Scotia to Arizona" (Cole, 1999:153). Boas' historical approach is made clear here in an unpublished article written sometime in the 1920's (Boas, n.d.) which utilized data collected for the Columbian Exposition. In this paper he writes that when one population is compared to another, it is clear to him that the origin of these populations was the result of a long historical development. Certain populations disappeared from one area and were replaced by other groups that interbred with neighboring populations.

If the data gathered for the World's Columbian Exposition was the most extensive anthropometric dataset collected, the Jesup North Pacific Expedition was possibly the most important. The sites from which this data was collected extended from Yakutsk to Nova Scotia (Jantz, 1995). Boas (1898) displayed his emphasis in the historical approach in his first publication for the Jesup North Pacific Expedition. In it he wrote that the main objective of this expedition was to investigate the history of humans in a specific area, the Pacific Northwest and specific regions of Siberia. Boas wrote further "The geographical conditions favor migration along the coast-line, and exchange of culture. Have such migrations, has such exchange of culture, taken place? This question is of great interest theoretically" (Boas, 1898:108-109).

While not much has been published about the objectives of the Huntington California Expedition, Boas wrote about it briefly in a paper that makes some use of historical theory (Boas, 1905). In this paper he writes that the members of one Californian tribe, the Yuki, might look

like "the ancient inhabitants of Santa Barbara" (Boas, 1905:357).

Besides his direction and fieldwork in the above-mentioned projects, Boas was also a mentor to many members of the first generation of anthropologists educated in the United States. One of these instrumental in the collection of the data featured in this dissertation was Alfred Kroeber. Once Kroeber finished his degree he was recommended by Boas for a museum post in San Francisco (San Francisco Academy of Sciences Museum) and later was hired by the anthropology department at the University of California at Berkeley (Buckley, 1996; Cole, 1999). While there, he mentored a young graduate student named Samuel Barrett who later became director of the Milwaukee Public Museum in 1909 (Cole, 1985). Since Boas had educated Kroeber, he evidently was taught how to collect anthropometric data with the same historical perspective. His anthropometric ability was apparently learned in an anthropometric course required and taught by Boas (Mead, 1959). Barrett probably learned anthropometry from Kroeber. While at Berkeley Kroeber met a colleague named Edward Winslow Gifford whom he assisted, along with Barrett, in the collection of anthropometric data of Native Americans in California. This data was later published in a volume called *Californian Anthropometry* by Gifford (Gifford, 1926a).

Unfortunately, it does not appear that Gifford published much work on physical anthropology. I know of only two works: the previously mentioned volume and "Californian Indian Physical Types"(1926b). In the former, Gifford makes some effort to infer historical relationships from the anthropometric data of the living with craniometric data of ancient Californians. This appears to be in the same vein as Boas. The latter is mostly a descriptive work of data he had collected. He comments little if any on the historical (genetic) relationships of his data. He states at the beginning of the article that there is little evidence of change in physical type from ancient to living Californians. In this he moves away from Boas' approach. It is unclear to me if either Kroeber or Barrett published anything on physical anthropology. They seemed to have left that up to Gifford. Therefore, Gifford's California data has been

left largely untouched except for two papers presented in 1999 and 2000 (Dillingham, 1999; 2000).

In conclusion, Boas was a man who became attracted to anthropology at an early age but who took up the study of physics and geography apparently because it seemed to pull together all of his interests, physics because it allowed him to study the human perception of the environment, geography because it seemed to provide a solution of why cultures differed (i.e., geographical determinism). When he discovered that neither one of these fields provided the answers he was looking for, he gradually switched to anthropology. In anthropology he was better able to pursue his interests--the development of humans and their culture.

Further examination of his work in physical anthropology shows a fascination in how history affected the biology of populations in terms of the human form (adaptation), population size (demography), and genetic relationships (population genetics). This interest resulted in the bulk of the data used in this dissertation.

Boas was also a mentor to many members of the first generation of anthropologists in this country. Of importance here was the influence, both directly and indirectly, that he had on Alfred Kroeber, Samuel Barrett, and Edward Gifford that resulted in some of the Californian anthropometric data use in this dissertation.

Therefore, one might say, as I have argued in this chapter, that had Boas stayed in physics, or had geographical research adequately provided the answers he was seeking, he might never have undertaken the large research projects that he participated in or directed. Furthermore, had he not gone into anthropology, he might not have had the tremendous influence that he had on his students or his colleagues that resulted in the collection of Gifford's Californian data. This would have been a tremendous loss to anthropology.

CHAPTER THREE

ANTHROPOMETRICS

Because the data used in this dissertation are anthropometric measurements, some discussion of what anthropometrics are, their history, their use in population structure studies, and their problems, is in order. In this chapter I will first define anthropometrics. Next, I will present a brief history of the development of anthropometrics. Then I will discuss how they are used in population structure studies. Finally, I will discuss problems that are inherent in using this kind of data and measures that can be taken to minimize them.

Definition of Anthropometrics

Anthropometrics are measurements collected from living human individuals. These measurements are of a group of genetic traits called quantitative or polygenic traits. They are termed polygenic because the traits are controlled by genes at many loci. In other words, many genes work together to cause the expression of a quantitative trait. Anthropometrics are an example of a type of quantitative trait called continuous traits, which can be defined by the tendency for their values to form a continuum of possible phenotypes (Hartl and Clark, 1997). The distribution of values can best be illustrated by the common Guassian or bell curve.

Measurements can also be taken on the bones of non-living individuals, but when this is done the measurements are known as osteometrics. Anthropometric measurements collected on living individuals can include those taken from stature, shoulder width, head height and width. Circumference measurements, such as from the arm and chest, can also be collected. Skin fold measurements as an indicator of body fat are sometimes taken as well.

History

The use of anthropometrics has a long history. It is important to discuss this history because Franz Boas played such a large role in anthropometry. Lasker (1994) mentions that he is uncertain about the beginnings of anthropometry, but he writes that it was used by Renaissance artists to determine proportions of the human body. However, Tanner (1981) traces the origins of anthropometry back to the ancient Greeks and the sculptor Polyclitus, who it was said highly recommended taking measurements of people, and then calculating their means so that a "harmonious proportion" (Tanner, 1981:33) could be reproduced in his art.

Tanner also reports that the first measuring device to be used on humans was constructed in the 15th century by Leon Battista Alberti. This instrument was a device he had first used in cartography and adapted for use on humans.

Tanner goes on to state that a German physician, Johann Sigismund Elsholtz, first coined the term *anthropometry* in the 17th century. Elsholtz is also important, according to Tanner, in that he seems to have been the first person in the medical profession to use measurements of the human body in his work. Thus, he produced a shift from an interest in anthropometrics for artistic purposes to an interest in them for biological purposes. Elsholtz graduated from Padua in 1653 with the writing of a thesis called *Anthropometria.* For his research Elsholtz developed an anthropometer that was apparently an improvement on Alberti's. The diagram of Elsholtz's anthropometer furnished by Tanner (1981:48) looks very much like anthropometers used today.

In the eighteenth century the use of anthropometric measurements was much more prevalent in the military than almost anywhere else. To rulers, having an army of tall soldiers was considered to be an advantage because taller soldiers were considered to be stronger, able to cover more ground while marching, and better able to load and fire their long muskets. As a result, height requirements were developed and measurements of conscripts recorded. Men who failed to satisfy these

requirements were rejected. Because of this, anthropometry became very popular during the eighteenth and nineteenth centuries (Tanner, 1981; Lasker, 1994). In fact, the number of anthropometric studies increased throughout the nineteenth century, and by 1875 the British Association for the Advancement of Science had formed its own Anthropometric Committee (Lasker, 1994).

One important application of anthropometrics during the eighteenth and nineteenth centuries was the classification of races and types. During this time, it was thought that there was a distinct, unchanging line between the varieties of humans, and these were considered to be races (Bowles, 1974). The goal, therefore, was to classify these varieties into races and to determine how many there were.

Molnar (1992) and Stocking (1968) write that the head was considered to be most valuable in these classifications because it was thought to be the most resistant to environmental change; therefore, races were said to be unchanging and there was a certain group of traits that would be diagnostic of a particular race. In addition, the shape of the skull was supposed to be representative of the brain's anatomy and its function as it pertained to intelligence (Molnar, 1992). Consequently, the head was the part of the body that would be most informative in the search for racial ancestry. The head was so favored for the study of race that measurements were taken to the point of ridiculousness. Scientists of the day came to believe that the more measurements taken the better they would understand human origins and their variation. Massin (1996) reports that this over emphasis reached its apex in 1890 when Aurel von Torok, a Hungarian anthropologist, made 5371 measurements on one skull and was still unable to determine which of these measurements would be most useful in the study of race.

Several years earlier, Anders Retzius developed the cephalic index, a ratio of the maximum breadth to the maximum length of the head, which was supposed to be a measure of the general shape of the head (Molnar, 1992). With this index, Retzius believed that populations could be divided into three types of head shape, a long, narrow head (dolichocephalic), an intermediate shape (mesocephalic), and a round-

headed shape (brachycephalic). Retzius believed this allowed European populations to be divided into various races. After Retzius' work appeared, the cephalic index was incorporated into the anthropologists' arsenal and was widely used.

American scientists such as Samuel Morton also thought that race, or type, and intelligence could be determined by the size and shape of the head. Since their investigations using anthropometrics determined that non-Europeans, such as Native Americans, had smaller skulls, they concluded that Europeans were more intelligent. Many scientists of the day thought that the results they were getting from their investigations proved the existence of races and that some races were superior to others (Molnar, 1992). However, there were problems that began to appear toward the end of the nineteenth century, which, at least in Europe, persuaded many anthropologists to think that their science was in crisis (Massin, 1996).

Massin reports that many European anthropologists had come to the conclusion that racial research using anthropometrics had come to a standstill. The problem seemed to be that no one could agree on what constituted a race, how many races existed, and what measurements would be most useful in classifying races. Some anthropologists exchanged the use of the word "race" for "type." Unfortunately, the term "type" was just as indefinable as "race."

One anthropologist (and the most important for this dissertation) that questioned the term *race* was Franz Boas. He wrote that he was surprised that no one seemed to be concerned with the reasons they were taking the measurements or if any of these measurements were affected by the environment. Boas thought that these questions should be answered before any statements were made about the contribution of anthropometrics to the racial issue (Stocking, 1968). He felt the racial views of most scientists of the nineteenth century were too speculative and not based on a rigorous scientific methodology. So he used statistical methods developed by Sir Francis Galton and some he had developed himself to test rigorously the hypotheses of race. In *Some Recent Criticisms of Physical Anthropology* (Boas, 1899a) Boas wrote that

the use of measurements was to clarify differences in individuals from different populations. Boas further argued

> Anthropologists who limit their work to the mechanical application of measurements, particularly of single measurements, and who try to trace the relationships of races by such means, do not apply the metric method in a correct way. It must be borne in mind that measurements serve the purpose only of sharper definition of certain peculiarities, and that a selection of measurements must be adapted to the purpose in view. I believe that the tendency of developing a cast-iron system of measurements, to be applied to all problems of physical anthropology, is a movement in the wrong direction. Measurements must be selected in accordance with the problem that we are trying to investigate. The proportion of length and breadth of head may be a very desirable measurement in one case, while in another case it may be of no value whatever. Measurements should always have a biological significance. As soon as they lose this significance they lose also their descriptive value (Boas, 1899a:103-104).

These words appear to be an attempt to explain that the decision as to which measurements would be the most important for studies of human variation would be those that have a biological significance and that the anthropologist should not look for a formal set of measurements that could be used for all purposes but those that are most relevant to the study at hand.

In a second paper published in 1899 (Boas, 1899b) Boas attacked the use of one of the favorite tools of physical anthropologists, the cephalic index. Boas found that the cephalic index could be used to determine the shape of the head but that it had no anatomic relationship. By using correlation he found that the relation of the length of the head was not significantly correlated with the breadth of the head in many populations. The breadth of the head was more strongly correlated with the breadth of the face than the length of the head, and "the length of the head was more closely correlated with the height of the face" (Boas, 1899b:449). In addition, the level of correlation varied quite a lot among the races. He concluded by positing that the circumference of the head

is much more important because it is more closely tied with the size of the cranium and is more important for racial studies (Boas, 1899b)

One of Boas' largest projects was the collection of anthropometric measurements from 18,000 immigrants from Europe. It was funded by the U.S. Immigration Commission and was carried out between 1908 and 1910. This project was designed to explore one of Boas' long time interests--the heredity of headform. Specifically, the project itself involved the collection of anthropometric data from East European Jews, Bohemians, Neapolitans, Sicilians, Poles, Hungarians, and Scots (Boas, 1928; Stocking, 1968). There were three questions that were of interest to Boas--the role of selection in the immigration process, changes that appeared in children born in Europe, and the changes that might take place in children born in the United States to immigrant parents (Stocking, 1974, letter dated March 23, 1908; Stocking, 1968). His report of the results was submitted in late 1909 (Stocking, 1968) and the data were later published in 1928 (Boas, 1928).

Between these times Boas (1912) published a shorter version in the *American Anthropologist*, which was mainly a response to criticism he had received. However, in this article he presents a brief review of the results of his immigrant study. It was discovered that American-born children of immigrants were different in type from their parents. The changes that took place among the European types were not in the same direction. The American environment's influence was more intense on immigrant children according to the time that passed before they were born and the time the mother arrived on U.S. soil. Immigrants who came to the U.S. in any particular year showed the same difference in type as the children of women who came to the U.S. that year. When parents who were foreign-born were compared to their foreign-born and American-born children, the same types of differences appeared as in the entire sample. These results showed that the idea of the stability of races or types was not correct because the environment played a role in the variation of head form. Although these results showed evidence that head form was not immutable, the changes were quite small (Stocking, 1968).

Sometime later, Fisher and Gray (1937) reanalyzed the Sicilian immigrant data using analysis of variance (which Fisher had developed) and found that the so called differences that Boas had claimed between Sicilian immigrants and their U.S. born offspring were not statistically significant. This study prompted Fisher and Gray to question the paternity of the Sicilian children as well as the accuracy of the data.

Most recently Sparks (Chandler, 2002; Sparks, 2001) and Gravlee et al. (2003) have reexamined the immigrant data. The results of Sparks' and Gravlee et al.'s studies are contradictory. Using more sophisticated analysis and including all the groups that Boas did, Sparks found that there was very little environmental influence on the data. There were no statistically significant differences between U.S. born children of immigrants and their parents. In addition, Sparks found evidence for secular trend in the European immigrant data. In contrast, Gravlee et al. found similar results to those of Boas. In doing their study they designed an approach that used ANOVA and ANCOVA with the cephalic index as the independent variable. The study showed significant differences in head morphology between U.S. born and foreign-born Sicilians, Central Italians, Bohemians and Hebrews. The Scottish, Hungarian, and Slovak children showed no significant differences between their American born counterparts. The authors found limited evidence that the influence of the U.S. environment increases between the time of the mother's immigration and the child's birth. However, Gravlee et al. did find significant evidence that the head form of children of immigrants born in the U.S. differs from that of their foreign born parents. It appears, however, that the authors did not correct adequately for the effects of age and sex on the data because they did not center the data on the age and sex means as Sparks did. In addition, Owsley has pointed out that Boas grouped individuals of widely varying ages together to increase sample sizes that could have affected the results of his study (cited in Chandler, 2002). Therefore, it seems likely that the results of Gravlee et al. are confounded by the same effects of age and sex in the overall sample and secular trend in the European immigrant sample that may have afflicted Boas' immigrant study. It appears that Gravlee and

colleagues' study does not provide new information about Boas' work. However, recently Relethford (2004) has criticized Sparks' methods and argues that Gravlee et al.'s procedure of using age as a covariate in ANCOVA was a better method. He goes on to say that the results did show that Boas' immigrant data revealed significant differences in the cephalic index of foreign-born and U.S. born children, but the differences were only in four of the seven populations and quite small. When both studies are compared, Relethford concludes that the immigrant data did show phenotypic plasticity, but the differences produced are not sufficient to obscure the genetic relationships between the populations. Thus, it appears that Relethford concludes that, depending on the goals of the researcher, both studies could be shown to be correct. In any event, even though the results of both studies, according to Relethford, produced some valid results I believe the importance of Boas study is that it helped in dispelling the idea of discrete head forms.

Stocking (1968) remarks further that Boas was also concerned with the terms *type* and *race*. From a statistical standpoint Boas found that when the distribution or measurements of types or races were plotted, these distributions usually overlapped. Essentially, the distributions were continuous. Therefore, it was possible for an individual to belong to one or more types or races. Boas concluded here that one could not classify groups of people into types. Because of this problem Boas gradually formulated another definition of type: the range of variation found within a local geographical group. From this, the idea of local types was developed. This is essentially an idea of local differentiation among populations. It assumes that if there is a small population that is part of a particular race, and this small group inbreeds for several generations, that group will gradually form another type. The smaller the group the more quickly differentiation will occur from the racial type it originated from. If there are multiple small groups that split from the broader racial group and this process occurs on these additional groups, there will be many small groups that will have differentiated themselves from each other and from the main racial group.

However, according to Stocking (1968), most of Boas' contributions to

physical anthropology were not really taken seriously, partly because he had few physical anthropology students and because he was limited by the fact that he performed most of his research before the beginnings of the new synthesis in genetics and evolutionary research.

In fact, anthropology and, therefore, anthropometry struggled on, held back by the speculative notion of race and type until approximately 1950. Around this time research into classification of humans into types was discontinued because the term type could not be "effectively defended" (Hunt, 1981:345). (However, occasionally a study still pops up that uses the term type [see for example Chistov, 1996].) This "new anthropology" explained human variation in terms of evolutionary processes that had been discovered through research performed throughout the early twentieth century by Sewell Wright, J.B.S. Haldane, and R. A. Fisher. Stocking (1968) noted that a comparison between what was termed the "old anthropology" and what is termed the "new anthropology" was very similar to the work that Boas had done in the late nineteenth century and early twentieth century. Boas' idea of local differentiation was similar to what is now called gene drift and his definition of local type was similar to what we would now call a population. In addition, I believe that Boas' studies of migration and interbreeding are analogous to what we would now term as gene flow. One might say that much of Boas' research using anthropometric data was similar to studies of population structure, a concept that was not developed until the 1940's (see for example Wright, 1940, 1943, 1949, 1951). Since the population structure of the data is of great relevance to this dissertation, a discussion of it will be presented below.

Population Structure

Anthropometric measurements can be employed for studies with varying objectives. These objectives include human adaptation studies (See for example Curran et al., 1998; Eckhardt and Melton, 1992; Greksa, 1988; Greksa et al., 1988; Hall and Hall, 1995; Khalid, 1995; Katzmarzyk and Leonard, 1998; Little and Garruto, 2000; Majumder et al., 1986; Singh et al., 1986; Tarazona-Santos et al., 2000), human

growth and secular trend (See for example Bailey, 1991; Boas, 1932; Boas, 1933; Boas, 1935; Cameron et al., 1992; Crooks, 1999; Gernaat et al., 1996; Greiner and Gordon, 1992; Gualdi-Russo, 1998; Harris et al., 2001; Hausman and Wilmsen, 1985; Katzmarzyk and Leonard, 1998; Leatherman et al., 1995; Little et al., 1986; Little and Leslie, 1999; Meadows Jantz and Jantz, 1999; Mueller et al., 1978; Schell et al., 1993; Ulijaszek and Mascie-Taylor, 1994; Ulijaszek and Strickland, 1993; Ward et al., 2001) and population structure. Since the use of anthropometrics in studies of population structure is of most interest here, I will present a brief discussion.

In looking at human variation the investigator is very often interested in population structure. Population structure has to do with the forces of microevolution affecting the gene frequencies of a population from one generation to the next. This includes such forces as natural selection, gene drift, and migration or gene flow. It also includes the forces on a population that might work in association with the evolutionary forces. These can be geographic and cultural elements such as religion, language, economics, and politics. However, population structure has been defined as a function of the population mating structure (Relethford and Lees, 1982) or mate choice. "On a genetic level, population structure is defined as the relationship of gene and genetype frequencies within a population or set of sub-populations. This distribution is essentially a reflection of a population's mating structure." (Relethford and Lees, 1982:113). Relethford and Lees list several occurrences or mechanisms that can affect the genetic structure of a population. The size of a population can affect the choice of mates as well as the distribution of age and sex. In addition, the presence or lack of consanguineous matings can also affect population structure as can the topography of the earth. Furthermore, Relethford states that population structure focuses on the balance between gene flow and gene drift.

Chakraborty (1990) has stated that understanding population structure involves determining how many individuals of reproductive age are included in a population, what their genetic variation is, who is

related to whom, either by evolution or by ancestral relations, and how gene flow or isolation has affected this, what determines the observed gene-genotype or gene-phenotype relationship in the population, and finally, what maintains the observed genetic characteristics of the population. Chakraborty then acknowledges that the analysis of population structure reveals the genetic composition of a population and the pattern of genetic variation in terms of the observed genotype (phenotype) frequencies and allows us to make conclusions based on evolution and how it could have caused the variation in a given population.

Perhaps the most important aspect of population structure is the relationship of random genetic drift and gene flow or migration. This is important because genetic drift is a function of the effective population size or the number of individuals in a population that are of reproductive age, and gene flow is defined as individuals that immigrate from one population to another and interbreed with it. The reason genetic drift is a function of population size is that smaller populations tend to reflect genetic drift to a greater extent. This has the effect of making populations more homogeneous and increasing the amount of genetic differentiation between populations. On the other hand, gene flow can regulate the amount of genetic variation in a population because if new genetic material comes in from another population, the variation will increase within that population, and the variation will decrease between populations. Various models have been developed to study this relationship.

One way to look at the relationship between gene drift and gene flow is by models of isolation based on geographic distance first examined by Wright (1940). To Wright (1940,1943, 1949, and 1951) Isolation-by-distance could be envisioned as a continuous population within a species in which a certain number of individuals migrate and interbreed with populations located near by and only near by. Populations located great distances from each other are effectively isolated by distance. This was considered to be more complex than his island model.

Wright's (1943) island model was developed because he considered population structure to be approximated by a series of islands. It is based on the idea of a population being subdivided into groups where individuals in each group mate at random inside the group. A certain proportion of migrants, which interbreed with other groups, connect each group. Wright points out that the island model will probably not be exactly realized in nature because the immigrants will come from other groups that are from the surrounding areas. In other words, gene flow is from nearby groups, not from those that are far away. Therefore, the immigrants will not be a random sample drawn from the whole population but from only a part of it, those that are close-by. However, Wright's models were considered to be applicable to only a few cases, and the Island model did not take distance into account because the model assumed that each island exchanges an equal amount of genes with every other island (Cavalli-Sforza and Bodmer, 1971). It also assumed that mating is random, which is true only in very few cases.

Malecot (1969) developed a measure of the isolation-by-distance model, called the coefficient of kinship, which replaces Wright's idea of random mating with that of non-random mating. The coefficient of kinship assumes that kinship will decrease over geographical distance (Cavalli-Sforza et al., 1994; Harpending, 1974; Malecot, 1969; Relethford and Lees, 1982). This assumption takes into account a number of events having to do with mate-choice and how it is affected by geographical distance. This is important because rules of mate choice can effect the genetic variation in a population and regulates the level of inbreeding (consanguinity) or migration (i.e., endogamy vs exogamy).

For example, Afzal and Afzal (1992) report that Muslims practice consanguineous marriages all over the world according to rules set down in the Quran. Hindus in India practice consanguineous marriages between individuals related only up to the 7th generation on the father's side and the 5th on the mother's side. However, Dravidians, who live in southern India, permit marriage between uncles and nieces.

Williams-Blangero (1990) studied mate choice of the Jirels located in eastern Nepal using anthropometric data. She discovered that

restrictions of mate choice placed on the females of their respective villages determined the variation in the number of mates they had per village. Williams-Blangero discovered that consanguineous and intra-clan marriages were avoided, but similar age and endogamous marriages were encouraged. The anthropometric data utilized in this study yielded no evidence that mates were chosen based on desirable phenotypic qualities.

Finally, Malecot's coefficient of kinship has been applied to polymorphic data, anthropometric data, and demographic data (Friedlaender, 1971). Friedlaender discovered that the breeding structure in Melanesia was very differentiated because the coefficient of kinship drops off so sharply.

Malecot's coefficient of kinship is a probability based on the level of relationship to the founders of a population. However, if kinship is calculated based on data from contemporary populations the coefficient has a tendency to be negative; therefore, a correction was found to be necessary (Cavalli-Sforza et al., 1994; Relethford and Lees, 1982). Mortan (1973a, 1973b, 1973c) developed the correction needed to account for this problem.

Relethford et al. (1981), Rudan et al. (1998), and Simic and Rudan (1990) have used this corrected coefficient of kinship using anthropometric data. Relethford et al. used the corrected coefficient to test the influence of various cultural factors on the population structure of early twentieth century Irish women. Any deviations from the coefficient were shown to be due to recent migration, marriage, age, population size and/or transportation opportunities. Rudan et al., using anthropometric data collected from residents of the Island of Pag, Croatia, noticed a discrepancy of the fit of the coefficient based on sex. They interpreted this phenomenon as males staying at their place of residence while females migrated, upon marriage, within the villages. Simic and Rudan used anthropometric data from the Island of Hvar, Croatia to determine the fit of Malecot's coefficient. The authors reported that geographic distance was the main cause of the anthropometric

heterogeneity on the island of Hvar. They also discovered division of the main population into subdivisions of the eastern and western regions of the island. This partitioning of the island population was found to be consistent with migrations that occurred in its history.

Other variations of the isolation-by-distance model are stepping-stone models developed by Kimura and Weiss (1964). These include the unidimensional stepping-stone model and the two-dimensional stepping-stone model. The unidimensional stepping stone model was developed to take into account situations in which organisms are distributed such that individuals of species form discontinuous colonies and individuals are exchanged between neighboring colonies. The unidimensional stepping-stone model visualizes colonies that are arranged in a straight line so that an individual of a colony can only migrate "one-step" in either direction between colonies per generation. This is considered to be the simplest case of the stepping-stone model. It was modified to take advantage of two-dimensional cases and is called the two-dimensional stepping stone model. This model assumes a rectangular lattice of colonies, which assumes that migrants are exchanged with four surrounding colonies. There can also be varying rates of migration in this model (Jorde 1980).

The stepping stone model has not been applied to studies of population structure very often. For example, Workman and Niswandes (1970) and Konigsberg (1990) have used this model. Workman and Niswandes used it on gene frequency data of the Papago. Konigsberg applied the unidimensional stepping stone model and modified it to account for temporal distance as well as geographical distance between subpopulatons of Native American skeletal data from several time periods.

These isolation-by-distance models are not without their detractors. North et al. (1999) have criticized these models, especially the use of the coefficient of kinship, for assuming only one spatial pattern of population structure. Furthermore, Cavalli-Sforza et al. (1994) claim the adjustments made by Morton to Malecot's model may not be able to deal with gradients (i.e. clines) that are not associated with the gene drift-gene

flow balance. However, Barbujani (1987b) has determined that the isolation-by-distance model can be reconciled with the Moran's I spatial autocorrelation coefficient. This may tend to relieve the above problems because it does not assume only one pattern of population structure and because it is able to deal with the effects of clines on populations. However, since spatial analysis is a major part of this dissertation I will talk about this relationship further in the next chapter where I discuss spatial analysis.

Another method that is based on isolation-by-distance models is migration matrices. Harpending and Jenkins (1973) first developed the migration or relationship matrix, later revised by Harpending and Ward (1982), and named the Harpending-Ward model of population structure. It was based on Malecot's coefficient of kinship and designed to determine what populations are exchanging genes with each other. Harpending and Ward developed their model for use on gene frequency data, but Relethford and Blangero (1990) extended the model for use on quantitative traits such as anthropometrics.

This model was incorporated into a program written by Relethford called RMET and is used regularly in studies of population structure. For example, the Harpending-Ward model has been utilized on anthropometric datasets from Chile (Varela and Cocilovo, 2002), India (Reddy, 2001; Reddy and Chopra, 1999, and Reddy et al., 2001), Ireland (Relethford, 1991; Relethford and Crawford, 1995; Relethford and Crawford, 1998; Relethford et al., 1997), Mexico (Christensen, 2001), Native American skeletal remains from Chaco Canyon, NM (Schillaci and Stojanowski, 2003), Native American skeletal remains from Ohio (Tatarek and Sciulli, 2000), Native American skeletal remains from Mexico, South America, and Spain (Ross et al., 2002), and the island of Pag, Croatia (Smolej-Narancic et al., 1994).

Problems Using Anthropometric Measurements

Although the potential of anthropometric data for study of human populations has been known for some time, certain problems have been discovered. Lees and Relethford (1982) remark that anthropometric

measurements can assess many loci simultaneously because of their polygenic nature. Anthropometrics are subject to the same evolutionary forces as traits of simple inheritance (Chakraborty, 1990). However, Lees and Relethford (1982) do mention certain problems with anthropometric measurements. First, the mode of inheritance is not well understood. Second, it is not known how much of the expression of the anthropometric phenotype is influenced by the environment and how much is genetic. Cavalli-Sforza et al. (1994) have stated that when anthropometrics are used for population structure studies, there is no way to guarantee that the measurements are solely under the control of heredity and the differences observed could be due to the environment. To the above problems Lees and Relethford add developmental differences between males and females, sexual dimorphism, sampling and interobserver error, and age variation can complicate any study using anthropometric data.

Recent research has made strides in determining the mode of inheritance and the role that evolution and environment play in the development of anthropometric traits. Molecular geneticists are making progress in the mapping of quantitative trait loci (QTL). It is now possible to determine the number of genes governing the expression of a quantitative trait and the strength of the effect they have on the expression of that trait (Hartl and Clark, 1997; Lynch and Walsh, 1998). Rogers et al. (1999) also report that it is now possible to localize individual genes that make-up 10-15% of variation in a trait to specific regions on a chromosome.

Other studies are making strides in determining the amount of variation controlled by heredity or the heritability (h^2) in a quantitative trait. For example Konigsberg and Ousley (1995) using 12 anthropometric traits and pedigree data from five tribes of the Boas dataset calculated that the h^2 should be about 0.42. This indicates that a high level of the variance present in the data was inherited. Furthermore, Sparks (2001) followed Konigsberg and Ousley very closely in his study of Boas' immigrant data. He discovered that the h^2 was

even higher, about .70 and .80 for the immigrant data. However, the reason for the higher h^2 could be that Sparks used only head measurements and Konigsberg and Ousley used measurements from the head and body. Body measurements tend to be more susceptible to environmental pressures, such as secular trend, than are head measurements. In any event, these two studies reveal evidence in favor of the use of anthropometric traits as a proxy for genetic data in population structure studies.

Methods have been developed to help control for sexual dimorphism, age variation and observer error. As everyone knows, there is sexual dimorphism in humans. Men tend to be taller and heavier boned than women, as are the associated anatomical structures; consequently, anthropometric measurements tend to be larger in men than women. To deal with sexual dimorphism, the data from each sex can be centered on their means and the resulting data pooled as was done by Christensen (2001), Jantz and Meadows (1995), Jantz and Owsley (2001), Jantz et al. (1992), and Ousley (1995). Another method is to perform separate analyses on male and female data. Such a method was carried out by Howell's (1973) analysis of worldwide variation in cranial data and Jantz's (1973) analysis of variation in Arikara cranial data.

Aging tends to affect the human body in different ways. As they get older children grow taller and wider, and head measurements tend to become larger also. Excluding individuals younger than 18 years of age can usually control for growth variation.

If a single investigator is involved in collecting anthropometric data, observer error is usually not a problem. However, if a number of investigators are involved, inconsistencies can arise. This can happen because investigators may not have the same level of experience or ability in taking anthropometric measurements. For example, Jantz and Meadows (1995) excluded the Cree data measured by Isaac Cowie as part of the Boas data, because they noticed anomalies in the data that suggested Cowie had measured them incorrectly.

When only a few observations in a data set show suspect measuring technique, action can be taken to minimize the problem. Observer error

can be minimized using special techniques (Bowles, 1974; Harrison et al., 1991; Jantz et al., 1992; Ulijaszek and Lourie, 1994). Bowles includes a discussion of measurement and instrument error. He provides a regression formula that can be used to assess the level of error in any population. This formula includes terms that can account for the error caused by measurement, instrumentation, and interaction between the two. Measurement error is introduced by the investigator's inability to make an accurate measurement, and instrumentation error is introduced through an inaccurate or miscalibrated measuring instrument. Harrison et al. and Ulijaszek and Lourie recommend the use of the technical error of measurement (TEM) formula and the coefficient of reliability (R) to determine the level of accuracy in anthropometric data. Jantz et al. used a method to find measurement error, which included plotting one measurement against another, checking the plots for outliers, converting the errors to missing values, then using a multiple regression program, developed by C.A.B Smith, to predict missing values from all others. In addition, Jantz has written a regression program that identifies likely measurement errors in the data. The measurement errors can then be removed and then a computer program, such as NORM (Schafer, 1999), can be used to predict a value that is less likely to be in error. Because these problems were of concern in this dissertation, certain procedures were taken to minimize them. Exactly what procedures were used will be discussed in chapter 5.

CHAPTER FOUR

SPATIAL ANALYSIS

Space can be defined, according to Webster's New World Dictionary, as "the distance, expanse, or area between, over, within, etc. things." Therefore, the idea of space can perhaps be defined as the amount of room between objects. In many fields such as geography, archaeology, population genetics, and physical anthropology the notion of space is crucial. In geography space is important in examining certain phenomena that may be spread out over counties, states, or countries (Cliff and Ord, 1981). To aid in the reconstruction of the behavior of those who lived at a site in the distant past, the archaeologist is often concerned about how artifacts are distributed. In population genetics, space is important in the study of animal populations. The population geneticist may be interested in studying the way population structure is affected by the land's topography. For example some species, such as salmon and eel, travel from the places they are born, and others, such as caribou, can migrate over great distances (Sokal and Wartenberg, 1981). Physical anthropologists are often concerned with the same phenomena as population geneticists but only as it affects populations of one species, *Homo sapiens*.

Although there are many different methods of spatial analysis, those most important for this dissertation are spatial autocorrelation, matrix permutation methods, and Wombling.

Spatial Autocorrelation

Spatial Autocorrelation, according to Sokal and Oden (1978a), tests whether an observed value of a variable at one location is independent of its value at another locality. If the values are independent they are said not to exhibit spatial autocorrelation, but if the values are dependent they are said to be autocorrelated. These values can be positive or negative. If the values at one location are high and associated with high values at another position, spatial autocorrelation is positive. However, if

the values alternate between high and low, negative spatial autocorrelation is exhibited (Sokal and Oden, 1978a). This means that autocorrelations that are both high and positive represent localities or populations that are similar. If autocorrelations are high and negative, localities or populations are dissimilar (Sokal, 1979). The implication of this is that populations that are located close to each other are more similar than populations that are spread further apart because closer populations are more likely to interbreed than are populations located further apart.

Spatial autocorrelation has been adapted to population biology from geography by Robert Sokal and colleagues (Sokal, 1979; Sokal, 1984; Sokal and Oden, 1978a; Sokal and Oden, 1978b; and Sokal and Wartenburg, 1981). The autocorrelation coefficients used to test for independence of sampling localities are Moran's I and Geary's c. The formulas are as follows:

$$\text{Moran's I} = n\sum_{ij} w_{ij} z_i z_j \Big/ W\sum_{i=1}^{n} z_i^2 \qquad (4.1)$$

and

$$\text{Geary's c} = (n-1)\sum_{ij} w_{ij}\left(Y_i - Y_j\right)^2 \Big/ 2W\sum_{i=1}^{n} z_i^2 . \qquad (4.2)$$

Where n is the number of locations in the study, w_{ij} is given as the weight if localities i and j are located within a specific distance, 1 if they are and 0 if they are not ; $z_i = Y_i - \overline{Y}$, where Y_i is the value of variable Y for locality i and $\overline{Y}$ is the mean Y for all localities; W is the sum of the connections in the adjacency matrix, and z_i^2 is the square of the deviates. Values of the I coefficient range from -1 to1. The expected value in the absence of autocorrelation is -1/(n-1). For large numbers of localities this will approach zero (Sokal, 1979). For the c coefficient Y_i is the value of variable Y at locality i and Y_j is the value of variable Y at locality j. Values of the c coefficient range from 0 to 1 for positive spatial

autocorrelation and from 1 to some upper positive number for negative spatial autocorrelation. Zero is considered to be perfect positive spatial autocorrelation and 1 is the expected value in the absence of spatial autocorrelation (Sokal, 1979). Formulas for calculating variances, standard errors and critical values can be found in Sokal and Oden (1978a), Cliff and Ord (1973), and Cliff and Ord (1981).

To apply these formulas, one must first test for significant heterogeneity of the population means across localities. Sokal and colleagues (North et al., 1999; Sokal, 1986; Sokal et al., 1996; Sokal and Winkler, 1987; and Sokal and Uytterschaut, 1987) recommend the use of the one-way analysis of variance. This step is important because if population means across localities are found to be homogeneous, it means there is no statistically signficant difference between them and the analysis ends there (Sokal 1986). Sokal (1986), Sokal and Oden (1978b) and Sokal and Wartenberg (1981) mention that it is possible to have significant spatial patterns with non-significant locality differences, but no example of this has been found.

Next, some method of connecting the locations must be used if one is interested in the overall level of spatial autocorrelation. One way is accomplished by constructing a Gabriel connectivity graph (Gabriel and Sokal, 1969). According to Sokal and Oden (1978a) the Gabriel graph is constructed by determining if two locations A and B are connected if and only if

$$d^2_{AB} < d^2_{AC} + d^2_{BC}. \qquad (4.3)$$

Where d^2_{AB} is the squared geographic distance between localities A and B, and C is any third locality. Geographic distances are usually calculated as great circle distances computed using the formula developed by Spuhler (1972); however, any distance calculations can be used. The formula uses the geographical coordinates of the sites where the data was collected. Spuhler's formula is presented as

$$\cos(\text{dist.}) = \sin lat_1 \sin lat_2 + \cos lat_1 \cos lat_2 \cos(long_1 - long_2), \quad (4.4)$$

which is based on the coordinates of one population (lat_1 $long_1$) and another population with coordinates (lat_2 $long_2$).

In most cases the investigator is interested in the level of autocorrelation distributed over the study area. The study area is usually divided into distance classes or spatial lags and a different connectivity matrix is constructed for each distance class where two points are connected if their distance is within a specified range. If two points are connected they are given a 1, and a 0 if they are not (Sokal 1986). The number of distance classes are usually quite small and Sokal (1986) does not recommend including more than 10-15 because it will not add to the accuracy of the analysis.

Once the great circle distances are calculated and the connectivity matrices are constructed, the spatial autocorrelation statistics, I and/or c, can be computed. The coefficients can then be applied in the construction of plots known as spatial correlograms. Correlograms can be constructed in either one or two dimensions. The one dimensional correlograms are constructed with the spatial autocorrelation coefficient on the y-axis and the distance class or spatial lag on the x-axis (Sokal, 1979; Sokal, 1984; Sokal, 1986; Sokal and Oden, 1978a), while the two dimensional correlograms are in the form of concentric circles which are broken down into blocks that represent a spatial coefficient (either Moran's I or Geary's c) calculated across distance class and compass direction. The plots can be evaluated for significance by the Bonferroni test (Oden 1984) where the correlogram is considered significant if the p-value of at least one spatial coefficient is Bonferroni significant. The spatial patterns can then be interpreted.

Barbujani (2000), Sokal (1979), Sokal (1984), Sokal (1986), Sokal and Oden (1978a), Sokal and Oden (1978b), and Sokal and Wartenberg (1981) have discussed the spatial patterns that can potentially be revealed in a correlogram. However, to understand what the correlograms reveal one must first understand what the autocorrelation values represent and what biological processes created them. Sokal and

Oden (1978b) have presented a valuable discussion of this. They begin by saying that there are two processes that determine how a biological variable is distributed across geographic space--geographic pattern and statistical heterogeneity. Theoretically, they say that a significant geographical pattern can exist even when statistical heterogeneity is absent. In addition, variables that are statistically heterogeneous can be distributed randomly across geographic space. The authors conclude that pattern and heterogeneity are in essence independent of each other. Therefore, any study involving geographic variation patterns must take both of these ideas into account.

With the above in mind, Sokal and Oden (1978b) present four possible combinations of the two concepts. However, two combinations, homogenous means and significant spatial patterns and homogenous means and no spatial patterns, are unlikely occurrences and, therefore, will not be discussed. The most common result is significant heterogeneity of means associated with significant spatial patterns. This can be caused by four phenomena. First, migration between neighboring populations can cause close populations to be similar and distant populations to be different. In other words, the differences are due to some kind of historical factor, such as founder effects with gene flow only occurring between close populations. Second, founder effects caused by frequent local extinctions followed by migration of new populations into the area by nearby founding populations. Third, environmental gradients or patches cause selection that produces a cline or areas where the populations are homogeneous within but heterogeneous among other areas. The fourth phenomenon is the occurrence of a large migration in which all or most of the members of a population or populations move into the study area from outside it.

When there is no spatial pattern, but there is significant variability, three phenomena can be responsible. First, the situation can be caused by gene drift with minimal gene flow and selection; second, by founder effects preceded by frequent extinctions of populations formally inhabiting the area; third, by random subdivision of the population with

variation in the subdivisions controlled by selection.

Sokal and Oden then write that there are biological implications to spatial autocorrelation as well. The authors mention four biological possibilities of autocorrelation--short-distance positive autocorrelation, short-distance negative autocorrelation, long-distance positive autocorrelation, and long-distance negative autocorrelation. Short-distance positive autocorrelation can be caused by two conditions--migration with or without gene flow or selection. Short-distance negative autocorrelation can occur due to either selection or phenetic plasticity when patch size is less than the distance class size. Long-distance positive autocorrelation often represents something known as a circular cline or gradient such that populations situated in similar environments located a fairly long distance away would be subject to the same selection pressures. Finally, long-distance negative autocorrelation would be revealed by populations located at the greatest distances being the most different. Along with clines this, say Sokal and Oden (1978b), should be the most common pattern.

Interpretations become more complex when the correlogram is taken into account (Sokal 1979). Sokal and colleagues (Barbujani 2000, Sokal 1979, Sokal 1984, Sokal 1986, Sokal and Oden 1978a, Sokal and Oden 1978b, Sokal et al. 1989a, and Sokal and Wartenberg 1981) have found four basic patterns of correlograms. The first pattern is the cline. A cline on a correlogram is represented by a monotonic decrease (for I increasing for c) from significant, positive autocorrelation, at near distances, to significant, negative autocorrelation at far distances. A similar pattern is the depression, which is, as Sokal and Oden (1978a: 219) write, "a circular cline." The depression characteristically shows a monotonic decrease (for I increasing for c) of significant positive autocorrelation at near distances to the lowest significant negative autocorrelation at intermediate distances. This may be followed by a monotonic increase (for I decreasing for c) of significant negative autocorrelation to non-significant negative or positive autocorrelation at greater distances. This pattern has also been described as being "regionally patchy" (Sokal et al. 1989a: 280). Another pattern is revealed by an asymptotical decrease of

significant positive autocorrelation to almost zero autocorrelation. This pattern has been referred to as "locally patchy" (Sokal et al. 1989a: 280) because the patch size is based on the X-intercept and because geneflow only takes place between closely located populations. However, this pattern is known more commonly to represent isolation-by-distance (Barbujani 2000 and Sokal et al. 1989a). The final possible pattern is one in which the correlogram shows no significant pattern at all; in this pattern spatial autocorrelation alternates between nonsignificant positive and negative autocorrelation. Sokal and Oden (1978a: 219) speak of this as being a "crazy quilt." Barbujani (2000) writes that this pattern represents random genetic variation and can be used as a null hypothesis, but he also states that this type of pattern would be surprising across geographic space, which is why he suggests that the model of isolation-by-distance be used as a null hypothesis. Barbujani (1987b) showed that both Malecot's (1969) model and Morton's (1973a, 1973b, 1973c) extension of Malecot's model can be reconciled with Moran's autocorrelation coefficient I. Barbujani (1987b) writes that in any population with genetic structure associated with isolation by distance the kinship structure decreases with distance. That is, kinship varies according to Malecot and Mortan's kinship coefficient

$$\varphi(d) = (1 - L)ae^{-bd} + L \qquad (4.5)$$

where φ(d) is the kinship at distance d, e is the base of the natural logarithm, L is an estimate of kinship at infinite distance, and a and b are parameters that can be estimated from pedigrees, migration matrices, or bioassay of kinship from data such as metric traits. Therefore, in such populations the expected values of I would be

$$E[I(d)] = \varphi(d) / F_{st}, \qquad (4.6)$$

where F_{st} is the standardized variance of the sub-populations relative to the total population variance of the variable or variables of interest in the populations. Barbujani (2000) adds that because of this relationship,

isolation-by-distance as represented in spatial autocorrelation analysis can be thought of as a genetic null hypothesis. If any other pattern is revealed in the analysis, it can be considered a departure from the null hypothesis and justification for further analysis. Although this has not been worked out for the Geary's c coefficient, since both Moran's I and Geary's c are considered to be similar, I assumed that the same will hold for the c coefficient.

Sokal and others (Sokal, 1979; Sokal, 1984; Sokal, 1986; Sokal et al., 1989a; Sokal and Oden, 1978a; Sokal and Wartenberg, 1981) have also presented explanations for spatial patterns that correlograms represent. The clinal pattern, they say, is a result of a gradient, which can be due to two possibilities. First, migration can result in a cline where one population moves into the geographic area of another one and interbreeding occurs. Another possibility is natural selection. If the environment of one population favors one trait and the environment in another area favors a variant of that trait, the cline can be said to be due to natural selection. A good example of this would be skin color that varies from light in northern European countries to dark in African countries. The depression pattern, although a variation of a cline, does not, in most cases, represent migration, but selection (Sokal 1986). Correlograms that show isolation-by-distance occur because the populations studied are small and are distributed in such a way that there is only migration between populations located close together and distant populations are isolated by distance. According to Sokal (1986) selection can also cause this when populations are located in different environments, which select for different variants or frequencies of a particular trait. If no significant pattern shows up, Sokal (1986) postulates that this can be due to isolated populations that do not interbreed. If the populations are small, gene drift would probably produce random changes in gene frequencies over time causing the populations to differentiate. Another model would be isolated populations in random locations in which different environments would select for varying frequencieis of a certain trait. If the variable or variables in question reveal means that are homogeneous, non-

significant correlograms will result. If panmixia existed across the entire population, non-significant spatial patterns could result. However, Sokal (1986) has pointed out that this is unlikely to happen in human populations since mate choice is not spatially random.

An indicator of which process is affecting the variation in the data is the extent to which the correlograms are correlated with each other. Usually, this is determined by a clustering method such as K-means or UPGMA. For example, if migration is affecting the variation, one would expect the correlograms of many of the variables to be correlated because when people migrate they take all their genes with them. However, if selection is effecting the variation shown by the correlograms, fewer correlograms would be correlated because selection can operate on some traits but not others. Selection can affect correlated traits such as body measurements. In contrast, if the surface patterns are uncorrelated but the correlograms are correlated for several of the variables, then isolation-by-distance can be said to be affecting the data (Sokal, 1986; Sokal and Oden, 1978a; Sokal and Wartenberg, 1981). According to Sokal (1986) correlations of correlograms are determined by the application of clustering procedures such as UPGMA or k-means clustering.

One drawback to using one-dimensional correlograms is that they do not provide information on the direction of the pattern. This is especially important because selection gradients and migration patterns may be in different directions. To solve this problem, two-dimensional correlograms have been developed (Oden and Sokal, 1986). The calculation of two-dimensional correlograms involves the conversion of the X-Y plot into a plot of distance/direction classes. This results in an arrangement of concentric circles with the lowest direction class in the center and the highest on the outside. Each circle is broken down into blocks that represent a direction and a distance. In addition, the top half of the circular design is the same as the bottom so that only the top half is taken into account during the interpretation. There are, usually, fewer distance direction classes in a two-dimensional correlogram than in a one dimensional correlogram. Using more distance/direction classes

would result in there being two few point pairs in each class. The distance/direction classes are usually shaded to identify the range of autocorrelation. For example, white may indicate the lowest level of autocorrelation, followed by varying shades of gray, with the darkest shade at the highest autocorrelation level. Finally, distance/direction class blocks that are not significant are noted by being half the size of the significant ones.

Spatial autocorrelation analysis in anthropology has been in use for at least the last twenty years or so. One of the first publications using spatial autocorrelation analysis was Sokal and Menozzi's study of HLA frequencies in Europe (1982). Since then, many spatial autocorrelation studies have been performed on data from populations originating from Europe. These studies have most commonly employed gene frequency data (Barbujani, 1987a; Barbujani and Sokal, 1991; Barbujani et al., 1992; Barbujani et al., 1994a; Barbujani et al., 1994b; Fix, 1997; Sokal et al., 1989a; Sokal et al., 1997), but dermatoglyphics (Binkley, 1985; Sokal et al., 1996; Sokal and Livshits, 1993), cancer data (Rosenberg et al., 1999), and cranial data (Harding, 1990; Harding et al., 1990 ; Sokal and Uytterschaut, 1987) have also been used. Recently nuclear DNA (Chikhi et al., 1998) has been applied. The main objective of these studies has been to find evidence of migration of Southwest Asian farmers into Europe during the Neolithic period. Many of these studies have indeed found evidence in favor of this model.

Other studies have been performed in which answers to other questions were sought. For example, North and colleagues (1999) used spatial autocorrelation to examine the spatial structure of anthropometric data collected in the 1930's in Ireland. Their objective was to study the geographic trends revealed by the analysis and to determine what it inferred about population structure. The study concluded that the population structure of Ireland was determined largely by migration rather than by selection or random genetic patterns. In an earlier paper, Falsetti and Sokal (1993) used data consisting of 36 allele frequencies from 14 genetic systems to study spatial patterns in

the United Kingdom and Irish Republic. It was found that the analysis revealed patterns that were due to geographic, cultural, and language differences between early Germanic and Celtic speakers. Some patterns also revealed evidence of the Anglo-Saxon and Anglo-Norman invasions.

Spatial analysis has also been used to answer various questions about the genetic structure of populations on other continents and countries. For example, Excoffier and colleagues (1991) used RH and GM haplotype frequencies to study the relationship between genetics and language in Sub-Saharan Africa. Results revealed few clinal patterns that would suggest selection or migration, but no patterns that would suggest isolation-by-distance. The authors concluded the genetic relationship was primarily determined by language-family relationships which suggested historic migrations and expansions of ethnically different people in Sub-Saharan Africa (Excoffier et al. 1991:273).

Sokal and Thompson (1998) have used spatial analysis on 24 allele frequencies to test hypotheses of the peopling of Japan. More than half of the allele frequencies showed significant patterns with many allele frequencies exhibiting clinal or depression type patterns and others showing long-distance differentiation or patchiness. These results were said to support the hybridization or dual structure hypothesis for the population of Japan.

In addition, Sokal and Winkler (1987) have used 24 anthropometric measurements from 15 tribes in Kenya. This study was carried out to study the spatial patterns created by different tribes living in one area. The populations were found to be very mobile as various patterns and correlograms revealed evidence for considerable migration from different directions. Selection was ruled out because the populations studied are recent arrivals into the area.

Crawford and colleagues (1997) have used spatial autocorrelation to study the genetic structure of the indigenous populations of Siberia. The authors used blood group marker, protein marker, and DNA data using 15 to 62 populations for each system. The results revealed patterns of long-distance migration and isolation-by-distance. Karafet and colleagues (2002) have used Y-Chromosome data in their spatial

autocorrelation study of the population structure of Siberian foraging populations and the history of the early colonization of the country. Similar results to Crawford and colleagues were obtained. Two correlograms were presented--one from an analysis of 18 populations and the other from an analysis of 28 populations. The 18-population correlogram showed long distance differentiation and the 28 population correlogram showed a clinal pattern. The authors (Karafet et al., 2002) concluded that the patterns might be due to a combination of founder effects/genetic drift and long-range migrations.

O'Rourke and colleagues (1992) used seven polymorphic red cell antigen loci to study the spatial patterns of Native Americans from North, Central, and South America. No significant spatial structure was discovered in South American data, but it was present in the data from North and Central America. These results were thought to have been caused by a more dense population of Native Americans inhabiting Central America thus blocking off migration into South America causing an increase in the level of spatial heterogeneity in modern South American Indian populations. Fagundes and colleagues (2002) have used spatial autocorrelation to study the effects of geographical distance on the population structure of South American Indians using allele frequencies, nuclear DNA, and mtDNA haplotypes. The authors found very little evidence for spatial structure using allele frequencies as data, but the mtDNA correlograms revealed depression and clinal patterns. The authors explained this as being due to short distance migration by the women. The lack of structure in the gene frequency data was interpreted as due to stochastic processes in the small populations of South America affecting the allele frequencies and destroying any evidence of past migrations.

In addition, Sokal et al. (1992) have used Surnames to look at the variation of populations from Wales and England. The authors found three migration patterns, east-west and north-south diffusion and local dispersal or isolation by distance. They found little evidence for long distance migration.

Finally, Peter et al. (1996) have used spatial autocorrelation to

examine the spatial patterns for the risk of coronary heart disease. The authors used data from 68 populations in Eurasia. No geographic patterns were discovered at short distances, but several were found at greater distances.

As can be seen by these studies, most of the research has been on populations from Europe using gene frequency data. Very few spatial autocorrelation studies have used quantitative genetic data, specifically anthropometrics. No study with the exception of Falsetti's (1993) and Dillingham's (1999, 2000) studies have used Native American anthropometric data. This dissertation uses spatial autocorrelation techniques on anthropometric data from Native American tribes and from indigenous populations from Siberia. Exactly how the techniques are used will be discussed in chapter 5.

Matrix Correlation Analysis

Another problem with spatial autocorrelation studies is that they do not analyze the effects of language or other factors on the population's genetic structure. Therefore, many anthropologists use matrix correlation analysis to evaluate these factors.

Matrix correlation analysis was first developed by Mantel (1967) as a method of looking at possible non-random clustering of leukemia cases. The analysis is in essence a regression approach, but a correlation coefficient is generated in the calculation. It has since been found that the Mantel statistic has many uses outside cancer research or epidemiology and is frequently applied in bioanthropological research of human populations both past and present.

The statistic as developed by Mantel (1967) is as follows:

$$Z_{xy} = \Sigma_{ij} X_{ij} Y_{ij} \qquad (4.7)$$

Mantel considered the X_{ij} variable as the spatial measure between points i and j, and the Y_{ij} variable as the temporal measurement. However, these variables can be gene frequencies, quantitative trait

measurements, surnames, languages, or geographic distances. No matter what the variables are, they are always in the form of a distance matrix. Each entry of the X matrix and each entry of the Y matrix are multiplied together and the products summed.

The significance of the results is calculated by a randomization test. This is done because the lack of independence of the elements of each matrix precludes the use of traditional significance tests. Randomization involves calculating a null distribution by permuting the rows and corresponding columns of one matrix while holding the other one constant. Permutation of the rows and columns is usually done a number of times, perhaps as many as 999 times to generate a distribution of Mantel statistics with the observed statistic being the 1000th. When the null distribution is generated, the position of the observed Mantel correlation statistic is determined. That position is divided by the number of statistics calculated and provides the significance level (Smouse and Long, 1992; Sokal and Rohlf, 1995).

Dow and Cheverud (1985) have also developed a method of matrix correlation, but it is highly susceptible to non-independence of the data or spatial autocorrelation. Therefore, this method would be counter productive to any research, such as that represented here, in which spatial autocorrelation is expected to be high (Smouse and Long, 1992). However, this criticism of the Dow-Cheverud test has been strongly debated by Konigsberg (1997) among others.

Mantel's method only calculates correlations for two matrices. This can be a serious drawback when the research questions call for the determination of correlations between more than two matrices. However, the Mantel test has been modified to compare more than two matrices (Smouse et al., 1986; Smouse and Long, 1992; Sokal and Rohlf, 1995). This method involves testing for correlations between two matrices while the other is held constant. The matrix held constant is mathematically transformed such that it is invariant (Smouse et al., 1986; Smouse and Long, 1992; Sokal and Rohlf, 1995). These are known as partial correlations. The method essentially reduces the question of correlations between three matrices to correlations between two matrices.

Since the publication of Mantel's paper the use of his method has become popular for assessing the influence of one or more variables on another. Often anthropologists want to determine if geographic distance is correlated with data. The data is often serological (Barbujani et al., 1992; Barbujani et al., 1994c; Derish and Sokal, 1988; Excoffier et al., 1991; Fagundes et al., 2002; Harding, 1990; Harding and Sokal, 1988; Karafet et al., 2002; Manzano et al., 2002; O'Rourke et al., 1992; Sokal, 1988; Sokal, 1991; Weng and Sokal, 1995), anthropometric (Jantz and Meadows, 1995; Reddy et al., 2001; Relethford and Crawford, 1995; Sirajuddan et al., 1994; Smolej-Narancic, 1994; Sokal and Winkler, 1987), or osteometric (Derish and Sokal, 1988; Gonzalez-Jose et al., 2001). The geographic distances are often great circle distances (Barbujani et al., 1994c; Excoffier et al., 1991; Fagundes et al., 2002; Harding and Sokal, 1988; Jantz and Meadows, 1995; Karafet et al., 2002; Manzano et al., 2002; O'Rourke et al. 1992; Sokal, 1988; Weng and Sokal, 1995).

The correlation of linguistic distance with genetic data is another relationship that anthropologists are often interested in because it is thought that language and genetics effect populations in a similar way (Barbujani et al., 1992; Barbujani et al., 1994c; Chen et al., 1995; Derish and Sokal, 1988; Fagundes et al., 2002; Harding and Sokal, 1988; Jantz and Meadows, 1995; Karafet et al., 2002; Manzano et al., 2002; Sirajuddin et al., 1994;Smolej-Narancic et al., 1994; Sokal, 1988; Sokal et al., 1989b; Weng and Sokal, 1995). For example, if two people from separate populations are located more closely geographically, culturally, and linguistically (that is they speak the same or a similar language), they are more likely to marry (Cavalli-Sforza et al., 1994). Many studies of this type have been carried out focusing on the correlations between genetics, language, and geography in Europe. Significant correlations between genetics and geography have been found (Chen et al., 1995; Derish and Sokal, 1988; Harding and Sokal, 1988; Relethford and Crawford, 1995; Smolej-Narancic et al., 1994; Sokal, 1988; Sokal, 1991). The significant correlations for all these studies indicate that geographical distance has had an influence on the variation present in

Europe, but language has also played a role. Derish and Sokal (1988), Smolej-Narancic et al. (1994) and Sokal (1988) have all found significant correlations between language and genetic data in Europe. These scholars conclude that language variation and human variation have developed similarly.

High correlations with geography and language do not always result, however. For example, in studies using data from Native Americans significant correlations between geography and genetics often show-up, while they often do not between genetics and language. O'Rourke et al. (1992) has found significant correlations between geography and genetics, but they did not test for correlations between genetics and language. Jantz and Meadows (1995) also found significant correlations between geography and genetics for head and face measurements, but not for language even when geography was held constant. More recently, Gonzalez-Jose and colleagues (2001) tested for significance between geography and genetics (cranial non-metrics) in samples from Patagonia and discovered no significant correlations. Unfortunately, they did not test for correlations with language. Fagundes and colleagues (2002), using mtDNA, found the opposite situation. They found no significant correlations between geography and genetics, while finding them between language and genetics. The authors conclude by saying that language played a larger role in the variation of the data than did geography.

Finally, anthropologists do not always study the effects of geography and language on genetic data. Barbujani and Colleagues (1992) looked at the effects of such cultural elements as religion and political affiliation to see if there were any significant correlations with allele frequency data. The authors found that neither religion nor political affiliation affected the variation of the data. Weng and Sokal (1995) compared distance matrices of theories having to do with the origins of the Indo-Europeans. The results showed no significant correlations for any of the theories of the origins of farming in Europe. Finally, most recently Gonzalez-Jose and colleagues (2001) also constructed distance matrices to test for correlations between competing theories of the population of Pategonia. It was found that no significant correlations occurred among the four

models and the morphological distance matrices except when geographical distance was held constant. Then a significant correlation was found between the morphological distance matrices and a model matrix relating to a theory explaining the populations of Patagonia through two migration waves. The details of the use of matrix correlations and partial correlations in this dissertation will be discussed in chapter 5.

Wombling

Still another problem with spatial autocorrelation analysis and a problem with matrix correlation analysis is that these techniques do not give locations of potential areas of rapid genetic change. Therefore, some anthropologists have turned to Wombling to solve this shortcoming.

William Womble (Womble, 1951) first proposed the rationale for this method in 1951. Womble wrote that without barriers gene flow would occur between populations which would produce clines. If barriers appeared, producing reproductively isolating mechanisms, speciation would occur and no gene flow would take place if the barriers were removed. The barriers would first cause the production of a step cline, and the steps would become even more evident as the species were formed through speciation. Gene flow, if rapid enough, would tend to flatten out these clines because it increases homogeneity across the species range. On the other hand, a slow rate of gene flow would favor differentiation over regions. Since gene flow seems to be the main homogenizing influence of populations, the principal function of Wombling is to detect areas where gene flow may be cut off, thus allowing for the differentiating affects of gene drift and natural selection. To do this, Womble (1951) suggested the calculation of a systemic function, which is really a single variable that encompasses all the measurements, indices or gene frequencies taken in a single population or populations that measures the "average change with distance of a total reality" (Womble 1951:322). Womble labeled this methodology *differential systematics*.

More recently, Barbujani and colleagues (1989) have extended

Womble's methodology. The authors make a distinction between clines and boundaries. Boundaries are lines that separate regions with little variation, and clines are areas where gradual change in variation is seen. With regard to human populations boundaries can be thought of as lines where some geographic, cultural, or biological barrier has reduced or cut off gene flow from one population to another. Lines that cause a drastic decrease in gene flow can be considered to be barriers. According to Barbujani and colleagues (1989), barriers or boundaries can be found by looking for regions where the absolute values of the surface slopes produce high average values of the variables under study. The authors extended Womble's method by added direction to the slope magnitude of the systemic function developed by Womble. This extension involves the use of interpolation procedures performed by software such as SURFER, which produces a grided surface or spatial map. The process produces a set of coordinates that can be used as data for the analysis. Konigsberg's Womble2 program written to perform a Wombling analysis produces two output files, one containing a list of angles and magnitudes of those angles calculated from each tile in the interpolated grid, and the other a file containing coordinates of vectors that are plotted using a spread sheet, such as EXCEL. The idea is that tiles in the grid with the longest vectors, that are positioned such that they share a side or a corner, can be considered to represent boundaries.

The first step in a Wombling analysis, according to Barbujani and colleagues, is to calculate the slope for each pixel or tile in the grid. This is done using the following formulas:

$$\partial f/\partial X = p_B - p_A + Y(p_A - p_B + p_C - p_D) \qquad (4.8)$$

and

$$\partial f/\partial Y = p_D - p_A + X(p_A - p_B + p_C - p_D). \qquad (4.9)$$

Where p is the trait value at each nodes of each tile. The subscripts represent the corners or nodes of each tile identified by the letters

moving in a counter-clockwise direction (Konigsberg and Buikstra, 1995). Y and X represent the center of each tile. If the dimensions of the tile are assumed to be 1, the (X,Y) center coordinates will then be (0.5,0.5). The Y and X in each formula can then be changed to 0.5.

The maximum slope of the tile can then be calculated with the following formula:

$$m = [(\partial f/\partial X)^2 + (\partial f/\partial Y)^2]^{1/2}, \qquad (4.10)$$

where m is the maximum slope of the vector defined by the two slopes calculated in equations 4.8 and 4.9.

The direction of the vector or the angle of that vector can be determined by the trigonometric formula:

$$\theta = \arctan\frac{\partial f/\partial Y}{\partial f/\partial X} + \Delta \qquad (4.11)$$

Where $\Delta = 0$ if $\partial f/\partial X > 0$ and $\Delta = 180°$ if $\partial f/\partial X < 0$ (Barbujani et al. 1989) and as suggested by Konigsberg and Buikstra (1995) $\Delta = 360°$ if $\partial f/\partial Y < 0$ and $\partial f/\partial X > 0$. These methods calculate a matrix of magnitudes and a matrix of angles for each surface. Since the formulas calculate matrices for each surface, average magnitudes and directions must then be calculated unless it is one of those rare occurrences when the boundaries are so evident that one can eye ball their location. This method is based on the number of surfaces present, i=1. . . *n*. At each locality or sampling location, *n* vectors (a_i,b_i) are taken into account by calculating the squared magnitudes:

$$m^2_i = a^2_i + b^2_i. \qquad (4.12)$$

An average magnitude is then calculated as follows:

$$\bar{m} = \frac{1}{n} \sum_{i=1}^{n} m_i \qquad (4.13)$$

Next, the average direction is calculated, which involves scaling the vectors to unit length and then calculating an average scaled vector using the following formula:

$$(A,B) = \frac{1}{n} \sum_{i=1}^{n} \frac{1}{m_i} (a_i, b_i) \qquad (4.14)$$

where (A,B) is the average vector of the vectors (a_i,b_i). The average angle of the average vector (A,B) is then calculated in similar fashion to 4.11. A is used in place of $\partial f / \partial X$ and B is used in place of $\partial f / \partial Y$. This is the average angle of (a_i,b_i). However, the authors report that other scholars have pointed out that vectors oriented in opposite directions will cancel each other out when the average angle is calculated. Therefore, the authors wished to alleviate this problem. They approached it by doubling the angles, calculating the x, y coordinates, then averaging the coordinates across each surface to get an average vector. The average vector is then converted to an angle, as above, and the angle is divided by two. This method results in vectors pointing in the same direction and cancels out directions that are at right angles to each other. The authors give the formulas for calculating the x y coordinates as

$$x = m \cos K\theta \qquad (4.15)$$

and as

$$y = m \sin K\theta, \qquad (4.16)$$

where K is a constant (2 in this case) and θ is the angle calculated in (4.11).

Barbujani and colleagues (1989) also mention that the magnitude and direction matrices must be modified to show where boundaries are the

strongest. This can be done they say by plotting a series of rods on the geographic map where the data were collected. The rods will be of a size that corresponds to the average magnitude at the specific location and the direction of the rod will be oriented according to the average direction. Another method is to assume that two points of tiles on a map are considered to constitute boundaries if: "1) They are both in the highest decile of the AVMA (*average magnitude*) values" and "2) They are linked 2.1) by a king's move (by analogy to chess) directly and/or 2.2) by a king's move to a point in the second-highest decile of the AVMA values. The point serves as a 'bridge' between them." (Barbujani et al. 1989:380). This, they say, eliminates those points that have an average slope magnitude that are highest by chance, and are not boundaries to biological change. Another method presented by the authors is to use only the highest 5 percent of average magnitude and average direction to represent boundaries. They add to the above by saying that two tiles are connected only when the difference of their average angles is smaller than some predetermined number. Thirty degrees is suggested.

This method, as with spatial autocorrelation, has been used in the testing of European demic diffusion models. For example, using 63 allele frequencies from 3119 European localities, Barbujani and Sokal (1990) found 33 boundaries. Of these thirty-three boundaries, one-third were discovered to be geographic boundaries, and roughly half were found to be barriers between modern language families in Europe. The authors also learned that the history of the 33 boundaries showed that 27 boundaries revealed zones of contact between different ethnic groups that originated in other locations. They concluded that the population variation exhibited by the data was most likely due to gene flow rather than by selection with language affiliation playing a major role in the genetic differences of the populations.

Furthermore, Barbujani et al. (1994a) have used Wombling to look at the variation in gene frequencies from populations located in the Caucasus. This region is known to exhibit much linguistic variation as well. Twenty-two significant genetic boundaries were detected. These

boundaries tended to separate populations based on ethnicity and language. The Caucasus Mountains did not seem to have any significant affect on the genetic structure of the populations studied. Little evidence was found for a wave like migration of Neolithic farmers into Europe.

In addition, Falsetti and Sokal (1993) used Wombling to examine the geographic variation of 36 allele frequencies from the United Kingdom and Irish Republic. Twelve barriers were found, nine were considered to be geographical, and some were also considered to be associated with major political divisions and linguistic differences. The remaining three are due to historical causes, such as the invasions of Anglo-Saxons and Anglo-Normans.

Europe has not been the only place in which Wombling has been applied. Sokal and Thomson (1998) used Wombling to uncover barriers to gene flow in Japan. The authors used 24 allele frequencies sampled over 1125 locations to look for possible answers to the origins of the Japanese people. Seven boundaries were found. These were thought to be due mostly to physical barriers, but some were also caused by linguistic differences.

Sokal et al. (1992) used Wombling to search for boundaries in surname data from England and Wales. The authors discovered seven boundaries of rapid surname change based on overall Wombling and fourteen boundaries by individual Wombling. Most of these boundaries were found near the coast. The authors suggested that the boundaries were due to historical factors rather than by geneflow.

Finally, Wombling has been used to determine barriers restricting geneflow between archaeological sites in Illinois utilizing cranial non-metric traits as data (Konigsberg and Buikstra, 1995). Just how I used Wombling in this dissertation will be discussed in Chapter 5.

CHAPTER FIVE

METHODS AND MATERIALS

The Datasets

As discussed in Chapters 1 and 2, the data collected under the direction of Boas consists of measurements gathered during the investigations of the Committee for the British Association for the Advancement of Science, the Bureau of American Ethnology, the World's Columbian Expedition, the Jesup North Pacific Expedition, and the Huntington California Expedition. Together they comprise a total sample size of 15,000 Native Americans and 2000 Siberians (Jantz, 1995). In addition, the Gifford data set comprises a total sample size of 647 Native Americans. These two datasets were combined and used in this study yielding a total sample size of 17,647 individuals, subdivided into approximately 259 tribes.

Unfortunately, not all of the individuals in the datasets could be used. First, some data sheets such as those from the Arikara and Mandan are missing and their location is unknown (Jantz et al., 1992). Second, Some tribes included in the data are from Mexico, South America, and Africa, but because there were only a few tribes from these areas they were excluded from the analysis. Third, all individuals not having a complete set of measurements (12 in total) were excluded. Fourth, many individuals were not full-blooded Native American. To remedy this situation the amount of admixture was limited to 25%. Any individuals with more than 25% non-Native American admixture (mostly white) were excluded from the analysis. Jantz and Meadows (1995) used this method on their study of Algonquian speakers in the Boas data because they believed that doing so would not significantly affect their results. Fifth, these datasets included many sub-adults; therefore, in order to minimize variation due to age, all individuals younger than age 18 were eliminated from the dataset. Sixth, many of the tribes were found to

have sample sizes that were too small for any analyses to be performed on them. The cutoff point was decided to be 9. Since it was planned to pool the sexes, any tribe found to have less than a combined sample size of less than 9 was dropped from the analysis. Although samples sizes of 9 are generally considered to be quite small, the spatial autocorrelation analysis used in this study appears to yield better results the more populations one includes in the analysis. Therefore, tribes that consisted of only 9 individuals were included in the research datasets. Fortunately, the number of tribes consisting of sample sizes of only 9 individuals is quite small.

In addition, some tribes were excluded because measurement error was suspected. For example, previous research had shown that the Cree sample had been measured incorrectly by one of Boas' investigators, Isaac Cowie, and was dropped from the analysis (Jantz, personal communication, 2000; Jantz and Meadows, 1995).

Some of the tribes were combined because they were found to be the same tribe but with different names. Achomawi, from the Gifford dataset, were combined with Pitt River, from the Boas dataset, because Pitt River is considered to be just another name for the Achomawi Indians (Olmsted and Stewart, 1978). Atsugewi, from the Gifford data, were combined with Hat Creek, from the Boas data, for the same reason (Garth, 1978).

Furthermore, other tribes were combined because they were considered to be closely related, but the sample sizes of each tribe were too small to stand alone. The Nivkhi tribes, Siberian indigenous tribes, were combined because the samples of the other Nivkhi tribes were too small. Likewise, the same situation occurred with the Aleuts. I had intended to keep the Aleuts separate according to the Aleutian Island on which they were measured; however, the sample sizes proved to be too small, and all the Aleut samples were combined.

Some groups were put together because they were closely related and because they were located so closely together that combining them would

not alter the results of the analysis. This was the case with the Northern Pomo measured by Gifford and colleagues and the Pomo group measured by Boas and his associates.

The sample sizes of some tribes were large enough to be placed at multiple locations. For example, the Chippewa and Ojibwa were divided based on two criteria. First, the Ojibwa were divided based loosely on the methodology used by Jantz and Meadows (1995). However, while the authors combined the Chippewa and Ojibwa and then split them up into Georgian Bay, Northwest Lake Superior, South Lake Huron, and South Lake Superior groups, I kept the Chippewa and Ojibwa tribes separate and divided the Ojibwa into Georgian Bay and Northwest Lake Superior groups. Secondly, the Chippewa were divided into a Minnesota group and a Wisconsin group. Those located in Minnesota and west of the state were put in the Minnesota group and those located in Wisconsin and east of there were grouped into the Wisconsin group. This included the Chippewa located as far north and east as Ontario, Canada. The Itelman sample, a Siberian indigenous tribe, was thought to be large enough to divide the sample into two populations, one in Khayryuzovo and one in Sedanka, both located on the Kamchatkan peninsula in Siberia. The Eskimo sample consisted of a Western Canadian population and an Eastern Canadian group. The Western division is known as the Mackenzie Delta Eskimos and the Eastern division as the Labrador Eskimos. This sample was divided along these lines because of the great geographical distance between the two populations and because it was thought that putting them in the analysis as one large group would yield misleading results.

Finally, the Sioux were divided because prior research made it necessary. The research of Wescott and Jantz (1999) shows that the ethnological divisions of the Santee, Yankton, and Teton were valid not just from a cultural perspective but also from a biological/morphological perspective as well. Therefore, the Sioux were divided along these lines to make three
separate Sioux populations. I also followed a methodology similar to

that of Wescott and Jantz in that when division affiliation was known, each individual was assigned to the proper division, but in some cases division membership was not known. In that instance, when information such as place of birth, date of measurement, observation location, and "sequential order of the subjects" (Wescott and Jantz, 1999:849) were available, division membership could be determined quit easily. However, when this information was not available, the individual was eliminated from the dataset.

These procedures resulted in a dataset that consisted of 9024 individuals subdivided into 120 populations for the head dimensions and 8445 individuals spread over 119 populations for the body dimensions. There were only 119 populations for the body measurements because the Klickitat consisted only of head measurements. Lists of populations used and sample sizes are presented in Table 5.1.

Variables Used in the Analysis

Boas' data sheets list 12 anthropometric measurements that were collected. These measurements were used in this analysis and are listed in Table 5.2 with Boas' definitions. In his earlier sheets, Boas presented a measurement, face height measured from hairline to chin, which was not included here because of the high level of age variation due to male pattern baldness (Jantz, 1995). In addition, some observers measured ear height and hand length and recorded it on their datasheets (Jantz, 1995); however, these were not included as data in this study. Ear height was not included because Boas (1892:425) considered this measurement to be "very unsatisfactory." Neither of these measurements were taken often enough to make large enough samples, and Gifford and his colleagues did not take these measurements. In addition, as can be seen in Table 5.2, two measurements, arm length and leg length, were calculated from the observed measurements. The reasons for doing so are twofold. First, Boas intended for arm length to be calculated by subtracting finger height from shoulder height (Boas, 1892; Sullivan, 1920). Second, leg length was calculated by subtracting sitting height from standing height. Both finger height and stature were then dropped

Table 5.1. Populations Used in Analyses and Sample Sizes.

	Sample Size	
Population	**Head**	**Body**
1. Achumawi	37	34
2. Agua Caliente	34	33
3. Aiwan	138	136
4. Aleut	41	33
5. Apache	151	149
6. Arapaho	71	67
7. Assiniboin	31	31
8. Atsugewi	17	17
9. Bannock	54	41
10. Bella Coola	28	26
11. Big Meadow	11	11
12. Blood	16	16
13. Caddo	30	29
14. Carrier	35	33
15. Catawba	17	16
16. Cherokee	403	389
17. Cheyenne	35	32
18. Chickasaw	134	130
19. Chilcotin	62	53
20. Chippewa (MN)	207	206
21. Chippewa (WI)	204	204
22. Choctaw	401	397
23. Chuvantsy	42	42
24. Clallum	22	22
25. Central Miwok	15	15
26. Coahuilla	60	56

Table 5.1 Continued.

	Sample Size	
Population	**Head**	**Body**
27. Coeur D'alene	37	35
28. Comanche	115	107
29. Concow	41	37
30. Creek	88	80
31. Crow	421	325
32. Eastern Mono	14	14
33. Eskimo (EC)	39	37
34. Eskimo (WC)	40	37
35. Even	36	36
36. Evenk	134	128
37. Flathead	18	18
38. Haida	56	57
39. Hoopa	97	77
40. Itelman (KH)	160	149
41. Itelman (SE)	111	102
42. Kalapuya	13	13
43. Kiowa	137	113
44. Klamath	164	112
45. Klickitat	30	-----
46. Koryak	338	333
47. Kutenai	55	52
48. Kwakiutl	111	99
49. Lillooet	162	150
50. Makah	75	76
51. Malecite	54	56
52. Maritime Chukchi	69	68

Table 5.1 Continued.

	Sample Size	
Population	**Head**	**Body**
53. Menomini	121	118
54. Micmac	182	155
55. Mississagua	88	86
56. Modoc	17	17
57. Mohawk	36	34
58. Montagnais	47	44
59. Munsee	71	70
60. Nanaimo	9	9
61. Navajo	75	71
62. Nez Perce	22	20
63. Nisqually	15	15
64. Nivkhi	19	18
65. Northern Hill Yokut	14	14
66. Northern Paiute	125	123
67. Northern Pomo	27	26
68. Ojibwa (GeoBay)	67	68
69. Ojibwa (NWLSup)	139	137
70. Okanagan	55	56
71. Omaha	54	54
72. Oneida	108	105
73. Osage	19	18
74. Pawnee	53	51
75. Piegan	57	56
76. Ponca	23	20
77. Potawatomi	12	12
78. Pueblo	18	19

Table 5.1 Continued.

	Sample Size	
Population	**Head**	**Body**
79. Puyallup	30	28
80. Queets	14	13
81. Quillayute	34	31
82. Quinault	30	25
83. Reindeer Chukchi	122	119
84. Reindeer Evenk	9	11
85. Reindeer Koryak	30	30
86. San Luis Rey	115	110
87. Sarcee	12	12
88. Sauk	24	23
89. Seneca	62	59
90. Serrano	27	27
91. Shawnee	18	9
92. Shoshoni	38	35
93. Shuswap	251	229
94. Sioux (Santee)	109	110
95. Sioux (Teton)	238	231
96. Sioux (Yankton)	144	146
97. Southern Miwok	15	15
98. Stalo	79	74
99. Stockbridge	20	21
100. Tahltan	23	23
101. Taos	33	32
102. Tenino	49	37
103. Thompson	285	251
104. Tonkawa	32	31

Table 5.1 Continued.

	Sample Size	
Population	**Head**	**Body**
105. Tsimshian	115	106
106. Tundra Evenk	24	24
107. Tuscarora	50	50
108. Tututni	22	21
109. Umatilla	19	14
110. Ute	90	89
111. Wasco	28	17
112. Washo	13	13
113. Western Mono	23	20
114. Winnebago	92	91
115. Yakut	39	51
116. Yokuts	39	40
117. Yukaghir	51	51
118. Yuki	74	66
119. Yurok	36	36
120. Zuni	82	79

Table 5.2. Variables Used in the Analyses.

Variable	Definition
ST	standing height (distance from floor to top of head)[a]
HSH	shoulder height [distance from floor to tip (acromion) of shoulder][a]
HMF	finger height (distance from floor to tip of third digit, hands held at side)[a]
STR	finger reach (distance between third fingers, arms held apart)[a]
HS	sitting height (distance from table to top of head)[a]
WSH	shoulder width (distance between acromia)[a]
LL	leg length (standing height minus sitting height)[b]
AL	arm length (shoulder height minus finger height)[b]
LH	head length (maximum length of head)[a]
BH	head width (maximum width of head)[a]
LFN	facial height (distance from nasion to chin)[a]
BF	facial width (distance between the zygomatic arches)[a]
LN	nose height (nasion to subnasal point)[a]
BN	nose breadth (width of nose between alae)[a]

a. Definitions are from Boas (1905) and Sullivan (1920) and cited in Jantz et al. (1992:439).

b. From Jantz and Meadows (1995:376).

from the analyses in order to minimize problems of linear dependency in the data (Jantz and Meadows, 1995; Ousley, 1995). Finally, the head and body measurements were analyzed separately because some studies claim (Christensen, 2001; Jantz and Meadows, 1995; Relethford and Crawford, 1995; Westcott and Jantz, 1999) that body measurements are affected by environmental factors more than are head measurements.

Inter-observer Error

Inter-observer error can introduce variation that may confound the results of any study utilizing quantitative genetic traits. It appears to have been of great concern to Boas. Boas (n.d.) wrote and Jantz (1995) reports that in order to minimize inter-observer error, Boas made sure that all observers had a standardized set of instruments as well as a set of instructions. Boas personally trained each observer who came from the East Coast, while those from the West Coast were instructed and practiced with others who were competent in collecting anthropometric data. Jantz (1995) also points out that Boas (n.d.) tried, whenever possible, to have two observers measure the same tribe. Each set could then be compared and if there were any discrepancies, Boas could discard the data or send another observer out into the field to recollect it. Jantz writes that unfortunately Boas' quality control may not have been as good as he thought it was. In more than one case only one observer measured the subjects, and he may not have been as competent as he should have been. Jantz presents two examples. One was the Cree data measured by Isaac Cowie. Analyses performed by Jantz, including the Cree data, showed that tribes known to be closely related to the Cree did not appear to be related in the analyses (i.e. Jantz and Meadows, 1995). In another example, Jantz reports that an observer, probably trained by Boas, T. Proctor Hall, instructed a Reverend Wilson, but was not adequately strict in determining his abilities. Hall writes "I find him *careful* and *accurate*."(Professional Correspondence of Franz Boas cited in Jantz 1995:350).

Because of these findings, other studies using the Boas data have applied various methods to minimize the inter-observer error that might

be present (i.e. Jantz et al., 1992). In order to check for inter-observer error and correct those observations that might be in error, I utilized three procedures. First, I used a program written in TRUE BASIC by Richard Jantz to identify those measurements that might be in error. This regression program predicts a measurement based on every other observation of a particular variable in each tribe. Then it checks to see if any of the other measurements are more than 3 standard deviations from the predicted one. If any are, the suspicious measurements are listed in an output file. Fortunately, only 5% of the observations were suspicious. Next, the suspicious measurements were checked against the original data sheets, which had been placed on compact discs (CD). Some of the suspicious measurements turned out to be typographical errors and the correct measurements were entered into the database. Others were found to be true erroneous observations. The final procedure for correcting erroneous measurements was to employ the NORM program written by Schafer (1999) on the data separated by sex and tribe. NORM is a program designed to replace missing or erroneous data with estimated values. The erroneous measurements are removed and replaced with a value out of the range of the observed data, such as 999. This is a value that the program cannot mistake for an observed value. The program uses the expectation-maximization (EM) algorithm to calculate maximum-likelihood estimates of the parameters. Estimates of the erroneous values are then calculated from the EM parameters using a data augmentation algorithm. In most cases I found that this program gave reasonable estimates when compared to the predicted values of Jantz's program. However, in a small number of cases it was found that the estimated value was more in error than the original value. In these cases, the predicted value from Jantz's program was used instead. After the previous procedure was completed, the MEANS procedure in the SAS statistical package (Version 8.2, 2003) was used to calculate descriptive statistics by sex and tribe.

Variation Due to Sex

Another variable that can introduce unwanted variation into a study, as pointed out in Chapter 3, is that caused by differences in morphology due to sex. To alleviate this problem the data were centered on the means of both sexes using the STANDARD procedure featured in the SAS package of statistical software (Version 8.2, 2003). Pooling of the sexes can then be carried out.

Tests of Homogeneity of Means

As mentioned in Chapter 4, in any study featuring spatial autocorrelation analysis one must first test to see if there is significant spatial heterogeneity among the sample means. This was carried out using simple one-way analysis of variance (ANOVA) calculated by the GLM procedure in SAS (Version 8.2, 2003). ANOVA was used to see if there were tribal effects on each variable. The one-way ANOVA's were run separately on the head and body variables. A null hypothesis of no difference between the means due to tribe was constructed. In addition, Bonferroni tests were applied to lower the possibility of making a type I error. The Bonferroni test was carried out, as done in North et al. (1999), by dividing 0.05 by 6, the number of variables or tests on the head data, and by dividing 0.05 by 8, the number of variables or tests on the body data. This produced a rejection criterion of $p \leq 0.0083$ for the head data and $p \leq 0.0062$ for the body data.

Variation Due to Age

I also mentioned in Chapter 3 that age can introduce unwanted variation into the data. As mentioned above all individuals younger than age 18 were eliminated from the dataset to minimized the effects of age due to growth on the data.

Multivariate Analyses

Because spatial autocorrelation analysis is most commonly performed univariately, some adjustments must be made in order to do the analysis multivariately. This usually involves performing some kind of

multivariate analysis such as factor analysis or principal components analysis as recommended by Sokal (1986), and then calculating the spatial statistics on the component or factor scores. One problem with these methods is that the eigenvectors can be difficult to interpret. This problem can be lessened to some extent by using canonical discriminant analysis instead. Canonical discriminant analysis is similar to principal component analysis in that it is a data reduction technique that calculates linear combinations of the data from the between- and within-class variation in a similar way to the summarization technique of principal components analysis which uses the total variation of the data (SAS Institute, 1990). However, canonical discriminant analysis, in most cases, uses the pooled within group covariance matrix as well as the between group covariance matrix in the calculation of the linear combinations or canonical variables (Ousley, 1995), whereas principal components analysis can use either the correlation matrix or the covariance matrix in the calculation of the linear combinations or principal components. In order for use of the correlation matrix to be of value, though, it is better if the data are standardized and the variables are on different scales. A correlation matrix would be advisable if, in using anthropometric data, one variable, for example body weight, was measured in kilograms and the other variables were measure in millimeters. Canonical discriminant analysis produces the linear combinations for each variable between groups and within groups where principal components analysis produces only the linear combinations for each variable for the total group variation (Afifi and Clark, 1996; Jantz, personal communication, 2005; SAS Institute, 1990). The canonical discriminant analysis produces a pairwise squared distance matrix with significance levels and the canonical variable means for each class or group that can be used for additional analyses (SAS Institute, 1990). For this study, canonical discriminant analysis was performed in SAS (Version 8.2, 2003) using the CANDISC procedure. The first two canonical variates were plotted using EXCEL (Version 9, 2000) for the canonical discriminant analysis performed on both the head and body data. The canonical discriminant means were then used as the data in

the spatial autocorrelation analysis.

Spatial Autocorrelation Analysis

As discussed in Chapter 4, before a spatial autocorrelation analysis can be performed, it is necessary to determine the primary localities of the populations included in the study. The data were collected at several points across the United States, Canada, and Siberia. Data for each tribe included in this study were often collected from several locations. In some areas only one individual was measured; consequently, it was necessary to pool the smaller sample sizes to make one to three larger samples. The criteria I used for combining the sample sizes were discussed previously in the section about the datasets and will not be mentioned further. Sometimes the locality chosen for the analysis was not one of the original data collection sites but one in the tribe's aboriginal locations. However, whenever at least one collection site was located within the particular tribe's traditional land, that location was used as the principal location for this study. Unfortunately, this was not possible for all the tribes used; therefore, it was necessary to find a location that was either in the traditional tribal lands or, in the case of some tribes in which a great deal of movement was documented during its history, to determine an area in which most of the individuals might have inhabited prior to being transferred to a reservation. In order to accomplish this, first the place of birth category in the database was consulted, then literature sources, such as the several volumes of the *Handbook of North American Indians* (Sturtevant, 1978a, 1978b, 1979, 1981, 1983, 1984, 1986, 1990, 1998, 2001), *The California Indians* (Heizer and Whipple, 1971), and *Californian Anthropometry* (Gifford, 1926). In addition, the Internet was consulted when the above sources failed to reveal the information sought. In some cases no suitable location for the particular tribe could be found. In such situations, the center point of the traditional tribal land, as chosen from *The National Atlas* (Gerlach, 1970), was used. This was the case for the Assiniboin, Cheyenne, Munsee, Ponca, and Potawatomi from the Boas data and for all tribes selected from the Gifford data.

Once the localities were chosen, geographical coordinates had to be determined. This was accomplished through the use of atlases and gazetteers provided by the University of Tennessee Map Library website and through additional research on the internet. The locations and coordinates of each tribe used in this study are shown in Table 5.3.

Pair wise distances were calculated next using Spuhler's (1972) great circle distance formula discussed and presented in Chapter 4 using a program I wrote in MATLAB. Distance classes were then determined based on the great circle distances. Because of the large number of populations utilized and large size of the study area, I decided to use 15 distance classes, the maximum recommended by Sokal (1986). These distance classes had upper limits of 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500, 6500, 7500, 8500, and 9500 kilometers. For the spatial autocorrelation analysis, I used the formulas, discussed in Chapter 4, to calculate both Moran's I and Geary's c. The calculations were performed using the Spatial Autocorrelation Analysis File (SAAF) I wrote in MATLAB. This program calculates pair wise great circle distances and then calculates a different adjacency matrix for each distance class such that if each distance pair is within a specified range it is given a 1 or a 0 if it is not. A different Moran's I and Geary's c coefficient and probability value for each distance class was calculated. The I and c values were then used to test a null hypothesis of no statistically significant difference from the expected value at the 0.05 level of significance for each distance class. The randomization assumption was used for the determination of significance because it is most reasonable in this type of analysis and makes no assumptions about the distribution of the data (Sokal and Oden, 1978a). Furthermore, Sokal and Oden have found that standard errors do not vary greatly for the normal or randomization assumption. Each I and c coefficient was then plotted using EXCEL (Version 9, 2000) to make one-dimensional correlograms. If any correlogram had a I or c coefficient with a significance level of $p \leq 0.0033$ (0.05/15), it was considered to be significant at the 0.05 level of signficance based on the Bonferroni criterion (Oden, 1984).

Table 5.3. Populations and Geographical Coordinates Used in Analyses.

Population	Location	Latitude	Longitude
1. Achumawi	N. California	41.30°N	121.25° W
2. Agua Caliente	Warm Springs, CA	33.27° N	116.62° W
3. Aiwan	Indian Pt., Siberia	64.42° N	172.25° E
4. Aleut	Umnak Is., AK	53.25° N	168.50° W
5. Apache	San Carlos, AZ	33.35° N	110.46° W
6. Arapaho	Ft. Washakie, WY	43.00° N	108.93° W
7. Assiniboin	N. Dakota	47.50° N	102.50° W
8. Atsugewi	N. California	40.55° N	121.25° W
9. Bannock	Blackfoot, ID	43.20° N	112.29° W
10. Bella Coola	Bella Coola, BC	52.37° N	126.75° W
11. Big Meadow	Lake Almanor, CA	40.22° N	121.17° W
12. Blood	Blood Res., ALTA	49.48° N	113.36° W
13. Caddo	Cobb Creek, TX	32.07° N	95.50° W
14. Carrier	Quesnelle, BC	52.97° N	122.48° W
15. Catawba	Rock Hill Co., SC	34.91° N	81.03° W
16. Cherokee	Cherokee Co., NC	35.14° N	84.06° W
17. Cheyenne	S. Dakota	44.10° N	104.00° W
18. Chickasaw	Mississippi	35.00° N	88.10° W
19. Chilcotin	Hanceville, BC	51.92° N	123.03° W
20. Chippewa	Red Lake, MN	47.86° N	95.00° W
21. Chippewa	Lac Du Flambeau, WI	45.97° N	89.88° W
22. Choctaw	Neshoba Co., MS	32.75° N	89.12° W
23. Chuvantsy	Markovo, Siberia	64.67° N	170.42° E
24. Clallum	Port Angeles, WA	48.12° N	123.42° W

Table 5.3 Continued.

Population	Location	Latitude	Longitude
25. Central Miwok	C. California	37.95° N	119.95° W
26. Coahulla	Salton, CA	33.47° N	115.88° W
27. Coeur d'Alene	De Smet Mission, ID	47.13° N	116.54° W
28. Comanche	Ft. Sill, OK	34.60° N	100.40° W
29. Concow	Round Valley, CA	40.23° N	121. 50° W
30. Creek	Ocmulgee River, GA	33.32° N	83.83° W
31. Crow	Crow Agency, MT	45.60° N	107.46° W
32. Eastern Mono	C. California	37.60° N	118.50° W
33. Eskimo	Hebron, NFL	58.20° N	62.63° W
34. Eskimo	Ft. McPherson, NWT	67.43° N	134.87° W
35. Even	Nelemnoye, Siberia	65.37° N	151.03° E
36. Evenk	Nayakhan, Siberia	61.92° N	158.97° E
37. Flathead	Jocko R., MT	47.18° N	113.85° W
38. Haida	Masset, BC	54.02° N	132.15° W
39. Hoopa	Hoopa Valley, CA	41.03° N	123.65° W
40. Itelman	Khayryuzovo, Siberia	56.83° N	156.98° E
41. Itelman	Sedanka, Siberia	57.60° N	159.00° E
42. Kalapuya	Grand Ronde, OR	45.05° N	123.60° W
43. Kiowa	Ft. Sill, OK	34.66° N	98.41° W
44. Klamath	Klamath Co., OR	42.68° N	121.65° W
45. Klickitat (head only)	Ft. Simcoe, WA	46.33° N	120.83°W
46. Koryak	Kuel, Siberia	62.45° N	163.22° E
47. Kutenai	Ft. Steele, BC	49.62° N	115.63° W
48. Kwakiutl	Rivers Inlet, BC	51.70° N	127.25° W
49. Lillooet	Pemberton, BC	50.32° N	122.82° W

Table 5.3 Continued.

Population	Location	Latitude	Longitude
50. Makah	Neah Bay, WA	48.36° N	124.61° W
51. Malecite	Cacouna, QUE	47.92° N	69.50° W
52. Maritime Chukchi	Chechen, Siberia	64.37° N	172.85° E
53. Menomini	Keshina, WI	44.88° N	88.64° W
54. Micmac	Lennox Is., PEI	46.60° N	63.85° W
55. Mississagua	Mississagi R., ONT	46.17° N	83.02° W
56. Modoc	N. California	41.80° N	121.40° W
57. Mohawk	St. Regis Res., NY	44.98° N	74.65° W
58. Montagnais	North West R., LAB	53.53° N	60.15° W
59. Munsee	S. New York	41.85° N	74.95° W
60. Nanaimo	Nanaimo, BC	49.15° N	123.92° W
61. Navajo	Ft. Wingate, NM	35.47° N	108.53° W
62. Nez Perce	Ft. Lapwai, ID	46.40° N	116.80° W
63. Nisqually	Nisqually, WA	47.05° N	122.70° W
64. Nivkhi	Pronge, Siberia	52.85° N	141.20° E
65. Northern Hill Yokut	C. California	36.90° N	119.55° W
66. Northern Paiute	N. California	41.10° N	120.25° W
67. Northern Pomo	N. California	39.40° N	123.50° W
68. Ojibwa	Trout Lake, ONT	46.22° N	80.58° W
69. Ojibwa	Lac Seul, ONT	50.32° N	92.28° W
70. Okanagan	Tenasket's Sawmill, WA	48.70° N	119.43° W
71. Omaha	Omaha Res., NE	42.10° N	96.50° W
72. Oneida	Oneida, ONT	42.75° N	81.42° W

Table 5.3 Continued.

Population	Location	Latitude	Longitude
73. Osage	Osage Co., OK	36.63° N	96.40° W
74. Pawnee	St. Paul, NE	41.21° N	98.46° W
75. Piegan	Piegan, MT	48.26° N	112.41° W
76. Ponca	S. W. S. Dakota	43.00° N	101.00° W
77. Potawatomi	S. W. Michigan	42.25° N	86.00° W
78. Pueblo	Casa Blanca, NM	35.08° N	107.47° W
79. Puyallup	Puyallup, WA	47.18° N	122.28° W
80. Queets	Quinault, WA	47.47° N	123.83° W
81. Quillayute	Forks, WA	47.95° N	124.38° W
82. Quinault	Taholah, WA	47.33° N	124.28° W
83. Reindeer Chukchi	Anadyr', Siberia	64.75° N	177.48° E
84 Reindeer Evenk	Yeropol, Siberia	65.25° N	168.67° E
85. Reindeer Koryak	Kamenskoye, Siberia	62.50° N	166.20° E
86.San Luis Rey	Mesa Grande, CA	33.17° N	116.77° W
87. Sarcee	Red Deer, ALTA	52.25° N	113.80° W
88. Sauk	S. Fork Little Osage R., KA	37.95° N	95.20° W
89. Seneca	Tonawanda Res., NY	43.07° N	78.44° W
90. Serrano	Morongo, CA	34.06° N	116.59° W
91. Shawnee	Tecumseh, OK	35.26° N	96.93° W
92. Shoshoni	Ross Fork, ID	43.06° N	112.45° W
93. Shuswap	Kamloops, BC	50.67° N	120.33° W
94. Sioux(Santee)	Lower Sioux Res., MN	44.53° N	94.98° W
95. Sioux(Teton)	Cheyenne R. Res., SD	45.08° N	101.12° W

Table 5.3 Continued.

Population	Location	Latitude	Longitude
96. Sioux(Yankton)	Yankton, SD	42.87° N	97.38° W
97. Southern Miwok	C. California	37.30° N	119.50° W
98. Stalo	Popkum, BC	49.20° N	121.73° W
99. Stockbridge	Stockbridge, WI	44.07° N	88.28° W
100. Tahltan	Telegraph Creek, BC	57.93° N	131.17° W
101. Taos	Taos, NM	36.39° N	105.58° W
102. Tenino	Warm Springs, OR	44.77° N	121.29° W
103. Thompson	Lytton, BC	50.23° N	121.57° W
104. Tonkawa	Brazos, TX	32.65° N	98.12° W
105. Tsimshian	Port Essington, BC	54.15° N	129.95° W
106. Tundra Evenk	Menekhtyakh, Siberia	68.78° N	157.20° E
107. Tuscarora	Tuscarora Res., NY	43.17° N	78.96° W
108. Tututni	Gold Beach, OR	42.40° N	124.42° W
109. Umatilla	Umatilla Res., OR	45.67° N	118.55° W
110. Ute	Whiterocks, UT	40.47° N	109.92° W
111. Wasco	The Dalles, OR	45.58° N	121.17° W
112. Washo	C. California	39.20° N	120.23° W
113. Western Mono	C. California	36.80° N	118.65° W
114. Winnebago	Black River Falls, WI	44.28° N	90.85° W
115. Yakut	Yakutsk, Siberia	62.17° N	129.83° E
116. Yokuts	Tule River, CA	38.42° N	121.57° W
117. Yukaghir	Korkodon R., Siberia	64.73° N	154.00° E
118. Yuki	N. California	39.92° N	123.18° W
119. Yurok	N. California	41.48° N	123.51° W
120. Zuni	Zuni, NM	35.07° N	108.85° W

One drawback to the one-dimensional correlograms, as discussed in Chapter 4, is that they cannot reveal the direction of the spatial patterns. Therefore, two-dimensional correlograms were constructed. This was accomplished using the C2D program written by Jacquez (1991). C2D is a DOS program that calculates distance classes, two-dimensional Moran's I and Geary's c coefficients, and calculates significance levels under the normal and randomization assumptions. Two-dimensional correlograms usually have fewer distance classes than one-dimensional correlograms because the element of direction is introduced into the calculation. Therefore, the two-dimensional coefficients require larger sample sizes and, consequently, there must be fewer distance classes. With this in mind, the two-dimensional correlograms were calculated with distance classes having upper bounds of 500, 1,500, 3,000, 5,000, 7,500, and 10,500 kilometers for a total of 6 distance classes. Twenty-two distance/direction classes were also calculated and were used in the determination of the significance of the two-dimensional correlograms such that any correlogram with a Moran's I or Geary's c that had a significance level of $p \leq 0.0023$ (0.05/22) would be considered to be significant based on the Bonferroni criterion (Oden, 1984).

Matrix Correlation Analysis

Another problem with spatial autocorrelation is that it cannot adequately assess the role of language or the role of the interplay between language and geographical distance in human variation. Therefore, matrix correlation was employed. To perform the analysis six matrices were constructed. These matrices were 120x120 matrices for the head data and 119x119 matrices for the body data. The six matrices included a 120x120 language matrix, an 119x119 language matrix, a 120x120 geographical distance matrix, an 119x119 geographical distance matrix, a 120x120 squared distance matrix calculated from the head data, and an 119x119 squared distance matrix calculated from the body data.

The language distance matrices were constructed based on the language classifications of Ruhlen (1987) and the Ethnoloque (2001)

website. Table 5.4 presents a list of the languages spoken by the tribes included in this study. I used a hierarchical ranking system to construct the language distance matrix that has been used frequently by anthropological geneticists (see for example Barbujani et al., 1992; Barbujani et al., 1994c; Chen et al., 1995; Crawford et al., 1997; Excoffier et al., 1991; Fagundes et al., 2002; Harding and Sokal, 1988; Jantz and Meadows, 1995; and Sokal, 1988). However, I used a slightly different system. As can be seen in Table 5.4, the 120 tribes used in this study encompass languages from 4 language phyla, Amerind, Na Dene, Eskimo-Aleut, Chukchi-Kamchatkan, and Altaic; consequently, languages in different phyla were given a score of 4. Languages within different more comprehensive groups such as subphyla were given a score of 3. For example, languages within the phylum Amerind but separated by the subphylum Northern Amerind and Central Amerind were given a score of 3. Similarly, tribes within the Na Dene phylum who spoke Haida or a language within the Athabaskan group were given a score of 3. This was done because Ruhlen (1987:198) states that "opinion is divided on whether Haida too is to be included in the Na Dene complex." Therefore, I concluded that for the purposes of this study, it would be better to put Haida on the level of a subphylum rather than on the family level. Languages that were in different families were given a score of 2. Different languages within the same family were given a score of 1, and tribes that spoke the same language were given a score of 0. In instances where languages spoken by certain tribes were not present in Ruhlen (1987), the Ethnologue (2001) or a similar web page was consulted. Finally, two copies of the language matrix were made, one including all 120 tribes and one with 119 tribes (the Klickitat tribe was removed for the analysis using the body data).

The geographical distance matrix is made up of great circle distances calculated using the GREAT CIRCLE program I wrote in MATLAB, which uses Spuhlers (1972) formula. As with the language distance matrix, two copies were made, one including all 120 tribes and one with the Klickitat tribe removed for the analysis using the body data.

The anthropometric distance matrices were squared distance matrices

Table 5.4. Language Classification[a]

Population	Phylum	Subphylum	Family	Language
1. Achumawi	Amerind	N. Amerind	Hokan	Achumawi
2. Agua Caliente	Amerind	C. Amerind	Uto-Aztecan	Cupeño
3. Aiwan	Eskimo-Aleut	----------	Eskimo	Siberian Yupik
4. Aleut	Eskimo-Aleut	----------	Aleut	Aleut
5. Apache	Na-Dene	----------	Athabaskan	Apache
6. Arapaho	Amerind	N. Amerind	Algonquian	Arapaho
7. Assiniboin	Amerind	N. Amerind	Siouan	Dakota
8. Atsugewi	Amerind	N. Amerind	Hokan	Atsugewi
9. Bannock	Amerind	C. Amerind	Uto-Aztecan	N. Paiute
10. Bella Coola	Amerind	N. Amerind	Salish	Bella Coola
11. Big Meadow	Amerind	N. Amerind	Penutian	N.E. Maidu
12. Blood	Amerind	N. Amerind	Algonquian	Blackfoot
13. Caddo	Amerind	N. Amerind	Caddoan	Caddo
14. Carrier	Na-Dene	----------	Athabaskan	Carrier
15. Catawba	Amerind	N. Amerind	Siouan	Catawba
16. Cherokee	Amerind	N. Amerind	Iroquoian	Cherokee
17. Cheyenne	Amerind	N. Amerind	Algonquian	Cheyenne
18. Chickasaw	Amerind	N. Amerind	Penutian	Chickasaw
19. Chilcotin	Na-Dene	----------	Athabaskan	Chilcotin
20. Chippewa	Amerind	N. Amerind	Algonquian	Ojibwa
21. Choctaw	Amerind	N. Amerind	Penutian	Choctaw
22. Chuvantsy	Uralic-Yukaghir	----------	Yukaghir	Chuvantsy
23. Clallum	Amerind	N. Amerind	Salish	Clallum
24. Central Miwok	Amerind	N. Amerind	Penutian	Central Miwok

Table 5.4 Continued.

Population	Phylum	Subphylum	Family	Language
25. Coahuilla	Amerind	C. Amerind	Uto-Aztecan	Coahuilla
26. Coeur d'Alene	Amerind	N. Amerind	Salish	Coeur D'alene
27. Comanche	Amerind	C. Amerind	Uto-Aztecan	Comanche
28. Concow	Amerind	N. Amerind	Penutian	N.W. Maidu
29. Creek	Amerind	N. Amerind	Penutian	Muskogee
30. Crow	Amerind	N. Amerind	Siouan	Crow
31. Eastern Mono	Amerind	C. Amerind	Uto-Aztecan	Mono
32. Lab. Eskimo	Eskimo-Aleut	----------	Eskimo	Inuit
33. Mackenzie Delta Eskimo	Eskimo-Aleut	----------	Eskimo	Inuit
34. Even	Altaic	----------	Tungus	Even
35. Evenk	Altaic	----------	Tungus	Evenki
36. Flathead	Amerind	N. Amerind	Salish	Flathead
37. Haida	Na-Dene	----------	Haida	Haida
38. Hoopa	Na-Dene	----------	Athabaskan	Hoopa
39. Itelmen	Chukchi-Kamchatkan	----------	Southern	Kamchadal
40. Kalapuya	Amerind	N. Amerind	Penutian	Kalapuya
41. Kiowa	Amerind	C. Amerind	Tanoan	Kiowa
42. Klamath	Amerind	N. Amerind	Penutian	Klamath
43. Klickitat	Amerind	N. Amerind	Penutian	Sahaptin
44. Koryak	Chukchi-Kamchatkan	----------	Northern	Koryak
45. Kutenai	Amerind	N. Amerind	Kutenai	Kutenai
46. Kwakiutl	Amerind	N. Amerind	Wakashan	Kwakwala
47. Lillooet	Amerind	N. Amerind	Salish	Lillooet

Table 5.4 Continued.

Population	Phylum	Subphylum	Family	Language
48. Makah	Amerind	N. Amerind	Wakashan	Makah
49. Malecite	Amerind	N. Amerind	Algonquian	Malecite
50. Maritime Chukchi	Chukchi-Kamchatkan	----------	Northern	Chukchi
51. Menomini	Amerind	N. Amerind	Algonquian	Menomini
52. Micmac	Amerind	N. Amerind	Algonquian	Micmac
53. Mississagua	Amerind	N. Amerind	Algonquian	Ojibwa
54. Modoc	Amerind	N. Amerind	Penutian	Klamath
55. Mohawk	Amerind	N. Amerind	Iroquoian	Mohawk
56. Montagnais	Amerind	N. Amerind	Algonquian	Montagnais
57. Munsee	Amerind	N. Amerind	Algonquian	Munsee
58. Nanaimo	Amerind	N. Amerind	Salish	Halkomelem
59. Navajo	Na-Dene	----------	Athabaskan	Navajo
60. Nez Perce	Amerind	N. Amerind	Penutian	Nez Perce
61. Nisqually	Amerind	N. Amerind	Salish	Lushootseed
62. Nivkhi	----------	----------	----------	Nivkhi
63. Northern Hill Yokut	Amerind	N. Amerind	Penutian	Northern Hill Yokut
64. Northern Paiute	Amerind	C. Amerind	Uto-Aztecan	Northern Paiute
65. Northern Pomo	Amerind	C. Amerind	Hokan	Northern Pomo
66. Ojibwa	Amerind	N. Amerind	Algonquian	Ojibwa
67. Okanagan	Amerind	N. Amerind	Salish	Okanagan
68. Omaha	Amerind	N. Amerind	Siouan	Omaha
69. Oneida	Amerind	N. Amerind	Iroquoian	Oneida
70. Osage	Amerind	N. Amerind	Siouan	Osage

Table 5.4 Continued.

Population	Phylum	Subphylum	Family	Language
71. Pawnee	Amerind	N. Amerind	Caddoan	Pawnee
72. Piegan	Amerind	N. Amerind	Algonquian	Blackfoot
73. Ponca	Amerind	N. Amerind	Siouan	Omaha
74. Potawatomi	Amerind	N. Amerind	Algonquian	Potawatomi
75. Pueblo	Amerind	N. Amerind	Keresan	Keres
76. Puyallup	Amerind	N. Amerind	Salish	Lushootseed
77. Queets	Amerind	N. Amerind	Salish	Quinault
78. Quillayute	Amerind	N. Amerind	Chimakuan	Quillayute
79. Quinault	Amerind	N. Amerind	Salish	Quinault
80. Reindeer Chukchi	Chukchi-Kamchatkan	----------	Northern	Chukchi
81. Reindeer Evenk	Altaic	----------	Tungus	Evenki
82. Reindeer Koryak	Chukchi-Kamchatkan	----------	Northern	Koryak
83. San Luis Rey	Amerind	C. Amerind	Uto-Aztecan	Luiseño
84. Sarcee	Na-Dene	----------	Athabaskan	Sarcee
85. Sauk	Amerind	N. Amerind	Algonquian	Sauk-Fox
86. Seneca	Amerind	N. Amerind	Iroquoian	Seneca
87. Serrano	Amerind	C. Amerind	Uto-Aztecan	Serrano
88. Shawnee	Amerind	N. Amerind	Algonquian	Shawnee
89. Shoshoni	Amerind	C. Amerind	Uto-Aztecan	Shoshoni
90. Shuswap	Amerind	N. Amerind	Salish	Shuswap
91. Sioux(Santee)	Amerind	N. Amerind	Siouan	Dakota
92. Sioux(Teton)	Amerind	N. Amerind	Siouan	Dakota
93. Sioux(Yankton)	Amerind	N. Amerind	Siouan	Dakota

Table 5.4 Continued.

Population	Phylum	Subphylum	Family	Language
94. Southern Miwok	Amerind	N. Amerind	Penutian	Southern Miwok
95. Stalo	Amerind	N. Amerind	Salish	Halkomelem
96. Stockbridge	Amerind	N. Amerind	Algonquian	Stockbridge
97. Tahltan	Na-Dene	----------	Athabaskan	Tahltan
98. Taos	Amerind	C. Amerind	Tanoan	Taos
99. Tenino	Amerind	N. Amerind	Penutian	Sahaptin
100. Thompson	Amerind	N. Amerind	Salish	Thompson
101. Tonkawa	Amerind	N. Amerind	Hokan	Tonkawa
102. Tsimshian	Amerind	N. Amerind	Penutian	Tsimshian
103. Tundra Evenk	Altaic	----------	Tungus	Evenki
104. Tuscarora	Amerind	N. Amerind	Iroquoian	Tuscarora
105. Tututni	Na-Dene	----------	Athabaskan	Tututni
106. Umatilla	Amerind	N. Amerind	Penutian	Sahaptin
107. Ute	Amerind	C. Amerind	Uto-Aztecan	Ute
108. Wasco	Amerind	N. Amerind	Penutian	Wasco
109. Washo	Amerind	N. Amerind	Hokan	Washo
110. Western Mono	Amerind	C. Amerind	Uto-Aztecan	Mono
111. Winnebago	Amerind	N. Amerind	Siouan	Winnebago
112. Yakut	Altaic	----------	Turkic	Yakut
113. Yokuts	Amerind	N. Amerind	Penutian	Yokuts
114. Yukaghir	Uralic-Yukaghir	----------	Yukaghir	Yukaghir
115. Yuki	Amerind	N. Amerind	Penutian	Yuki
116. Yurok	Amerind	N. Amerind	Algic	Yurok

Table 5.4 Continued.

Population	Phylum	Subphylum	Family	Language
117. Zuni	Amerind	N. Amerind	Penutian	Zuni

a. Based on Ruhlen (1987) and Ethnologue (www.ethnologue.com) (2004)

calculated by the CANDISC procedure in SAS (version 8.2, 2003). One squared distance matrix was based on the head data with 120 tribes and the other on the body data with 119 tribes (i.e. with the Klickitat tribe removed).

The matrix correlation itself was performed using a program written by professor Jantz in TRUE BASIC. This program performs matrix correlations with one matrix at the Y, or dependent matrix, and one matrix as the independent, or X, matrix using the method developed by Mantel (1967). In addition, the program also does matrix correlations using more than one independent matrix where one independent matrix is used with another independent matrix held constant. This approach is based on the work of Smouse et al. (1986) and Smouse and Long (1992). Therefore, two analyses were run. one using the head squared distance matrix as the dependent or Y matrix and another using the body squared distance matrix as the dependent or Y matrix. The Y matrices were then compared first to the geographical distance matrix (X matrix) and then to the language distance matrix (X matrix) separately. Next, the Y matrices were compared to the geographical distance matrix with the language distance matrix held constant and then to the language distance matrix with the geographical distance matrix held constant. Significance was determined using a randomization test performed by Jantz's program.

Wombling

As mentioned in Chapter 4, Wombling is utilized to discover boundaries to gene flow. It was used in this study because spatial autocorrelation analysis and matrix correlation are performed with the assumption that the strength of genetic relationship is due to the geographic distance between populations. Spatial autocorrelation especially does not take into account that there maybe certain topographical areas, such as large bodies of water or mountain ranges, that might cut off geneflow. In addition, spatial autocorrelation does not take into account the possibility that language and cultural barriers may also cut off geneflow (Barbujani et al. 1989; Barbujani, 2000; Konigsberg

and Buikstra, 1995). Therefore, Wombling was applied here to detect any such boundaries.

For this study, Wombling was utilized by first interpolating the data to create grid files using interpolation software, in this case SURFER (Version 5.0, 1994). The interpolation works by first entering an XYZ data file into the program, where X and Y are the longitudes and latitudes, respectively, of the locality coordinates used in the spatial autocorrelation analysis, and Z is the canonical axis means of each tribe or tribal division from the canonical discriminant analysis. This procedure produces a grid file containing coordinates for making a grid plot from the data. One grid file was made from each canonical axis, producing a total of 12 grid files, 6 for the head data and 6 for the body data.

The Womble 2 program, written by professor Lyle Konigsberg in FORTRAN was utilized to perform the Wombling analysis. This program used the grid files and the eigenvalues from the canonical discriminant analysis in detecting the boundaries hidden in the Boas and Gifford data. The Womble 2 program produced two output files, a file containing a list of angles and magnitudes of vectors and another file containing the coordinates of those vectors for plotting. The file containing the vector coordinates was then used to make a plot, using EXCEL (Version 9.0, 2000) showing any boundaries in the data. As with the other analyses in this study, Wombling was performed separately for the head and body data. The results of the analyses used in this study are reported in chapter 6.

CHAPTER SIX

RESULTS

Data Estimation

In the previous chapter, I mentioned that the use of Schafer's (1998) NORM program produced reasonable estimates of data that had previously been found to be in error. While there were too many erroneous measurements to list them all here, a portion of the data is shown in Tables 6.1 and 6.2. Using Jantz's regression program, these tables show the incorrect measurements found in the Cherokee data. Each table shows the I.D. number of each individual in which at least one measurement was incorrectly taken, the name of the incorrect measurement, the size of the measurement in question, the measurement predicted by Jantz's program, the number of standard deviations in error, and the measurement estimated by the NORM program. Table 6.1 contains the Cherokee head data and Table 6.2 contains the body data.

As can be seen in Tables 6.1 and 6.2, the number of erroneous measurements was quite small when compared to the total sample sizes of 403 for the Cherokee head data and 389 for the body data. Table 6.1 shows two measurements found to be incorrect using regression, but I found them to have been incorrectly copied onto the database when I checked the original sheets. Therefore, the "Estimated" column in Table 6.1 for individuals with I.D. numbers 3010044 and 11010265 shows the correct measurements from the original data sheets. Furthermore, the "Estimated" column from Tables 6.1 and 6.2 shows that the values estimated by the NORM program are quite close to the predicted values

Table 6.1. Measurement Error in the Cherokee Head Data as Revealed by Regression Analysis and Corrected by the NORM Program. (In mm.)

I.D. No.	Name	Observed	Predicted	S.E.	Estimated
3011012	LFN	96	112.60644	-3.1725113	108
11010153	LN	39	48.787283	-3.0451835	46
3010178	BH	164	149.00973	3.1046217	149
3010044	LFN	138*	120.15427	3.131361	133
3010099	LFN	98	115.3484	-3.0440954	115
3010100	LFN	103	121.15596	-3.1857963	119
11010341	LFN	104	123.50489	-3.422491	130
11010376	LFN	138	120.21843	3.1201034	121
3010110	BF	162	148.27897	3.2114478	148
3010182	BF	116	138.76059	-5.3271832	137
3010030	LN	63	52.63892	3.2576458	57
11010265	LN	37*	53.317117	-5.1302942	57
11010437	BN	50	39.723258	3.2561987	41

*Typographical error

Table 6.2. Measurement Error in the Cherokee Body Data as Revealed by Regression Analysis and Corrected by the NORM Program. (In mm.)

I.D. No.	Name	Observed	Predicted	S.E.	Estimated
11010280	HSH	1338	1292.9237	3.1954441	1296
3011003	HMF	638	582.04941	3.0738613	586
11010446	HMF	578	635.93794	-3.1830439	593
11010436	STR	1485	1582.198	-3.2992563	1587
11010446	STR	1477	1601.9251	-4.2404173	1588
11010148	WSH	200	346.70146	-7.9717585	361
11010087	ST	1685	1640.6623	3.0866721	1651
11010293	ST	1693	1641.0846	3.6142061	1635
3010048	HSH	1376	1424.4033	-3.2639854	1403
3010044	HMF	754	686.22992	3.1322228	685
11010087	STR	1655	1762.3429	-3.2039717	1702
11010403	STR	1588	1723.1504	-4.0339723	1728
3010039	HS	1011	929.61953	3.5968691	912
3010011	WSH	303	388.31784	-3.9430046	418
11010214	WSH	200	375.16437	-8.0953049	413

from Jantz's regression program and, therefore, appear to be reasonable estimates.

The descriptive statistics calculated from the data, after data estimation, are shown in Appendices A and B. Appendix A contains the descriptive statistics from the body data, and Appendix B contains the descriptive statistics from the head data.

Tests for Homogeneity Among Tribal Localities

The results of the one-way ANOVAs used to test for homogeneity of tribal localities are presented in Table 6.3. This table shows the one-way ANOVA results for the head and body data.

The table reveals the sums of squares showed Bonferroni significant heterogeneity between the tribes was present in all the variables. Therefore, the null hypothesis of homogeneity among groups was rejected and further analyses on the Boas and Gifford datasets were warranted.

The complete ANOVA statistics for the body data are shown in appendix C, and the complete ANOVA statistics for the head data are shown in appendix D.

Multivariate Analyses

Although the multivariate analyses were run in order to accomplish the task of running the spatial autocorrelation analysis (canonical discriminant analysis) and matrix correlation analysis (squared-distance matrices), I believe some discussion of the results of these analyses is warranted.

As with all other analyses, the canonical discriminant analysis was run independently on the head and body data. The canonical discriminant statistics for the head data are presented in Table 6.4.

Table 6.3. One-Way Analyses of Variance for the Head and Body Data

Head			Body		
Variable	**R^2**	**F for tribe**	**Variable**	**R^2**	**F for tribe**
LH	0.266	27.14*	ST	0.362	39.99**
BH	0.355	41.25*	HSH	0.395	46.15**
LFN	0.257	25.89*	HMF	0.243	22.69**
BF	0.216	20.62*	STR	0.416	50.24**
LN	0.355	41.25*	HS	0.220	19.97**
BN	0.274	28.26*	WSH	0.271	26.27**
			LL	0.389	44.88**
			AL	0.385	44.23**

d.f. = 9023 for head data, d.f. = 119 F for tribe-head data
d.f. = 8444 for body data, d.f. = 118 F for tribe-body data
*Bonferroni significant at $p \leq 0.0083$. (0.05/6)
** Bonferroni significant at $p \leq 0.0062$. (0.05/8)

Table 6.4. Statistical Results for the Canonical Discriminant Analysis from the Head Data.

Canonical Axis	Eigenvalue	Proportion	Cumulative	Canonical Correlations	Likelihood Ratio	Approximate F value	Pr > F
1	0.7456	0.3290	0.3290	0.6535	0.1578	26.95	<.0001
2	0.5938	0.2620	0.5910	0.6104	0.2755	22.19	<.0001
3	0.3660	0.1615	0.7525	0.5176	0.4391	17.38	<.0001
4	0.2620	0.1156	0.8682	0.4557	0.5999	14.25	<.0001
5	0.1629	0.0719	0.9400	0.3743	0.7571	11.56	<.0001
6	0.1359	0.0600	1.0000	0.3459	0.8804	10.61	<.0001

Since I performed the canonical discriminant analysis on the head and body variables separately, there are only six variables in each analysis and thus six canonical axes. Stature and height at the middle finger had been dropped from all canonical discriminant, spatial autocorrelation, matrix correlation, and Wombling analyses. All canonical axes on the head data are highly significant ($p < .0001$) based on the likelihood ratio test. The first 3 eigenvalues account for more then 75% of the variation and eigenvalues 4-6 account for a total of less than 25% of the variation.

The between group canonical structure for the six canonical axes based on the head variables is shown in Table 6.5. Canonical axis 1 accounts for almost 33% (32.9%) of the variation in the data. This canonical axis has its highest loadings on head length (-0.622) and head breadth (0.790). Weaker loadings are present in face breadth (0.460), nose breadth (0.436), nose length (-0.356), and face length (-0.207). In general, this axis seems to be a contrast between height or length and breadth of the face and head although the greatest emphasis is in the length and breadth of the head. Both Jantz et al. (1992) and Ousley (1995) found this situation in earlier analyses of portions of the Boas data. However, the relationship seemed to be stronger in Ousley's analysis and the opposite situation seemed to occur in Jantz et al's analysis. Overall, this axis seems to reflect that the greatest variance in the head data is due to head shape.

The second canonical axis accounts for more than 26% (26.2%) of the total variation in the head data. The highest loadings occur with nose length (0.920) and face length (0.741) indicating that this axis is one of face shape.

The third canonical axis accounts for more than 16% (16.15%) of the variation present in the head data. Nasal breadth (0.771) is most emphasized in this axis. Therefore, all variables except for face breadth

Table 6.5. Between Group Canonical Structure for the Head Data

Variable	Can 1	Can 2	Can 3	Can 4	Can 5	Can 6
LH	-0.622	0.255	0.169	0.700	-0.085	0.150
BH	0.790	0.462	-0.127	0.352	-0.147	-0.014
LFN	-0.207	0.741	-0.472	0.026	0.161	0.398
BF	0.460	0.343	-0.235	0.603	0.474	-0.163
LN	-0.356	0.920	-0.033	-0.113	0.072	-0.081
BN	0.436	0.298	0.771	0.109	0.257	0.220

account for more than 75% (75.25%) of the variation present in the head data.

As mentioned earlier, canonical axes 4-6 make up less than 25% (24.75%) of the variation. Head length (0.700) is most heavily loaded in canonical axis 4 followed by face breadth (0.603). In canonical axes 5 and 6, no variable is strongly emphasized; however, face breadth (0.474) is the most heavily loaded followed by nose breadth (0.257) in canonical axis 5, and face length (0.398) is the most heavily loaded in canonical axis 6. Based on the loadings in canonical axis 5, it appears to be an axis of face breadth though it accounts for only 7.2% of the total variation in the head data.

Plots of canonical axis 1 on canonical axis 2 using the canonical mean scores from these two canonical axes are presented in Figures 6.1 and 6.2. Canonical axis 1 and 2 explain 59.1% of the variation in the head data. Figure 6.1 shows the tribes color-coded by culture area and figure 6.2 is color coded by language phylum or family. Tables 6.6 and 6.7 are lists of populations with their respective mean scores for canonical axes 1 and 2 plotted in Figures 6.1 and 6.2. The populations in Table 6.6 are organized according to culture area and listed in alphabetical order; the numbers in parentheses coincide with those in Figure 6.1. Table 6.7 shows the populations listed according to language family or phylum in alphabetical order. The numbers in parentheses coincide with those in Figure 6.2.

These plots, in general, show that populations with higher scores on canonical axis 1 have shorter-broader heads and populations with lower scores have longer-narrower heads. For example, the plot shows that the Quinault (82) have the shortest broadest heads, followed by Queets (80) and Clallum (24), and followed by Quillayute (81). At the other extreme the Mackenzie Delta Eskimo (34) have the longest narrowest heads

Table 6.6. Plot Coordinates for the Canonical Discriminant Analysis Score Means (Head Data—Culture Areas).

Culture Area	Color*	Tribe**	Can 1	Can 2
Arctic	Pink	1. Aleut (4)	0.3616	0.7699
		2. Eskimo (EC) (33)	-0.6886	-0.5949
		3. Eskimo (WC) (34)	-1.4438	0.0710
California	**Black**	1. Achomawi (1)	0.9266	0.0494
		2. Agua Caliente (2)	1.4935	-0.0432
		3. Atsugewi (8)	0.8471	0.4506
		4. Big Meadow (11)	0.7684	-0.3703
		5. C. Miwok (25)	1.6907	0.8907
		6. Coahuilla (26)	1.5759	-0.2046
		7. Concow (29)	-0.1325	-0.8645
		8. E. Mono (32)	0.7395	1.0650
		9. Hoopa (39)	0.4324	-0.2258
		10. N. Hill Yokut (65)	0.1228	0.1873
		11. N. Pomo (67)	0.4278	-1.3349
		12. San Luis Rey (86)	1.8519	0.2953
		13. Serrano (90)	0.4693	-0.1935
		14. S. Miwok (97)	1.8206	0.8247
		15. W. Mono (113)	-1.3312	-0.2428
		16. Yokuts (116)	1.7271	-0.4255
		17. Yuki (118)	-0.7253	-1.5816
		18. Yurok (119)	0.8072	-0.7074
Great Basin	Aqua	1. Bannock (9)	0.1727	-1.6237
		2. Nez Perce (62)	0.6146	0.4656
		3. N. Paiute (66)	0.4807	-0.4953
		4. Shoshoni (92)	-0.0374	-0.1000
		5. Ute (110)	0.0137	-0.4925
		6. Washo (112)	0.6135	0.4842
Northeast	Brown	1. Chippewa (MN) (20)	-0.6190	0.4032
		2. Chippewa (WI) (21)	0.1222	-0.1119
		3. Malecite (51)	-0.5853	-0.3307
		4. Menomini (53)	-0.0304	-0.3584
		5. Micmac (54)	-0.8948	-0.1409
		6. Mississagua (55)	-0.3025	0.2396
		7. Mohawk (57)	-0.4601	-0.3841
		8. Munsee (59)	-0.3229	-0.3005
		9. Ojibwa (GBay) (68)	0.0118	0.0694
		10. Ojibwa (NWLSup) (69)	-0.4374	-0.2706
		11. Oneida (72)	-0.5467	0.0434
		12. Potawatomi (77)	0.4771	-0.6177
		13. Sauk (88)	-0.1867	-0.2433
		14. Seneca (89)	-0.7639	-0.0865
		15. Shawnee (91)	0.0018	-0.3241
		16. Stockbridge (99)	-0.5205	-0.4110
		17. Tuscarora (107)	-0.4814	-0.6418
		18. Winnebago (114)	0.7478	0.2517

Table 6.6 continued.

Culture Area	Color*	Tribe**	Can 1	Can 2
Northwest Coast	Red	1. Bella Coola (10)	0.2031	1.1502
		2. Clallum (24)	2.7006	0.3470
		3. Haida (38)	0.4687	0.0862
		4. Kalapuya (42)	1.1335	0.2584
		5. Klickitat (45)	-0.1015	1.1701
		6. Kwakiutl (48)	-0.2829	0.5041
		7. Makah (50)	1.4270	-0.0448
		8. Nanaimo (60)	2.3589	0.7394
		9. Nisqually (63)	1.5791	0.8588
		10. Puyallup (79)	1.7852	0.5055
		11. Queets (80)	2.7441	0.9385
		12. Quillayute (81)	2.4772	0.0488
		13. Quinault (82)	3.3212	0.3771
		14. Stalo (98)	1.8840	-0.2338
		15. Tenino (102)	1.6849	0.3605
		16. Tsimshian (105)	0.6323	-0.0918
		17. Tututni (108)	-0.4195	0.1146
Plains	Bright Green	1. Arapaho (6)	-0.5435	0.3221
		2. Assiniboin (7)	-1.2106	1.0470
		3. Blood (12)	-0.5219	0.7851
		4. Caddo (13)	0.1451	0.7611
		5. Cheyenne (17)	-0.5462	1.1544
		6. Comanche (28)	0.0143	1.2651
		7. Crow (31)	-0.4564	1.7903
		8. Kiowa (43)	-0.3500	0.4345
		9. Omaha (71)	-0.0407	0.2510
		10. Osage (73)	2.0653	0.5522
		11. Pawnee (74)	-0.5121	0.2721
		12. Piegan (75)	-0.6304	0.7303
		13. Ponca (76)	-0.2331	1.0413
		14. Sarcee (87)	-0.9294	0.2582
		15. Sioux (Santee) (94)	-0.9587	0.8143
		16. Sioux (Teton) (95)	-0.6998	1.2688
		17. Sioux (Yankton) (96)	-0.6736	1.0126
		18. Tonkawa (104)	0.7479	1.2727
Plateau	Green	1. Coeur d'Alene (27)	0.3885	-0.5994
		2. Flathead (37)	0.6477	0.2203
		3. Klamath (44)	1.5912	0.4912
		4. Kutenai (47)	-0.5279	1.2571
		5. Lillooet (49)	1.0939	-0.1435
		6. Modoc (56)	1.4374	-0.3437
		7. Okanagan (70)	-0.0732	0.3536
		8. Shuswap (93)	0.8036	-0.1324
		9. Thompson (103)	0.3737	-0.8132
		10. Umatilla (109)	1.4684	1.4628
		11. Wasco (111)	1.6467	0.7029

Table 6.6 continued.

Culture Area	Color*	Tribe**	Can 1	Can 2
Siberia	Blue	1. Aiwan (3)	-0.7800	0.1924
		2. Chuvantsy (23)	-1.3033	0.8252
		3. Even (35)	-0.5390	-0.3647
		4. Evenk (36)	-0.9604	-0.6579
		5. Itelman (KH) (40)	-0.9363	-1.3806
		6. Itelman (SE) (41)	-0.8986	-1.3462
		7. Koryak (46)	-0.8141	-0.1784
		8. Maritime Chukchi (52)	-0.2679	-0.2183
		9. Nivkhi (64)	0.4261	-0.3498
		10. Reindeer Chukchi (83)	-0.0373	-0.2525
		11. Reindeer Evenk (84)	-0.8468	-0.1858
		12. Reindeer Koryak (85)	-0.5353	0.2931
		13. Tundra Evenk (106)	-0.4908	-0.0476
		14. Yakut (115)	-0.4047	0.4437
		15. Yukaghir (117)	-0.9363	-0.1711
Southeast	Periwinkle	1. Catawba (15)	-0.4341	-1.1181
		2. Cherokee (16)	-0.6258	-0.5403
		3. Chickasaw (18)	-0.3649	-1.6622
		4. Choctaw (22)	-0.1096	-0.4488
		5. Creek (30)	-0.9217	-0.1519
Southwest	Orange	1. Apache (5)	1.8282	-0.2674
		2. Navajo (61)	0.8795	-0.8654
		3. Pueblo (78)	0.0731	-0.5171
		4. Taos (101)	-1.1326	-1.3870
		5. Zuni (120)	0.5229	-1.5773
Sub-Arctic	Plum	1. Carrier (14)	0.1046	0.4091
		2. Chilcotin (19)	0.9867	0.2501
		3. Montagnais (58)	-0.1396	0.2006
		4. Tahltan (100)	-0.3429	1.0931

* Color corresponds to color in Figure 6.1.
** Number in parentheses corresponds to number in plot in Figure 6.1

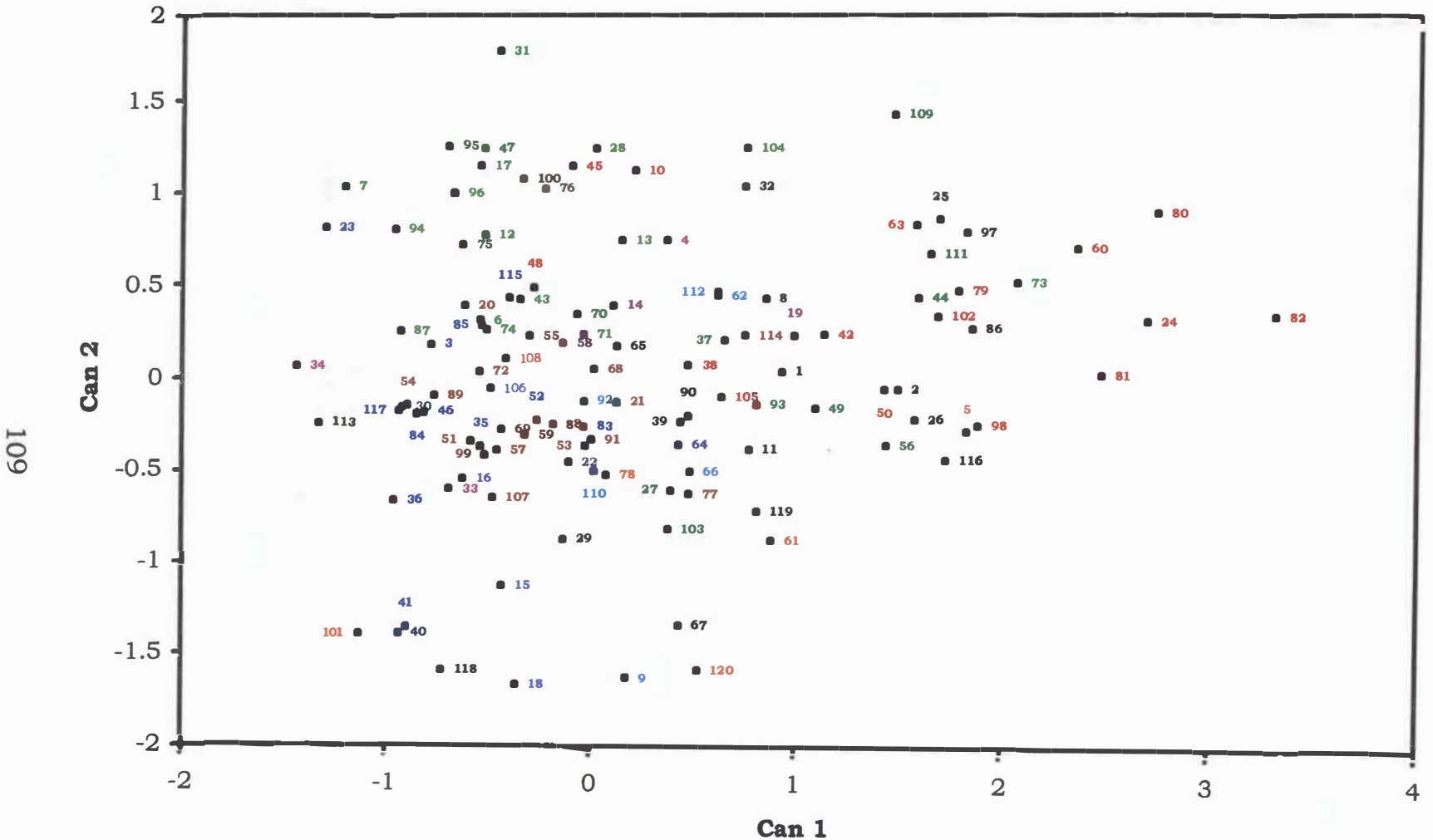

Figure 6.1. Plot of Canonical Axis 1 by Canonical Axis 2 for the Head Data (Color Coded by Culture Area).

Table 6.7. Plot Coordinates for the Canonical Discriminant Analysis Score Means (Head Data—Language Families).

Language Phylum or Family	Color*	Tribe**	Can 1	Can 2
Algic	Blue-Gray	1. Yurok (119)	0.8072	-0.7074
Algonquian	Blue	1. Arapaho (6)	-0.5435	0.3221
		2. Blood (12)	-0.5219	0.7851
		3. Cheyenne (17)	-0.5462	1.1544
		4. Chippewa (MN) (20)	-0.6190	0.4032
		5. Chippewa (WI) (21)	0.1222	-0.1119
		6. Malecite (51)	-0.5853	-0.3307
		7. Menomini (53)	-0.0304	-0.3584
		8. Micmac (54)	-0.8948	-0.1409
		9. Mississagua (55)	-0.3025	0.2396
		10. Montagnais (58)	-0.1396	0.2006
		11. Munsee (59)	-0.3229	-0.3005
		12. Ojibwa (GBay) (68)	0.0118	0.0694
		13. Ojibwa (NWLSup) (69)	-0.4374	-0.2706
		14. Piegan (75)	-0.6304	0.7303
		15. Potawatomi (77)	0.4771	-0.6177
		16. Sauk (88)	-0.1867	-0.2433
		17. Shawnee (91)	0.0018	-0.3241
		18. Stockbridge (99)	-0.5205	-0.4110
Athabaskan	Bright Green	1. Apache (5)	1.8282	-0.2674
		2. Carrier (14)	0.1046	0.4091
		3. Chilcotin (19)	0.9867	0.2501
		4. Hoopa (39)	0.4324	-0.2258
		5. Navajo (61)	0.8795	-0.8654
		6. Sarcee (87)	-0.9294	0.2582
		7. Tahltan (100)	-0.3429	1.0931
		8. Tututni (108)	-0.4195	0.1146
Caddoan	Gray 50%	1. Caddo (13)	0.1451	0.7611
		2. Pawnee (74)	-0.5121	0.2721
Chimakuan	Lavender	1. Quillayute (81)	2.4772	0.0488
Chukchi/ Kamchatkan	Pink	1. Itelman (KH) (40)	-0.9363	-1.3806
		2. Itelman (SE) (41)	-0.8986	-1.3462
		3. Koryak (46)	-0.8141	-0.1784
		4. Maritime Chukchi (52)	-0.2679	-0.2183
		5. Reindeer Chukchi (83)	-0.0373	-0.2525
		6. Reindeer Koryak (85)	-0.5353	0.2931
Eskimo/Aleut	Dark Purple	1. Aiwan (3)	-0.7800	0.1924
		2. Aleut (4)	0.3616	0.7699
		3. Eskimo (EC) (33)	-0.6886	-0.5949
		4. Eskimo (WC) (34)	-1.4438	0.0710

Table 6.7 Continued.

Language Phylum or Family	Color*	Tribe**	Can 1	Can 2
Haida	**Dark Green**	1. Haida (38)	0.4687	0.0862
Hokan	**Orange**	1. Achomawi (1)	0.9266	0.0494
		2. Atsugewi (8)	0.8471	0.4506
		3. N. Pomo (67)	0.4278	-1.3349
		4. Tonkawa (104)	0.7479	1.2727
		5. Washo (112)	0.6135	0.4842
Iroquoian	**Brown**	1. Cherokee (16)	-0.6258	-0.5403
		2. Mohawk (57)	-0.4601	-0.3841
		3. Oneida (72)	-0.5467	0.0434
		4. Seneca (89)	-0.7639	-0.0865
		5. Tuscarora (107)	-0.4814	-0.6418
Keresan	**Sky Blue**	1. Pueblo (78)	0.0731	-0.5171
Kutenai	**Plum**	1. Kutenai (47)	-0.5279	1.2571
Nivkhi	**Green**	1. Nivkhi (64)	0.4261	-0.3498
Penutian	**Red**	1. Big Meadow (11)	0.7684	-0.3703
		2. Chickasaw (18)	-0.3649	-1.6622
		3. Choctaw (22)	-0.1096	-0.4488
		4. C. Miwok (25)	1.6907	0.8907
		5. Concow (29)	-0.1325	-0.8645
		6. Creek (30)	-0.9217	-0.1519
		7. Kalapuya (42)	1.1335	0.2584
		8. Klamath (44)	1.5912	0.4912
		9. Klickitat (45)	-0.1015	1.1701
		10. Modoc (56)	1.4374	-0.3437
		11. Nez Perce (62)	0.6146	0.4656
		12. N. Hill Yokuts (65)	0.1228	0.1873
		13. S. Miwok (97)	1.8206	0.8247
		14. Tenino (102)	1.6849	0.3605
		15. Tsimshian (105)	0.6323	-0.0918
		16. Umatilla (109)	1.4684	1.4628
		17. Wasco (111)	1.6467	0.7029
		18. Yokuts (116)	1.7271	-0.4255
		19. Yuki (118)	-0.7253	-1.5816
		20. Zuni (120)	0.5229	-1.5773
Salish	**Black**	1. Bella Coola (10)	0.2031	1.1502
		2. Clallum (24)	2.7006	0.3470
		3. Coeur d'Alene (27)	0.3885	-0.5994
		4. Flathead (37)	0.6477	0.2203
		5. Lillooet (49)	1.0939	-0.1435
		6. Nanaimo (60)	2.3589	0.7394

Table 6.7 Continued.

Language Phylum or Family	Color*	Tribe**	Can 1	Can 2
		7. Nisqually (63)	1.5791	0.8588
		8. Okanagan (70)	-0.0732	0.3536
		9. Puyallup (79)	1.7852	0.5055
		10. Queets (80)	2.7441	0.9385
		11. Quinault (82)	3.3212	0.3771
		12. Shuswap (93)	0.8036	-0.1324
		13. Stalo (98)	1.8840	-0.2338
		14. Thompson (103)	0.3737	-0.8132
Siouan	**Olive Green**	1. Assiniboin (7)	-1.2106	1.0470
		2. Catawba (15)	-0.4341	-1.1181
		3. Crow (31)	-0.4564	1.7903
		4. Omaha (71)	-0.0407	0.2510
		5. Osage (73)	2.0653	0.5522
		6. Ponca (76)	-0.2331	1.0413
		7. Sioux (Santee) (94)	-0.9587	0.8143
		8. Sioux (Teton) (95)	-0.6998	1.2688
		9. Sioux (Yankton) (96)	-0.6736	1.0126
		10. Winnebago (114)	0.7478	0.2517
Tanoan	**Dark Red**	1. Kiowa (43)	-0.3500	0.4345
		2. Taos (101)	-1.1326	-1.3870
Tungus	**Periwinkle**	1. Even (35)	-0.5390	-0.3647
		2. Evenk (36)	-0.9604	-0.6579
		3. Reindeer Evenk (84)	-0.8468	-0.1858
		4. Tundra Evenk (106)	-0.4908	-0.0476
Turkic	Rose	1. Yakut (115)	-0.4047	0.4437
Uto-Aztecan	**Aqua**	1. Aqua Caliente (2)	1.4935	-0.0432
		2. Bannock (9)	0.1727	-1.6237
		3. Coahuilla (26)	1.5759	-0.2046
		4. Comanche (28)	0.0143	1.2651
		5. E. Mono (32)	0.7395	1.0650
		6. N. Paiute (66)	0.4807	-0.4953
		7. San Luis Rey (86)	1.8519	0.2953
		8. Serrano (90)	0.4693	-0.1935
		9. Shoshoni (92)	-0.0374	-0.1000
		10. Ute (110)	0.0137	-0.4925
		11. W. Mono (113)	-1.3312	-0.2428
Wakashan	**Teal**	1. Kwakiutl (48)	-0.2829	0.5041
		2. Makah (50)	1.4270	-0.0448

Table 6.7 Continued.

Language Phylum or Family	Color*	Tribe**	Can 1	Can 2
Yukaghir	Turquoise	1. Chuvantsy (23)	-1.3033	0.8252
		2. Yukaghir (117)	-0.9363	-0.1711

* Color corresponds to color in Figure 6.2.
** Number in parenthesis corresponds to number in Figure 6.2.

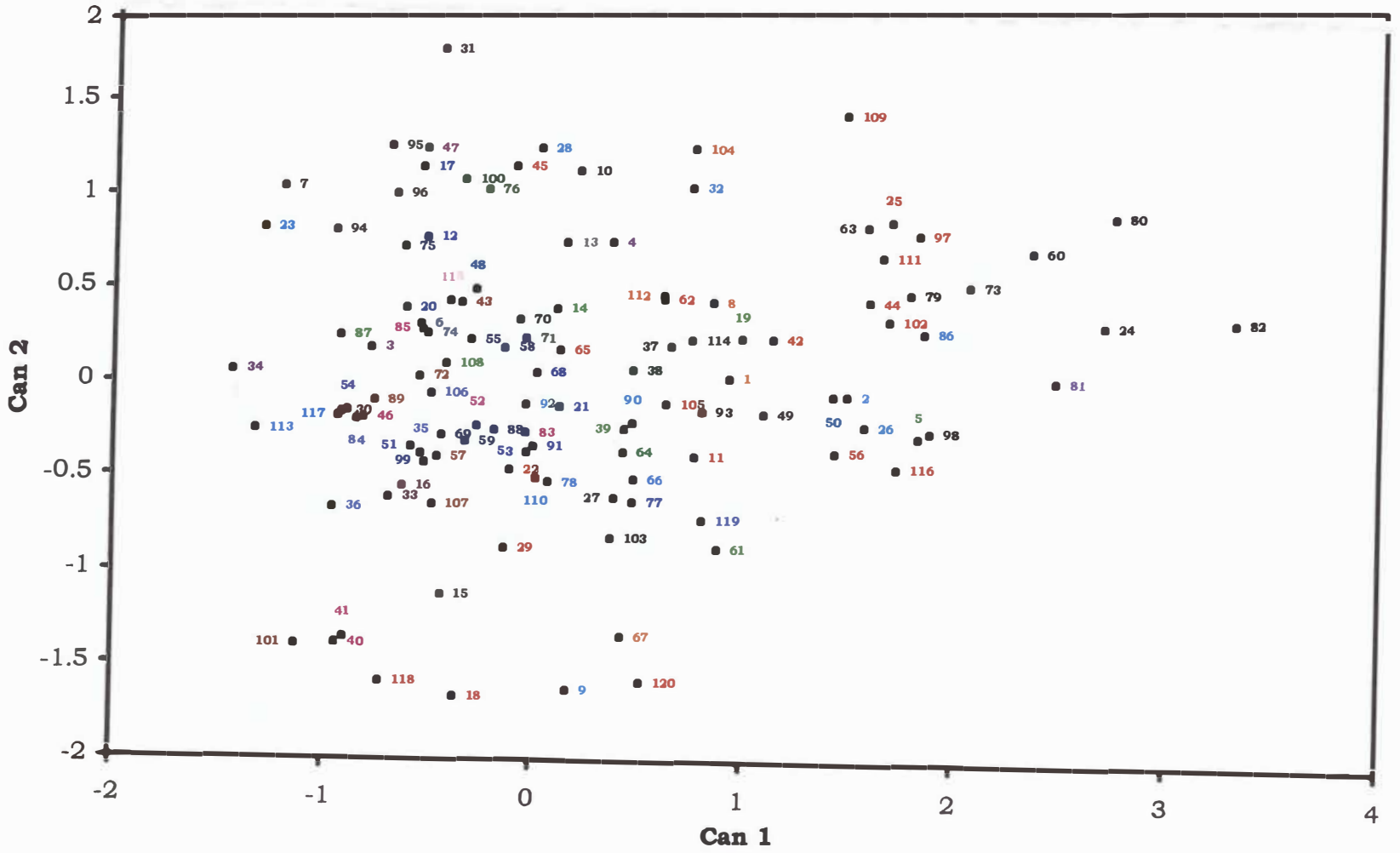

Figure 6.2. Plot of Canonical Axis 1 by Canonical Axis 2 for the Head Data (Color Coded by Language Family).

followed by the Assinboin (7), Chuvantsy (23), Western Mono (113), and Taos (101). Canonical axis 2 divides the populations based on the size of the face and nose. Populations with higher scores on this axis would tend to have longer faces and noses and those with lower scores would tend to have shorter faces and noses. For example, the Crow (31) tend to have the longest faces and longest noses, followed by the Kutenai (47), Comanche (28), and the Teton Sioux (95). In contrast, the Chickasaw (18) have the shortest faces and noses followed by the Yuki (118), Bannock (9), and Zuni (120). Most of the populations, however, tend to have only moderate length faces and noses.

In general, very little separation based on geography or language is evident in these plots. For example, in Figure 6.1, the tribes of the Northeast (20, 21, 51, 53, 54, 55, 57, 59, 68, 69, 72, 77, 88, 89, 91, 99, 107, 114) do tend to cluster together, but they do not cluster in their normal geographical location. In fact, most Northeast tribes cluster in the left half of the plot, opposite to their geographical location. The tribes of the Northeast are positioned the way they are because most have fairly long narrow heads and moderate length faces and noses. The tribes that do not fit into this group are the Potawatomi (77) and Winnebago (114). The Potawatomi have slightly shorter-wider heads, while the Winnebago have the shortest, widest heads of any tribes in this culture area. The Plains tribes (6, 7, 12, 13, 17, 28, 31, 43, 71, 73, 74, 75, 76, 87, 94, 95, 96, 104) also tend to cluster together, but the clustering is not as tight as the Northeastern tribes; however, these tribes do cluster in an area of the plot that is reminiscent of their geographical location, although the tribes themselves may not be exactly positioned in their geographical locations. Again, it appears that the positioning has little to do with geography. These tribes, as with the Northeast tribes, have relatively long-narrow

heads, but they have some of the longest faces and noses of any tribes in this study. The Crow, for example, have the longest faces and noses of any tribe included in this study. The tribes in other culture areas do not cluster in any organized manner.

Linguistically, as shown in Figure 6.2, only the tribes that make up the Algonquian and Iroquoian language families cluster together. Algonquian speaking tribes (6, 12, 17, 20, 21, 51, 53, 54, 55, 58, 59, 68, 69, 75, 77, 88, 91, 99) actually cluster together tightly in the upper right hand corner of the lower left quadrant and more loosely in the right half of the upper left quadrant of the plot. Morphologically, the Algonquian speaking tribes of the lower cluster range from moderately sized heads to long-narrow heads. The faces and noses are only moderate in length. The one exception to this are the Potawatomi (77) which have similar length faces and noses, but have shorter, wider heads than other Algonquian speakers in this study. The tribes of the cluster in the upper right corner have similar sized heads, but the length of the faces and noses range from moderate length to long. In fact, the Cheyenne (17) have the longest faces and noses of any Algonquian speaking tribe included in the study presumably because they are a plains tribe (Jantz, personal communication).

Tribes (16, 57, 72, 89, 107) speaking a language in the Iroquoian family tend to cluster in the lower left quadrant of Figure 6.2 with the lower cluster of Algonquian speakers discussed above. Morphologically, these tribes are similar to the tribes included in the lower cluster of the Algonquian speakers in that they have similar sized heads (moderately long and narrow), and face and nose lengths. There is also a split in this cluster that separates the Cherokee (16), Mohawk (57), and Tuscarora (107) from the Oneida (72) and Seneca (89). There seems to be no clear reason for this split other than the genetic similarity of the tribes in the

cluster with tribes outside the cluster.

There also seems to be a tendency for tribes to be positioned more closely together to other tribes or populations that are not located in the same culture area or language family. In Figures 6.1 and 6.2 one can see that the Aqua Caliente (2), from the California culture area and the Uto-Aztecan language family, are positioned closely to the Makah (50), a Northwest coast tribe that speaks a language in the Wakashan family. The Apache (5), a Southwest tribe that speaks an Athabaskan language, are closely positioned to the Stalo (98), another Northwest coast tribe that speaks a language in the Salish family. However, this relationship is probably a reflection of the Apache tribe's known ancestry to more northerly located tribes. In addition, the Pueblo (78), a Keresan speaking Southwestern tribe, are closely positioned to the Ute (110), which are a Great Basin tribe and speak a language in the Uto-Aztecan family. The Kiowa (43) are Tanoan speakers and a plains tribe, but they are more closely positioned to the Yakut (115), which is a Siberian Indigenous population and speakers of a language in the Turkic family. Here the connection of Native Americans to Siberia seems to be preserved.

Finally, The Cherokee (16), an Iroquoian speaking Southeastern tribe, are positioned closely to the Labrador Eskimo (33), an Arctic tribe that speaks a language of the Eskimo-Aleut family of languages. This relationship may just be indicative of measurement error or it may point toward a Northern origin for the Cherokee. There is very little evidence to confirm this origin, however, Bolnick and Smith (2003) have found evidence using mtDNA data that shows little relation between the Cherokee and the Muskogean speakers of the Southeast United States. The authors think that this might suggest a more northern origin for the Cherokee, which they say is consistent with the archaeological evidence supporting a recent Great Lakes Migration (MacNeish, 1952; Ritchie,

1965; Wright, 1984 cited in Bolnick and Smith, 2003) or oral traditions passed down by the Cherokee suggesting an origin from the Ohio Valley (Mooney, 1900 cited in Bolnick and Smith, 2003). Obviously, this is not evidence of an Arctic origin, but it does suggest a northern origin.

Finally, there are also small clusters of three to four tribes that are members of different culture areas and speak languages from different language families. For example, the Arapaho (6), Pawnee (74), and Reindeer Koryak (85) all cluster together. While the Arapaho and Pawnee are both Plains Indian tribes, the Reindeer Koryak are a Siberian, indigenous tribe that speak a Chukchi-Kamchatkan language. Again, this may be indicative of measurement error or it may point to the Siberian origins of Native Americans. In addition, the Creek (30), Koryak (46), Micmac (54), Reindeer Evenk (84), and Yukaghir (117) all cluster together. The Creek are a Penutian speaking Southeastern tribe, and the Micmac are an Algonquian speaking Northeastern tribe, while the Koryak, Reindeer Evenk, and Yukaghir are all Siberian indigenous tribes. The Even (35), Malecite (51), Mohawk (57), and Stockbridge (99) cluster together. However, while the Malecite, Mohawk, and Stockbridge are Northeastern tribes, the Even are another Siberian Indigenous tribe speaking a Tungus language. Yet again, this clustering may be evidence of measurement error or yield evidence of the Siberian connection with Native Ameican tribes.

The squared-distance matrix of the head data also shows relationships similar to the plots in Figures 6.1 and 6.2. This matrix is presented in Matrix 4F of Appendix F. It yields similar results in that the distances for each pair wise comparison that make up the Northeast tribes are small for almost all of the tribes. This would indicate a fairly close clustering for these tribes.

Likewise, the pairwise comparisons of the Plains tribes also show a

similar situation to Figure 6.1 in that while there are many pair wise comparisons that have small D^2 values, there are fewer than were found in the Northeast tribes. This would, consequently, indicate a looser clustering of Plains tribes in Figure 6.1 than Northeast tribes.

Furthermore, as in Figure 6.2, the D^2 values for the pairwise comparisons of most of the Algonquian speakers (shown in Table 4F of Appendix F) are also small, which indicates that many Algonquian speakers have some close connection either due to genetic/historical relationships or gene flow. The D^2 values of the Siouan speaking tribes and the other relationships discussed above point to a similar situation. Tribes in other culture areas or that spoke languages in other language families did not yield similar results. These results hint that the head data were not influenced by geographical or language relationships but rather by historical/genetic relationships.

The statistics based on the canonical discriminant analysis performed on the body data is presented in Table 6.8. As with the head data, all six canonical axes are highly significant ($p < 0.0001$) based on the likelihood ratio test. The first 3 canonical axes explain more than 76% (76.63%) of the variation present in the body data, while canonical axes 4-6 explain less than 24% (23.37%) of the variation.

The between group canonical structure for the six canonical axes based on the six body variables is shown in Table 6.9. Canonical axis 1 accounts for more than 35% (35.55%) of the variation in the body data. All variables are heavily loaded in this axis, but shoulder height (0.973) is the most heavily loaded variable followed by arm stretch (0.954), arm length (0.945), leg length (0.864), sitting height (0.680) and shoulder width (0.657). Therefore, this axis appears to reflect overall body size.

Canonical axis 2 accounts for close to 25% (24.9%) of the variation.

Table 6.8. Statistical Results for the Canonical Discriminant Analysis from the Body Data.

Canonical Axis	Eigenvalue	Proportion	Cumulative	Canonical Correlation	Likelihood Ratio	Approximate F Value	Pr > F
1	0.7771	0.3555	0.3555	0.6613	0.1686	24.37	<.0001
2	0.5442	0.2490	0.6045	0.5936	0.2996	19.39	<.0001
3	0.3535	0.1618	0.7663	0.5111	0.4627	15.25	<.0001
4	0.2386	0.1092	0.8754	0.4389	0.6263	12.22	<.0001
5	0.1763	0.0806	0.9561	0.3871	0.7757	9.89	<.0001
6	0.0960	0.0439	1.0000	0.2959	0.9124	7.07	<.0001

Table 6.9. Between Group Canonical Structure for the Body Data

Variable	Can 1	Can 2	Can 3	Can 4	Can 5	Can 6
HSH	0.973	0.087	-0.101	-0.015	-0.161	0.097
STR	0.954	-0.212	0.209	-0.007	0.037	0.015
HS	0.680	-0.487	0.011	0.339	-0.195	0.383
WSH	0.657	0.356	0.213	0.602	0.185	-0.001
LL	0.864	0.419	0.169	-0.217	-0.051	0.021
AL	0.945	-0.086	-0.213	-0.109	0.191	0.080

No variable is strongly loaded in this axis, but sitting height (-0.487), shoulder width (0.356), and leg length (0.419) are the most strongly loaded. The second canonical axis appears to show a contrasting relationship between sitting height and leg length.

In canonical axis 3, the loadings are weaker than in canonical axis 2. Canonical axis 3 accounts for approximately 16% (16.1%) of the variation. Shoulder width (0.213), arm length (-0.213), and arm stretch (0.209) are the most heavily loaded in this axis and reflect the relationship of shoulder width to arm length to arm stretch.

Canonical axis 4 accounts for less than 11% (10.92%) of the variation present in the body data. The heaviest loading is on shoulder width (0.602). No other variable is as heavily loaded on this axis.

Only slightly over 8% (8.06%) of body variation is accounted for by canonical axis 5. All variables have weak loadings, but sitting height (-0.195), arm length (0.191), shoulder width (0.185), and shoulder height (-0.161) have the highest loadings. This axis appears to present a contrast of vertical size (shoulder height, sitting height) to horizontal size (shoulder width, arm length), but accounts only for approximately 8% of the variation.

The smallest amount of variation is accounted for by canonical axis 6. It accounts for only a little more than 4% (4.39%) of the variation. This axis has the weakest loadings of all the canonical axes; however, the strongest loading is on sitting height. It appears that as with the canonical discriminant analysis on the head data, both canonical axes 5 and 6 add very little to the analysis.

Plots of canonical axis 1 on canonical axis 2 using the canonical mean scores from the body data on these two axes is presented in Figures 6.3 and 6.4. The figures are color coded as with Figures 6.1 and 6.2. As with the analysis on the head data, Tables 6.10 and 6.11 show lists of the

Table 6.10. Plot Coordinates for the Canonical Discriminant Analysis Score Means (Body Data—Culture Areas).

Culture Area	Color*	Tribe**	Can 1	Can 2
Arctic	Pink	1. Aleut (4)	-1.2207	-1.8658
		2. Eskimo (EC) (33)	-1.7707	0.0844
		3. Eskimo (WC) (34)	-0.5523	0.2568
California	Black	1. Achomawi (1)	-0.3528	0.1054
		2. Agua Caliente (2)	0.0192	2.4142
		3. Atsugewi (8)	-0.3154	-0.1396
		4. Big Meadow (11)	0.3632	-0.7467
		5. C. Miwok (25)	-0.4371	0.8194
		6. Coahuilla (26)	0.2615	1.0978
		7. Concow (29)	-0.5909	-0.2484
		8. E. Mono (32)	0.0941	-0.5341
		9. Hoopa (39)	-0.4225	0.4901
		10. N. Hill Yokut (65)	-0.4004	0.0913
		11. N. Pomo (67)	-0.0385	0.3697
		12. San Luis Rey (86)	0.3695	2.1495
		13. Serrano (90)	0.7345	1.4836
		14. S. Miwok (97)	-0.0219	0.1182
		15. W. Mono (113)	-0.1564	0.0773
		16. Yokuts (116)	0.1841	1.7494
		17. Yuki (118)	-0.7852	0.2322
		18. Yurok (119)	-0.8350	-0.0913
Great Basin	Aqua	1. Bannock (9)	-0.1639	1.2394
		2. Nez Perce (62)	0.2721	-0.4398
		3. N. Paiute (66)	0.2051	0.2143
		4. Shoshoni (92)	0.0197	-0.0499
		5. Ute (110)	-0.3194	0.0025
		6. Washo (112)	0.4826	0.4875
Northeast	Brown	1. Chippewa (MN) (20)	0.7109	0.2203
		2. Chippewa (WI) (21)	0.6212	-0.4153
		3. Malecite (51)	0.2826	-0.0536
		4. Menomini (53)	0.2563	-0.6728
		5. Micmac (54)	0.6164	-0.4953
		6. Mississagua (55)	0.7427	-0.4580
		7. Mohawk (57)	0.8896	-0.1018
		8. Munsee (59)	0.8855	-0.3570
		9. Ojibwa (GBay) (68)	0.9434	-0.0628
		10. Ojibwa (NWLSup) (69)	1.0343	0.5120
		11. Oneida (72)	0.8485	-0.8012
		12. Potawatomi (77)	0.4334	-0.4075
		13. Sauk (88)	0.6504	0.4324
		14. Seneca (89)	0.8929	-0.6060
		15. Shawnee (91)	0.2205	-0.1856
		16. Stockbridge (99)	0.7351	-0.8301
		17. Tuscarora (107)	0.8829	-0.6692
		18. Winnebago (114)	0.9443	-0.1361

Table 6.10 Continued.

Culture Area	Color*	Tribe**	Can 1	Can 2
Northwest Coast	Red	1. Bella Coola (10)	-0.3332	-1.6698
		2. Clallum (24)	0.1060	-1.7667
		3. Haida (38)	0.0171	0.1592
		4. Kalapuya (42)	-0.6728	0.7618
		5. Kwakiutl (48)	-0.9907	-1.0574
		6. Makah (50)	-0.3630	-1.1224
		7. Nanaimo (60)	-0.1037	0.5675
		8. Nisqually (63)	-0.3341	-0.4910
		9. Puyallup (79)	1.7852	0.5055
		10. Queets (80)	-0.4797	-1.4030
		11. Quillayute (81)	-0.7226	-1.1150
		12. Quinault (82)	-0.6184	-1.1034
		13. Stalo (98)	-0.3602	-1.4263
		14. Tenino (102)	-0.2937	0.1502
		15. Tsimshian (105)	-0.0607	-0.5499
		16. Tututni (108)	-0.7986	-0.5500
Plains	Bright Green	1. Arapaho (6)	0.9771	-0.1155
		2. Assiniboin (7)	0.3520	-0.5905
		3. Blood (12)	1.2780	0.8081
		4. Caddo (13)	0.1096	-0.1908
		5. Cheyenne (17)	1.1832	-0.1479
		6. Comanche (28)	0.6272	-0.0984
		7. Crow (31)	1.4115	-0.1745
		8. Kiowa (43)	0.8398	-0.6791
		9. Omaha (71)	0.7468	0.1843
		10. Osage (73)	0.8375	-0.2410
		11. Pawnee (74)	0.3884	-0.4513
		12. Piegan (75)	1.1345	-0.6090
		13. Ponca (76)	0.8540	0.1123
		14. Sarcee (87)	0.4507	1.1999
		15. Sioux (Santee) (94)	0.9736	-0.0793
		16. Sioux (Teton) (95)	1.0032	-0.1772
		17. Sioux (Yankton) (96)	0.8101	0.0397
		18. Tonkawa (104)	0.4374	0.0541
Plateau	Green	1. Coeur d'Alene (27)	0.2679	-0.6652
		2. Flathead (37)	0.3818	0.9425
		3. Klamath (44)	-0.0446	-0.1190
		4. Kutenai (47)	0.2608	-1.0338
		5. Lillooet (49)	-0.6659	0.0200
		6. Modoc (56)	0.0856	0.3264
		7. Okanagan(70)	0.1292	-0.2439
		8. Shuswap (93)	-0.2496	-0.4432
		9. Thompson (103)	-0.6368	-0.6506
		10. Umatilla (109)	-0.4755	-0.8887
		11. Wasco (111)	-0.1932	-0.0811

Table 6.10 Continued.

Culture Area	Color*	Tribe**	Can 1	Can 2
Siberia	**Blue**	1. Aiwan (3)	-1.4363	0.6083
		2. Chuvantsy (23)	-1.9702	0.8137
		3. Even (35)	-1.9360	-0.1470
		4. Evenk (36)	-1.6962	-0.1269
		5. Itelman (KH) (40)	-0.9761	-0.8283
		6. Itelman (SE) (41)	-1.2934	-1.0564
		7. Koryak (46)	-1.5899	0.5725
		8. Maritime Chukchi (52)	-1.5973	0.7168
		9. Nivkhi (64)	-1.1246	-1.0012
		10. Reindeer Chukchi (83)	-1.5434	1.1123
		11. Reindeer Evenk (84)	-2.9223	1.7714
		12. Reindeer Koryak (85)	-2.1217	1.5403
		13. Tundra Evenk (106)	-2.2097	-0.3590
		14. Yakut (115)	-0.9118	-0.6052
		15. Yukaghir (117)	-1.6691	-0.2724
Southeast	**Periwinkle**	1. Catawba (15)	0.5597	0.3503
		2. Cherokee (16)	0.3034	0.5603
		3. Chickasaw (18)	-0.0126	0.1319
		4. Choctaw (22)	0.3592	1.3354
		5. Creek (30)	0.9212	1.6828
Southwest	**Orange**	1. Apache (5)	0.2908	-0.2515
		2. Navajo (61)	0.1247	-0.6508
		3. Pueblo (78)	-0.4095	-0.7418
		4. Taos (101)	-0.6362	-0.6856
		5. Zuni (120)	-1.1147	-0.6903
Sub-Arctic	**Plum**	1. Carrier (14)	-0.0317	0.7990
		2. Chilcotin (19)	-0.3070	-0.4137
		3. Montagnais (58)	-0.4566	-0.2797
		4. Tahltan (100)	0.3473	-0.4846

* Color corresponds to color in Figure 6.3.
** Number in parentheses corresponds to number in Figure 6.3.

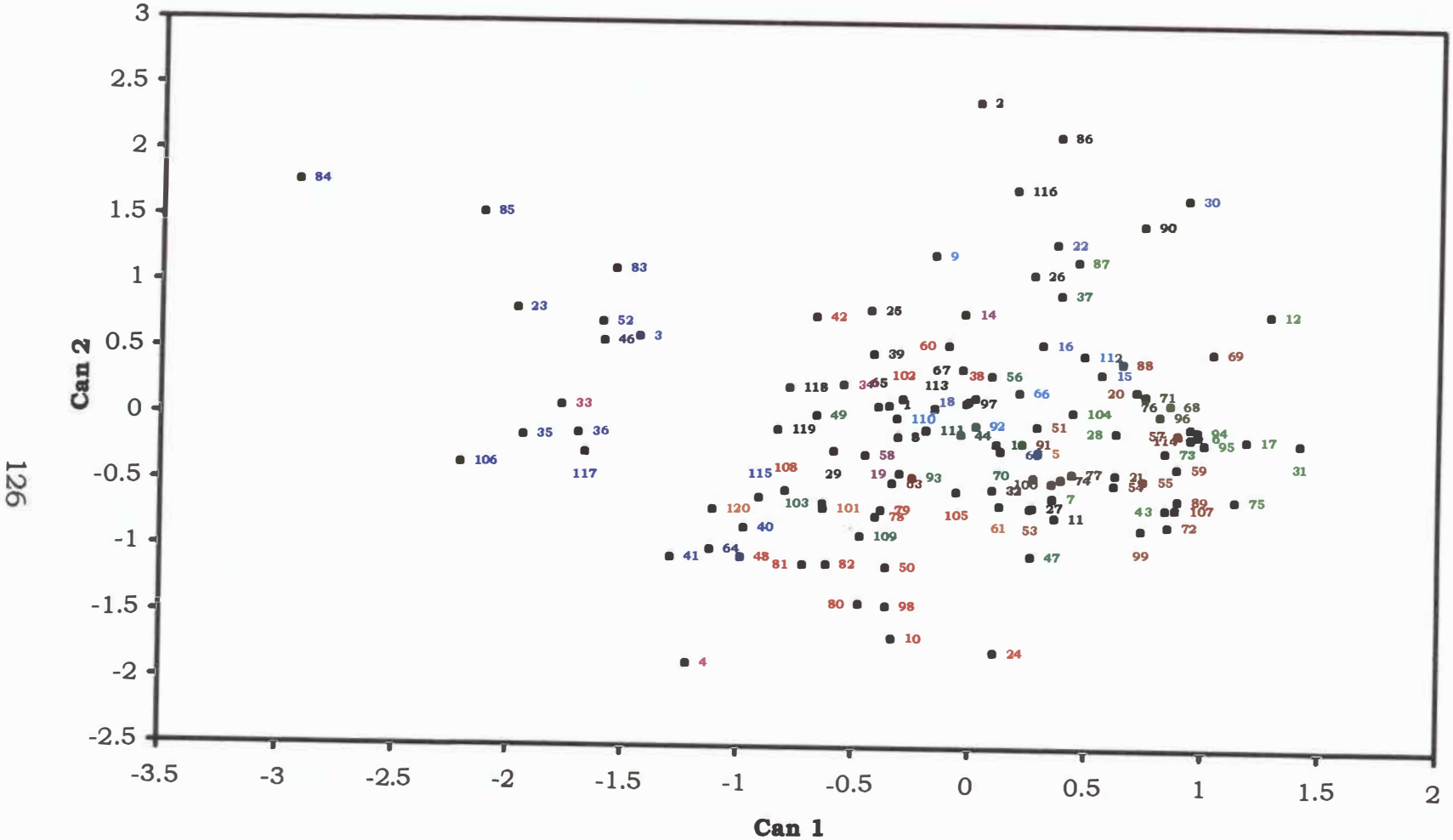

Figure 6.3. Plot of Canonical Axis 1 by Canonical Axis 2 for the Body Data (Color Coded by Culture Area).

Table 6.11. Plot Coordinates for the Canonical Discriminant Analysis Score Means (Body Data—Language Families).

Language Phylum or Family	Color*	Tribe**	Can 1	Can 2
Algic	Blue-Gray	1. Yurok (119)	-0.8350	-0.0913
Algonquian	Blue	1. Arapaho (6)	0.9771	-0.1155
		2. Blood (12)	1.2780	0.8081
		3. Cheyenne (17)	1.1832	-0.1479
		4. Chippewa (MN) (20)	0.7109	0.2203
		5. Chippewa (WI) (21)	0.6212	-0.4153
		6. Malecite (51)	0.2826	-0.0536
		7. Menomini (53)	0.2563	-0.6728
		8. Micmac (54)	0.6164	-0.4953
		9. Mississagua (55)	0.7427	-0.4580
		10. Montagnais (58)	-0.4566	-0.2797
		11. Munsee (59)	0.8855	-0.3570
		12. Ojibwa (GBay) (68)	0.9434	-0.0628
		13. Ojibwa (NWLSup) (69)	1.0343	0.5120
		14. Piegan (75)	1.1345	-0.6090
		15. Potawatomi (77)	0.4334	-0.4075
		16. Sauk (88)	0.6504	0.4324
		17. Shawnee (91)	0.2205	-0.1856
		18. Stockbridge (99)	0.7351	-0.8301
Athabaskan	Bright Green	1. Apache (5)	0.2908	-0.2515
		2. Carrier (14)	-0.0317	0.7990
		3. Chilcotin (19)	-0.3070	-0.4137
		4. Hoopa (39)	-0.4225	0.4901
		5. Navajo (61)	0.1247	-0.6508
		6. Sarcee (87)	0.4507	1.1999
		7. Tahltan (100)	0.3473	-0.4846
		8. Tututni (108)	-0.7986	-0.5500
Caddoan	Gray 50%	1. Caddo (13)	0.1096	-0.1908
		2. Pawnee (74)	0.3884	-0.4513
Chimakuan	Lavender	1. Quillayute (81)	-0.7226	-1.1150
Chukchi/ Kamchatkan	Pink	1. Itelman (KH) (40)	-0.9761	-0.8283
		2. Itelman (SE) (41)	-1.2934	-1.0564
		3. Koryak (46)	-1.5899	0.5725
		4. Maritime Chukchi (52)	-1.5973	0.7168
		5. Reindeer Chukchi (83)	-1.5434	1.1123
		6. Reindeer Koryak (85)	-2.1217	1.5403
Eskimo/Aleut	Dark Purple	1. Aiwan (3)	-1.4363	0.6083
		2. Aleut (4)	-1.2207	-1.8658
		3. Eskimo (EC) (33)	-1.7707	0.0844
		4. Eskimo (WC) (34)	-0.5523	0.2568

Table 6.11 Continued.

Language Phylum or Family	Color*	Tribe**	Can 1	Can 2
Haida	**Dark Green**	1. Haida (38)	0.0171	0.1592
Hokan	Orange	1. Achomawi (1)	-0.3528	0.1054
		2. Atsugewi (8)	-0.3154	-0.1396
		3. N. Pomo (67)	-0.0385	0.3697
		4. Tonkawa (104)	0.4374	0.0541
		5. Washo (112)	0.4826	0.4875
Iroquoian	Brown	1. Cherokee (16)	0.3034	0.5603
		2. Mohawk (57)	0.8896	-0.1018
		3. Oneida (72)	0.8485	-0.8012
		4. Seneca (89)	0.8929	-0.6060
		5. Tuscarora (107)	0.8829	-0.6692
Keresan	Sky Blue	1. Pueblo (78)	-0.4095	-0.7418
Kutenai	Plum	1. Kutenai (47)	0.2608	-1.0338
Nivkhi	Green	1. Nivkhi (64)	-1.1246	-1.0012
Penutian	Red	1. Big Meadow (11)	0.3632	-0.7467
		2. Chickasaw (18)	-0.0126	0.1319
		3. Choctaw (22)	0.3592	1.3354
		4. C. Miwok (25)	-0.4371	0.8194
		5. Concow (29)	-0.5909	-0.2484
		6. Creek (30)	0.9212	1.6828
		7. Kalapuya (42)	-0.6728	0.7618
		8. Klamath (44)	-0.0446	-0.1190
		9. Modoc (56)	0.0856	0.3264
		10. Nez Perce (62)	0.2721	-0.4398
		11. N. Hill Yokut (65)	-0.4004	0.0913
		12. S. Miwok (97)	-0.0219	0.1182
		13. Tenino (102)	-0.2937	0.1502
		14. Tsimshian (105)	-0.0607	-0.5499
		15. Umatilla (109)	-0.4755	-0.8887
		16. Wasco (111)	-0.1932	-0.0811
		17. Yokuts (116)	0.1841	1.7494
		18. Yuki (118)	-0.7852	0.2322
		19. Zuni (120)	-1.1147	-0.6903
Salish	**Black**	1. Bella Coola (10)	-0.3332	-1.6698
		2. Clallum (24)	0.1060	-1.7667
		3. Coeur d'Alene (27)	0.2679	-0.6652
		4. Flathead (37)	0.3818	0.9425
		5. Lillooet (49)	-0.6659	0.0200
		6. Nanaimo (60)	-0.1037	0.5675

Table 6.11 Continued.

Language Phylum or Family	Color*	Tribe**	Can 1	Can 2
		7. Nisqually (63)	-0.3341	-0.4910
		8. Okanagan (70)	0.1292	-0.2439
		9. Puyallup (79)	-0.3866	-0.6931
		10. Queets (80)	-0.4797	-1.4030
		11. Quinault (82)	-0.6184	-1.1034
		12. Shuswap (93)	-0.2496	-0.4432
		13. Stalo (98)	-0.3602	-1.4263
		14. Thompson (103)	-0.6368	-0.6506
Siouan	Olive Green	1. Assiniboin (7)	0.3520	-0.5905
		2. Catawba (15)	0.5597	0.3503
		3. Crow (31)	1.4115	-0.1745
		4. Omaha (71)	0.7468	0.1843
		5. Osage (73)	0.8375	-0.2410
		6. Ponca (76)	0.8540	0.1123
		7. Sioux (Santee) (94)	0.9736	-0.0793
		8. Sioux (Teton) (95)	1.0032	-0.1772
		9. Sioux (Yankton) (96)	0.8101	0.0397
		10. Winnebago (114)	0.9443	-0.1361
Tanoan	Dark Red	1. Kiowa (43)	0.8398	-0.6791
		2. Taos (101)	-0.6362	-0.6856
Tungus	Periwinkle	1. Even (35)	-1.9360	-0.1470
		2. Evenk (36)	-1.6962	-0.1269
		3. Reindeer Evenk (84)	-2.9223	1.7714
		4. Tundra Evenk (106)	-2.2097	-0.3590
Turkic	Rose	1. Yakut (115)	-0.9118	-0.6052
Uto-Aztecan	Aqua	1. Aqua Caliente (2)	0.0192	2.4142
		2. Bannock (9)	-0.1639	1.2394
		3. Coahuilla (26)	0.2615	1.0978
		4. Comanche (28)	0.6272	-0.0984
		5. E. Mono (32)	0.0941	-0.5341
		6. N. Paiute (66)	0.2051	0.2143
		7. San Luis Rey (86)	0.3695	2.1495
		8. Serrano (90)	0.7345	1.4836
		9. Shoshoni (92)	0.0197	-0.0499
		10. Ute (110)	-0.3194	0.0025
		11. W. Mono (113)	-0.1564	0.0773
Wakashan	Teal	1. Kwakiutl (48)	-0.9907	-1.0574
		2. Makah (50)	-0.3630	-1.1224

Table 6.11 Continued.

Language Phylum or Family	Color*	Tribe**	Can 1	Can 2
Yukaghir	Turquoise	1. Chuvantsy (23)	-1.9702	0.8137
		2. Yukaghir (117)	-1.6691	-0.2724

* Color corresponds to color in Figure 6.4.
** Number in parentheses corresponds to number in Figure 6.4.

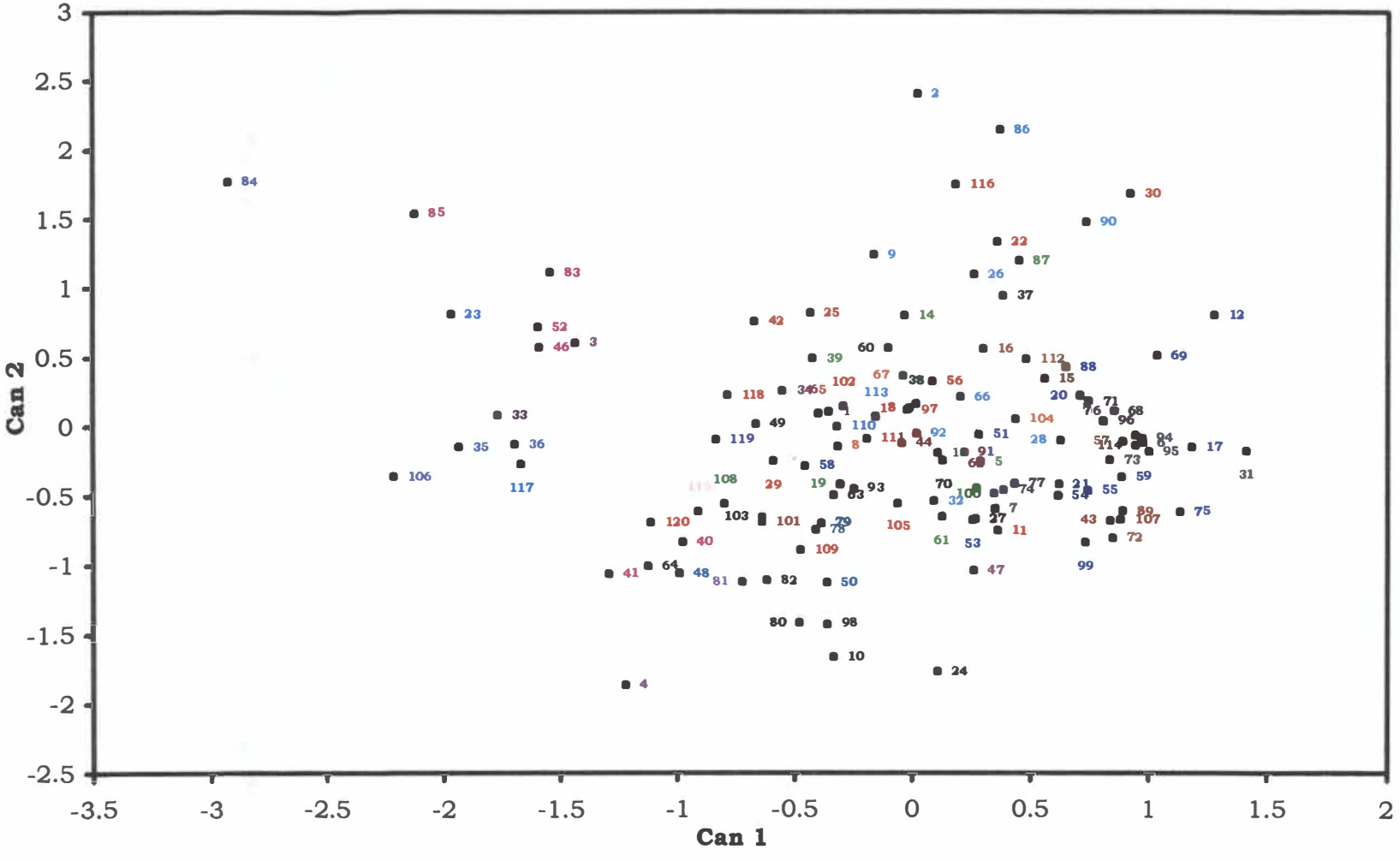

Figure 6.4. Plot of Canonical Axis 1 by Canonical Axis 2 for the Body Data (Color Coded by Language Family).

populations organized by culture area and language phylum or family and are arranged in alphabetical order with their respective canonical mean scores from axes 1 and 2. The numbers in parentheses in the tables coincide with those in the plots. Canonical axes 1 and 2 explain 60.45% of the data. These plots show that with respect to canonical axis 1, populations with higher scores would tend, primarily, toward greater shoulder heights, longer legs, greater arm spans, longer arms, and, secondarily, longer torsos, and broader shoulders. In other words, populations with greater scores on canonical axis 1 would tend to be taller, and have longer arms and legs. Populations with lower scores would tend to have lower shoulder heights, shorter legs, smaller arm spans, shorter arms, and, secondarily, shorter torsos, and narrower shoulders, or, in other words, populations with lower scores would be shorter and have shorter arms. For example, the Reindeer Evenk (84) appear to be the shortest, with the shortest arms and legs of any population used in this study, followed by the Tundra Evenk (106) and Reindeer Koryak (85). On the other hand, the Crow (31) are the tallest, with the longest arms and legs of any population included in this study followed by the Blood (12) and the Cheyenne (17). As with the head data, most populations here have more moderate dimensions.

As for canonical axis 2, in Figures 6.3 and 6.4, populations with greater scores would tend to have shorter sitting heights or torsos, wider shoulders, and longer legs. Populations with lower scores would have taller sitting heights, narrower shoulders, and shorter legs. For example, the Agua Caliente (2), San Luis Rey (86), and Yokuts (116) have the shortest torsos and widest shoulders of any population in this study, while the Aleut (4), Bella Coola (10), and Stalo (98) have the longest torsos, but narrowest shoulders. Most populations, however, have only

moderate sized torsos and shoulder widths as with the head data.

Figure 6.3 seems to show more evidence of a separation based on geography. In this plot, what stands out the most is the separation of the Siberian populations (3, 23, 35, 36, 46, 52, 83, 84, 85, 106, 117) and the Native American tribes. There are exceptions, however. First, only the Labrador Eskimos (33) cluster with the Siberians. Second, the Itelman (40,41), Nivkhi (64), and Yakut (115) cluster with the Native Americans. Morphologically, the Siberian tribes are short, with short arms and legs, and short arm spans, and they have short to moderate length torsos and wide shoulders. However, the Itelman, Nivkhi, and Yakut that cluster with the Native Americans are taller with longer arm spans, longer arms and legs, and have longer torsos and narrower shoulders then the other Siberian tribes. This arrangement is reminiscent of Ousley's (1995) Figure 2. In addition, figure 6.3 in this study also shows the lack of relationships between Eskimos and the Aleut, as Ousley has noted. In contrast, the Aleuts do not show a close relationship with any Siberian or Native American population unlike Ousley's work, which showed a close relationship between the Aleuts and Bella Coola. In addition, Figure 6.3 shows no close relationship between the Labrador Eskimos, which are more closely related to the Siberian tribes, and the Mackenzie Delta Eskimos, which are more closely related to Native Americans, while Ousley's Figure 2 shows a close relationship between these Eskimo tribes and with Siberians. The plots of the head data (Figures 6.1 and 6.2) does reflect the Eskimo-Aleut relationships in Ousley's plot a little better, but the Siberian-Native American split present in Figure 6.3 is not visible.

The Northeast tribes (figure 3) (20, 21, 51, 53, 54, 55, 57, 59, 68, 69, 72, 77, 88, 89, 91, 99, 107, 114) cluster together rather closely in the lower right quadrant of the plot in a similar position to Jantz et al.'s

(1992) Figure 2. However, they do not cluster in their traditional geographical location, but somewhat lower. These tribes tend to be relatively tall, have relatively long arms and legs, and relatively long armspans. They also have moderate to slightly short torsos and moderate length to slightly narrow shoulders. The Ojibwa (69) located in the Northwest Lake Superior area tend to be taller with longer armspans and longer arms and legs than all other Northeast tribes. This may or may not be due to measurement error as Jantz and Meadows (1995) found this population appeared unusually distinct in plots of the body data from the other tribes included in their study.

Most of the Plains tribes (6, 7, 12, 13, 17, 28, 31, 43, 71, 73, 74, 75, 76, 87, 94, 95, 96, 104) cluster close together and are intermingled with the Northeast tribes in a similar fashion to Jantz et al.'s (1992) Figure 2. Therefore, as with Jantz et al.'s plot the Plains tribes are displaced relative to their true geographical location. Since most of the Plains tribes cluster close together with the Northeast tribes, their morphology is similar. The Plains tribes are moderate to tall in height, have moderate to long armspans, and moderate to long arms and legs. They have only moderate-length torsos and shoulder widths. However, the Blood (12) and the Sarcee (87) have more extreme values. The Blood tend to be taller, with longer armspans, and arms, and legs, but they also have shorter torsos and wider shoulders than most of the other Plains tribes except for the Sarcee. The Sarcee have more moderate heights, armspans, and arm and leg lengths as do several other Plains tribes, but this tribe has the shortest torsos and widest shoulders of any other Plains tribe.

This study includes more Californian tribes than other studies utilizing the Boas data primarily because this culture area includes data collected under the direction of both Franz Boas and Edward Gifford.

The Californian tribes (1, 2, 8, 11, 25, 26, 29, 32, 39, 65, 67, 86, 90, 97, 113, 116, 118, 119) do cluster tighter and somewhat higher than in Jantz et al.'s Figure 2. In addition, there is a split in which some of these tribes appear in the upper portion of the upper right quadrant of figure 6.3. These are mostly Southern Californian tribes except for the Yokuts (116), which are Central Californian tribes. These Californian tribes (2, 26, 86, 90, 116) have a different morphology from those of Central (25, 32, 65, 97, 113) and Northern California (1, 8, 29, 39, 67, 118,119). The Southern California tribes are taller, have wider armspans, longer legs, longer arms, shorter torsos, and wider shoulders than the Central and Northern Californian tribes, while the Northern and Central Californian tribes are shorter, have shorter armspans, shorter arms and legs, and more moderate length torsos and narrower shoulders than the Southern California tribes.

The Northwest Coast tribes (10, 24, 38, 42, 45, 48, 50, 60, 63, 79, 80, 81, 82, 98, 102, 105, 108) do not cluster as well as do the previously discussed groups. However, the Northwest tribes are divided into three separate parts. One part is a fairly tight cluster in the lower section of the lower left quadrant of the plot. This cluster (10, 24, 48, 50, 80, 81, 82, 98) includes tribes that are located from Bella Coola, BC to Taholah, WA. Morphologically, these tribes are moderately short, have moderately short armspans, and moderately short arms and legs, have the longest torsos, and narrowest shoulders of any of the Northwest Coast tribes.

There is a smaller cluster of Northwest tribes located above the previously discussed cluster (63, 79, 105, 108), which are similar in their height, armspan, and arm and leg length to the tribes in the lower cluster, but they have shorter torsos and wider shoulders. This cluster contains tribes located as far north as Port Essington, BC, and as far

south as Gold Beach, OR.

Another cluster (38, 42, 69, 102) is located above the two previously discussed groups. The tribes in this cluster are much more loosely grouped together than the other two, but, in general they are of similar heights, armspans, and arm and leg lengths to the other tribes, but have still shorter torsos and wider shoulders, perhaps the widest shoulders of any of the Northwest Coast tribes. These tribes are located from as far north as Masset, BC, on Queen Charlotte Island, to as far south as Warm Springs OR. None of the other culture areas has tribes that cluster together in this manner.

Figure 6.4 reveals more of a linguistic relationship than the head data (Figure 6.2). The Salish speaking tribes (10, 24, 27, 37, 49, 60, 63, 70, 79, 80, 82, 93, 98, 103), in this study, are distributed in a similar way to the Northwest Coast tribes. They are divided into two or three clusters. The first cluster encompasses most of the Northwest Coast tribes that were present in the first cluster of Northwest Coast tribes (10, 24, 80, 82, 98). Clusters 2 and 3 are somewhat different from Clusters 2 and 3 of the Northwest Coast tribes. Cluster 2 of Salish speakers (27, 63, 70, 79, 93, 103) includes tribes that are not Northwest Coast tribes (27, 70, 93, 103) and Cluster 3 of Salish speakers is really not a cluster, but just a group of three Salish speaking tribes (37, 49, 60) that are spread out in the upper half of Figure 6.4, only one of which is a Northwest Coast tribe (60). Morphologically, the tribes located in cluster 1 are of moderate height, armspan, and arm and leg length, but have long torsos and narrow shoulders. The tribes making up cluster 2 have moderate dimensions all around; however, the Thompson (103) tend more toward shortness in height, shortness in armspan, and short arms and legs relative to other salish speakers, but they have moderate length torsos

and moderate shoulder widths. Cluster 3 is heterogeneous in height, armspan, arm and leg length, but more moderate in torso height and shoulder width. The Lillooet (49) are the shortest in this cluster with short armspans, arms, and legs, though not as short as the Thompson. The Lillooet also are of moderate length torsos and shoulder widths. The Nanimo (60) are taller than the Lillooet with longer armspans, arms and legs with shorter torsos and wider shoulders. The Flathead (37) are the tallest of all the Salish speakers with longer armspans, arms, and legs. They also have the shortest torsos and widest shoulders of any Salish speaking tribe in this study.

The tribes that speak a language from the Uto-Aztecan family (2, 9, 26, 28, 32, 66, 86, 90, 92, 110, 113) cluster in a similar way to the Californian tribes. As with the Californian tribes there is a split in the Uto-Aztecan speakers; however, this split separates the Southern California tribes (2, 26, 86, 90) and the Bannock (9) from more Northern Speakers (28, 32, 66, 110, 113). More specifically, the Southern California Uto-Aztecan speakers speak languages classified in a major branch of the Uto-Aztecan family called the Takic branch, and all the other Uto-Aztecan speakers included here speak a language from another major branch called the Numic branch (9, 28, 32, 66, 110, 113). Morphologically, the Takic group and the Bannock, a Numic speaker, tend to have more moderated heights, armspans, arms, and legs. The Serrano (90) are the tallest and have the longest armspans, arms and legs of any other Uto-Aztecan speaker. The Takic speakers and Bannock also have relatively short torsos and wide shoulders. On the other hand, the Numic speakers have similar heights, similar length armspans, arms, and legs, but have more moderate length torsos and shoulder widths. The clustering of the Uto-Aztecan speakers and California tribes seems to be due to the affects of geography and language affecting the morphology

of these tribes simultaneously.

Algonquian speakers (6, 12, 17, 20, 21, 51, 53, 54, 55, 58, 59, 68, 69, 75, 77, 88, 91, 99) also cluster, albeit somewhat loosely, in the right half of Figure 6.4. The body data for the Algonquian speakers does not cluster as well as for the head data. Many of the Algonquian speakers tend to be tall, with long armspans, arms and legs, and more moderate length torsos and shoulder widths. However, a few tribes (51, 53, 58, 77, 91) have more moderate heights, armspans, arms, legs, torso lengths, and shoulder widths. The Montagnais (58) are the shortest, with the shortest armspans, arms and legs of any Algonquian speaker in this study. Conversely, the Blood (12) are the tallest, with the longest armspans, arms and legs, and shortest torsos and widest shoulders of any Algonquian speakers.

The Siouan speakers (7, 15, 31, 71, 73, 76, 94, 95, 96, 114) are clustered very tightly together and cluster in a similar position to the Algonquian speakers. This means that they tend toward tallness, with long armspans, long arms and legs, but more moderate torso lengths and shoulder widths. The Crow (31) are the tallest of any of the Siouan speakers with the longest armspans, arms and legs, the Assiniboin (7) are the shortest of the Siouan speakers, with the shortest armspans, arms and legs even though these dimensions tend only toward moderate sizes in terms of the other tribes in Figure 6.4.

The Tungus speakers (35, 36, 84, 106) cluster in the lower section of the Siberian cluster. In fact, the Siberian cluster is split into two sections, one containing mostly Tungus speakers, located below the first canonical axis, but also containing the Yukaghir (117), and the second, located above the first canonical axis, containing mostly Chukchi speakers, but also including the Tundra Evenk (84), which are Tungus speakers. This means that most Tungus speakers are fairly short with

fairly short armspans, arms and legs, but have only moderate length torsos and shoulder widths. In contrast, the Tundra Evenk, as mentioned previously, are the shortest, have the shortest armspans, and arms and legs, but the longest torsos and narrowest shoulder widths. This large difference in size may be due to gene flow of the Yukaghir with the Tungus speakers other than the Tundra Evenk (Jochelson 1926).

Figure 6.4 features a split within the Chukchi/Kamchatkan speakers. The Chukchi speakers (46, 52, 83, 85) all cluster together in the Siberian cluster discussed above, while the Kamchatkan speakers (40, 41) cluster together in the Native American cluster. The Chukchi speakers, therefore, are more similar in body size to the Tungus speakers, but they have shorter torsos and wider shoulders. On the other hand, the Kamchatkan speakers are more similar to Native Americans, specifically, Salish (103), Penutian (120), Wakashan (48), and Chimakuan (81) speakers. The only Siberian population that the Kamchatkan speakers are positioned closely to in the plot is the Nivkhi (64), speakers of a language isolate, which are also, geographically, more closely positioned to the Kamchatkan speakers than to any other Siberian population. Therefore, Kamchatkan body morphology is more similar to the speakers of the previously mentioned language families.

Even though there seems to be more evidence for a connection to geography and language, some of the tribes are more closely positioned to other tribes that are in different culture areas or speak languages in different language families. This is a similar situation to what occurred in Figures 6.1 and 6.2. For example, Thompson (103), a Salish speaking Plateau tribe, is closely positioned to the Taos (101), a Tanoan speaking Southwest tribe. Likewise, the Pueblo (78), a Keresan speaking Southwest tribe, are located very near to the Puyallup (79), another Salish speaking Northwest Coast tribe. The Klamath (44), a Penutian

speaking Plateau tribe, are positioned closely to the Shoshone (92), a Uto-Aztecan Great Basin tribe. The Caddo (13), a Caddoan speaking plains tribe, is positioned very close to the Okanagan (70), a Salish speaking Plateau tribe. Additionally, the Coeur d'Alene (27), another Salish speaking Plateau tribe is positioned so close to the Menomini (53), an Algonquian speaking Northeast tribe, that the points on figure 6.4 are almost on top of each other. Finally, the Chippewa from the Minnesota area (20), another Algonquian speaking Northeast tribe, are positioned quite closely to the Omaha (71), a Siouan speaking Plains tribe.

Also, as with the head data, the plots of the body data (Figures 6.3 and 6.4) contain small clusters of three to five tribes that speak different languages and are located in different culture areas, though to a lesser degree. For example, the Achomawi (1), Northern Hill Yokut (65), and Tenino (102) are all positioned into one cluster. However, the Achomawi and Northern Hill Yokut are Californian tribes, of which the Achomawi are Hokan speakers and the Northern Hill Yokut are Penutian speakers. In contrast, the Tenino are a Northwest Coast tribe that speaks a Salish language. Another cluster contains the Chilcotin (19), Nisqually (63), and the Shushwap (93). These tribes are all members of different culture areas; however, the Nisqually, a Northwest Coast tribe and the Shushwap, a Plateau tribe, both speak a Salish language, while the Chilcotin, a Sub-Arctic tribe, speaks an Athabaskan language. A similar situation occurs with the cluster made up of the Chickasaw (18), Southern Miwok (97), and Haida (38). Again, all the tribes in this cluster are from different culture areas, but the Chickasaw, a Southeast tribe, and the Southern Miwok, a Californian tribe, speak a Penutian language, but the Haida, a Northwest Coast tribe speak Haida. Still another cluster, including the Kiowa (43), Seneca (89), and Tuscarora (107), contains two tribes, the Seneca and Tuscarora, that are both Northeast

tribes and Iroquoian speakers, but also include a tribe, the Kiowa, that is a plains tribe and speaks a Tanoan language.

Another cluster includes tribes that are from different culture areas and speak languages from different language families. For example, the Pawnee (74), Potawatomi (77), and Tahltan (100) are all from different culture areas and speak languages from different language families. The Pawnee are a Caddoan speaking Plains tribe, the Potawatomi are an Algonquian speaking Northeast tribe, and the Tahltan are an Athabaskan speaking Sub-Arctic tribe.

The largest cluster includes five tribes, the Arapaho (6), Mohawk (57), Georgian Bay area Ojibwa (68), Santee Sioux (94), and the Winnebago (114). Three of these tribes are Northeast tribes, but all speak different languages. These tribes are the Mohawk, which are Iroquoian speakers, the Georgian Bay Area Ojibwa, which are Algonquian speakers, and the Siouan speaking Winnebago. Two other tribes in this cluster are Plains tribes. These two are the Arapaho, which are another Algonquian speaking tribe, and the Siouan speaking Santee Sioux.

In short, these pairings and small clusters of tribes tend to be made up of tribes that, spatially speaking, are not geographically located at great distances apart, whereas in Figures 6.1 and 6.2 showed pairings and small clusters of tribes that were of great distances from each other. For example, some tribes are paired or clustered with Siberian Indigenous populations. Many times there was a great distance between the populations or clusters of populations, hinting at possible historic or genetic relationships. The D^2-matrix calculated on the head data (Matrix 4F of Appendix F) shows similar patterns to Figures 6.1 and 6.2, and the D^2-matrix calculated on the body data also shows similar patterns to Figures 6.3 and 6.4. This D^2-matrix from the body data is presented in

Matrix 3F of Appendix F.

This D^2-matrix shows several similarities to Figures 6.3 and 6.4. The Siberian/Arctic cluster shows only a moderate number of pair wise comparisons that have very small distances, which indicates a loose clustering of Siberian Indigenous tribes. This appears in Figures 6.3 and 6.4 even though most of the Siberian groups are separated from the Native American tribes. However, there are some important similarities of this matrix to Figures 6.3 and 6.4. First, the Aleut show no close relationship to any Eskimo tribe included in this study. As pointed out several times earlier, this is also in accordance with Ousley's (1995) work. In fact, the only group the Aleut seem to be morphologically similar to is the Itelman, a group not included in Ousley's study and they don't seem to be that closely positioned together in Figures 6.3 and 6.4. However, any morphological similarity may be due to adaptations to similar environments because of the proximity of the Aleutians to the Kamchatkan Peninsula (Black and Liapunova, 1988) and because recent work, using mtDNA, has shown no genetic relationship between Aleuts and Itelman (Rubicz et al., 2003). Earlier work using dentition has also failed to show an Aleut-Itelman relationship (Turner, 1988). Secondly, the Mackenzie Delta Eskimo and Labrador Eskimo do not seem to be closely related here, a point also made by Ousley. In fact, the Labrador Eskimos and Mackenzie Delta Eskimos are more closely related to Siberians, specifically Chukchi-Kamchadal speakers, than they are to each other, another point made strongly by Ousley.

Both the Northeast tribes and the Plains tribes had very low D^2-values that coincide with the close clustering of points in Figures 6.3 and 6.4. However, the Ojibwa of the Northwestern Lake Superior area did not have any small D^2-values for any pair wise comparisons of the Northeast

tribes. In fact, the values were quite large for most comparisons involving this population. This may be further indication that the possibility of measurement error brought up by Jantz and Meadows (1995) may indeed be real.

The D^2-values for the Californian tribes also follow a similar path to that in Figure 6.3 and 6.4. Most tribes located in North and Central California show small D^2-values indicating that they would cluster close together in a plot as they did in Figures 6.3 and 6.4. The tribes included in this study from Southern California had small D^2-values when compared to each other, but not when compared with most of the North and Central Californian tribes. This situation coincides with the plot of the Californian tribes in Figures 6.3 and 6.4.

Finally, the Northwest coast tribes had much fewer pair wise comparisons with small D^2-squared values simply because this culture area seems to be a less homogeneous collection of tribes than the previously mentioned culture areas. Since the Northwest coast tribes did not cluster as closely as the other groups, it makes sense that a similar situation would occur in the D^2-matrix.

Linguistically, many of the tribes that clustered together as members of the same culture areas were also members of the same linguistic family; therefore, the tribes in the same culture area that had small D^2-values also had small D^2-values in their respective linguistic families. For example, since many of the Northwest tribes are also Salish speakers, these tribes also clustered loosely in the plot and few Salish speaking tribes had low D^2-values as well. Likewise, since many of the Californian tribes are Uto-Aztecan speakers as well, the D^2 results were similar for these Uto-Aztecan speakers. This same pattern also followed for the D^2 results of the Algonquian, Siouan, Tungus, and Chukchi-Kamchatkan speakers.

Finally, the pairings and small groupings of tribes in different culture areas and speaking languages from different families that were positioned closely together in the plots, as discussed previously, also had small D^2-values as would be expected. No other group of tribes, either as Culture Areas or tribes speaking languages in other language families, clustered together as well.

These analyses indicate that the body data yield more evidence for geographical and linguistic influence than does the head data. However, the spatial autocorrelation, matrix correlation, and Wombling analysis that follow should shed more light on this.

Spatial Autocorrelation and One-Dimensional Correlograms

The Moran's I and Geary's c spatial statistics are presented in Tables 6.12-6.15. Table 6.12 contains the Moran's I coefficients for the 15 distance classes and the 6 canonical axes resulting from the canonical discriminant analysis performed on the head data. Table 6.13 contains the Geary's c coefficients for the same number of distance classes and canonical axes of the head data. Table 6.14 contains the Moran's I coefficients for each distance class and each canonical axis for the body data and, finally, Table 6.15 contains the Geary's c coefficients for each distance class and each canonical axis for the body data.

The total number of Moran's I and Geary's c coefficients amounted to 360 coefficients. Of these, a total of 46% of the Moran's I coefficients calculated from the head data were at least significant at the 0.05 level and a total of 23% of the Geary's c coefficients calculated from the head data were at least significant at the 0.05 level. In addition, a total of 44% of the Moran's I coefficients calculated from the body data were at least significant at the 0.05 level and a total of 21% of the Geary's c

Table 6.12. Table of Moran's I Coefficients by Canonical Axis and Distance Class for Head Data.

	Canonical Axis					
Distance Class	**1[!]**	**2[!]**	**3[!]**	**4[!]**	**5[!]**	**6[!]**
1	0.8679***	0.2194***	0.3676***	0.1437**	0.1646***	0.3437***
2	0.3458***	0.0527*	0.0910**	0.0142	0.0508*	0.0727**
3	0.1292***	-0.0367	0.0521*	-0.0753*	-0.0906**	-0.0236
4	0.0543*	0.0069	0.0183	0.0158	0.0201	-0.1503***
5	-0.0766*	0.0063	0.0264	-0.0404	-0.0222	-0.1463***
6	0.0649	-0.0080	-0.0189	-0.0325	-0.0879*	-0.0147
7	-0.2135***	-0.0753	0.1565***	-0.0605	-0.0226	-0.0233
8	-0.3401***	-0.0754	-0.0075	-0.0460	0.0605	0.0006
9	-0.5452***	-0.0469	0.1368**	-0.0070	-0.1948**	0.1287*
10	-0.4706***	-0.0376	0.0835	0.0124	-0.1216*	0.1260*
11	-0.4162***	-0.2481***	-0.2492***	-0.0621	0.2198**	0.1930**
12	-0.1112*	-0.0503	-0.4932***	0.0050	-0.0618	-0.0766
13	0.0033	0.0266	-0.4454***	0.0841*	-0.0109	-0.0216
14	0.1189	0.1572*	-0.4977***	-0.0710	0.0369	-0.0063
15	-0.0234	-0.0032	-0.3615	-0.2022	-0.1514	0.0446

*0.01<p≤0.05, **0.0001<p≤0.01, ***p≤0.0001—Two-Tailed, [!]Bonferroni significant at 0.05[p≤0.003(0.05/15)]

Table 6.13. Table of Geary's c Coefficients by Canonical Axis and Distance Class for Head Data.

	Canonical Axis					
Distance Class	**1[!]**	**2[!]**	**3[!]**	**4**	**5**	**6**
1	0.6314**	0.7349*	0.6476**	0.9145	0.9758	0.8404
2	0.8835	1.0143	1.0099	1.1034	1.1760	1.0788
3	0.8078*	1.2855**	0.8387*	1.0829	1.1201	1.1046
4	0.9555	1.1624	0.7436**	1.1166	0.9072	1.1810*
5	1.0011	0.9613	0.7160**	1.1110	0.8998	1.1460
6	0.8825	0.8788	0.7915*	1.2041	1.0861	1.0920
7	1.1406	0.9247	0.6593**	1.1117	1.1024	0.8875
8	1.2868	0.8402	1.0183	1.1424	1.2181	0.8257
9	1.7392**	0.6889	1.0835	1.0383	1.3127	0.6824
10	1.4511*	0.7654	1.3620*	0.7362	1.2493	0.8584
11	1.3690	1.2556	1.8007***	0.8001	0.7090	0.7440
12	0.8129	0.9679	1.8844***	0.5105**	0.7018	0.9556
13	0.5636*	0.8925	1.6176**	0.5629*	0.5400*	0.7130
14	0.3597	1.0086	1.4214	0.7481	0.4464	0.5136
15	0.3085	0.7800	0.9713	1.0332	0.6439	0.4231

*$0.01<p\leq0.05$, **$0.0001<p\leq0.01$, ***$p\leq0.0001$—Two-Tailed, [!]Bonferroni significant at 0.05 [$p\leq0.003(0.05/15)$]

Table 6.14. Table of Moran's I Coefficients by Canonical Axis and Distance Class for Body Data.

	Canonical Axis					
Distance Class	**1[!]**	**2[!]**	**3[!]**	**4[!]**	**5[!]**	**6[!]**
1	0.4484***	0.3655***	0.2485***	0.5591***	0.1121**	0.0658
2	0.2961***	-0.0108	0.0885**	0.1719***	0.0421	-0.0207
3	0.1516***	-0.0830**	0.0635*	-0.0148	0.0428	0.0214
4	0.1430***	-0.1671***	0.0034	0.0014	-0.0907**	-0.0069
5	-0.0156	-0.0009	-0.0228	-0.0467	-0.0556	-0.0269
6	-0.0701	0.1166**	-0.1802**	-0.0828	-0.1222**	0.0539
7	-0.1048*	0.0709	-0.1638**	-0.0794	0.0178	0.1226**
8	-0.0997	-0.1726**	-0.0839	-0.1458**	-0.0222	0.1104*
9	0.2821***	-0.3005***	-0.1248*	-0.1059	0.0005	-0.0575
10	0.1994**	-0.0722	-0.0130	-0.1545**	0.1553**	0.0831
11	-0.1553*	0.3228***	-0.0336	-0.1432*	0.0834	-0.1933**
12	-0.5219***	0.0660	0.0195	-0.0825	0.0159	0.0517
13	-0.9122***	-0.0430	-0.0269	-0.1414**	-0.1573**	-0.0323
14	-0.7982***	0.0690	0.0289	-0.0300	-0.1538	-0.0426
15	-0.7936**	-0.1323	0.0610	0.6285**	-0.1762	-0.0550

*0.01<p≤0.05, **0.0001<p≤0.01, p≤0.0001—Two Tailed, [!]Bonferroni significant at 0.05 [p≤0.003(0.05/15)]

Table 6.15. Table of Geary's c Coefficients by Canonical Axis and Distance Class for Body Data.

	Canonical Axis					
Distance Class	**1!**	**2!**	**3!**	**4**	**5**	**6**
1	0.1781***	0.6209**	0.6258**	0.8268	0.8307	0.9974
2	0.3155***	0.9910	0.9372	1.0878	0.9297	1.1614*
3	0.4745***	0.9342	1.0239	1.0666	0.8436	1.0160
4	0.4591***	1.2340*	1.2052	0.9269	0.9832	0.9789
5	0.6369**	0.7628*	1.4798**	0.9132	1.0178	1.0558
6	0.5799**	0.8377	1.5486**	0.9634	0.8635	0.8652
7	0.7690	0.9936	0.8933	1.0127	0.8090	0.7880
8	1.0292	1.2598	0.7733	1.0756	0.9092	0.8055
9	1.2720	1.4399*	0.7230	0.9183	1.2925	0.9971
10	1.7990**	1.2331	0.6162	1.2191	1.1354	1.0306
11	2.6084***	0.8452	0.8089	1.0670	1.3929	1.2513
12	2.9358***	1.1125	0.7106	0.8124	1.2741	0.8807
13	3.0812***	0.9749	0.7458	0.8338	1.3845	0.8791
14	2.1948**	0.9922	0.5697	1.0165	1.1148	0.5368
15	1.8230	1.2019	0.5223	1.4308	1.2942	0.5238

*0.01<p≤0.05, **0.0001<p≤0.01, ***p≤0.0001—Two Tailed, !Bonferroni significant at 0.05 [p≤0.003(0.05/15)]

coefficients calculated from the body data were at least significant at the 0.05 level. Therefore, one can conclude that the Moran's I coefficients calculated from both the head and body data yield a large amount of spatial structure, while the Geary's c coefficients show much less spatial structure. Obviously, the calculation of the Moran's I coefficients provide better results than Geary's c. However, both types of coefficients will be discussed further as the correlograms plotted from the Geary's c coefficients resulted in some interesting patterns, particularly those calculated from Canonical axis 1.

One-dimensional correlograms were constructed from these coefficients and statistical significance was tested with a Bonferroni test. All correlograms constructed from the Moran's I coefficients (shown in Tables 6.12 and 6.14) were Bonferrroni significant, while correlograms based on the Geary's c coefficients from canonical axes 1-3 were Bonferroni significant.

The one-dimensional correlograms constructed from the coefficients are shown in Figures 6.5-6.12. Each figure has three correlograms in it. For the head data Figure 6.5 contains correlograms constructed from the Moran's I coefficients calculated from canonical axes 1-3, and Figure 6.6 is the correlograms calculated from canonical axes 4-6. Figure 6.7 is the correlograms constructed from the Geary's c coefficients based on canonical axes 1-3 of the head data; Figure 6.8 is Geary's c correlograms based on canonical axes 4-6 of the head data. Figure 6.9 contains the Moran's I correlograms based on canonical axes 1-3 from the body data, and Figure 6.10 contains Moran's I correlograms from canonical axes 4-6 of the body data. Finally, Figure 6.11 is the Geary's c correlograms based on the first 3 canonical axes, and Figure 6.12 is the Geary's c correlograms from canonical axes 4-6.

In order to understand what these correlograms represent, a closer

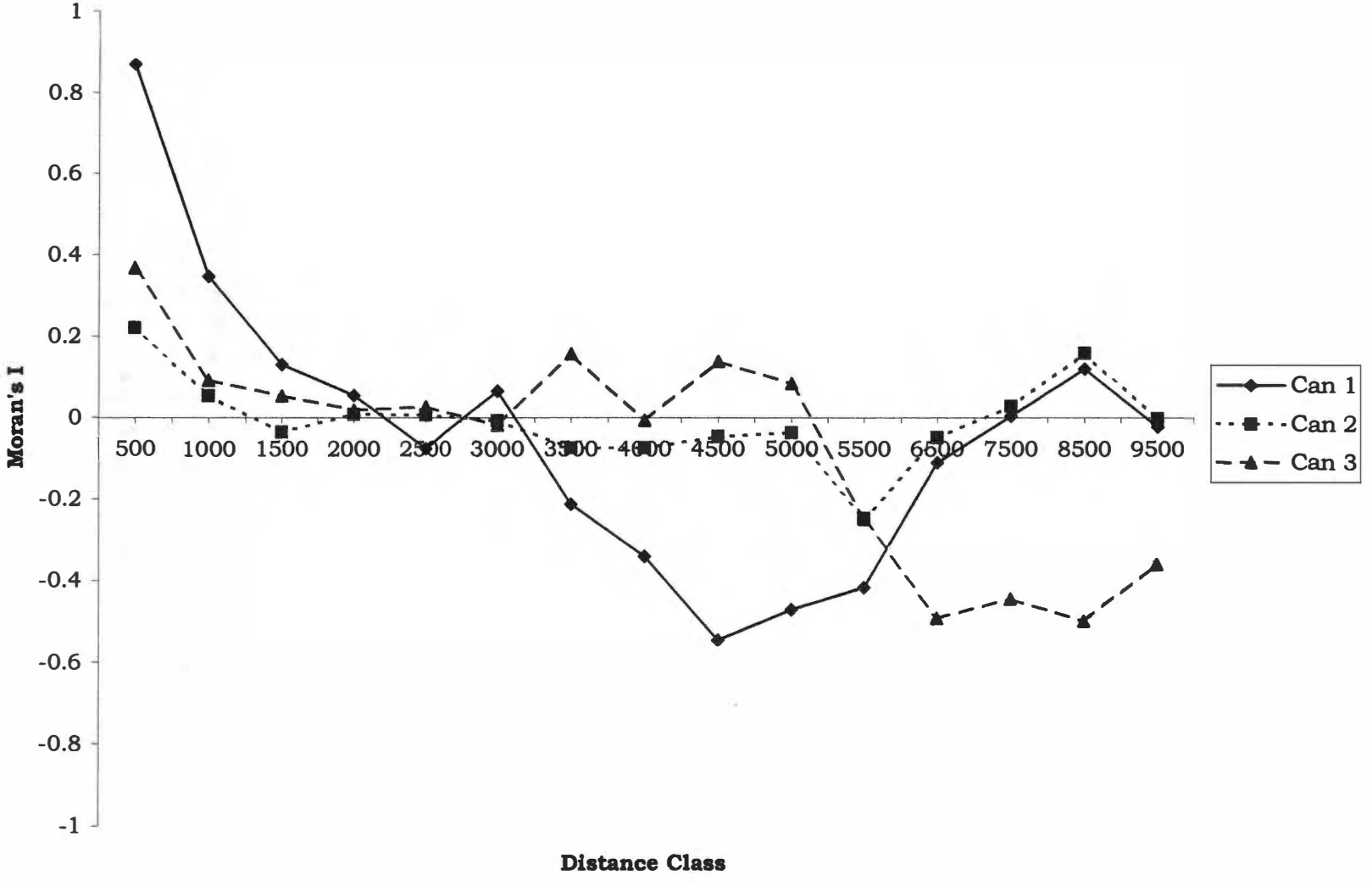

Figure 6.5. Moran's I Correlograms from Boas Head Data (Can 1,2,3).

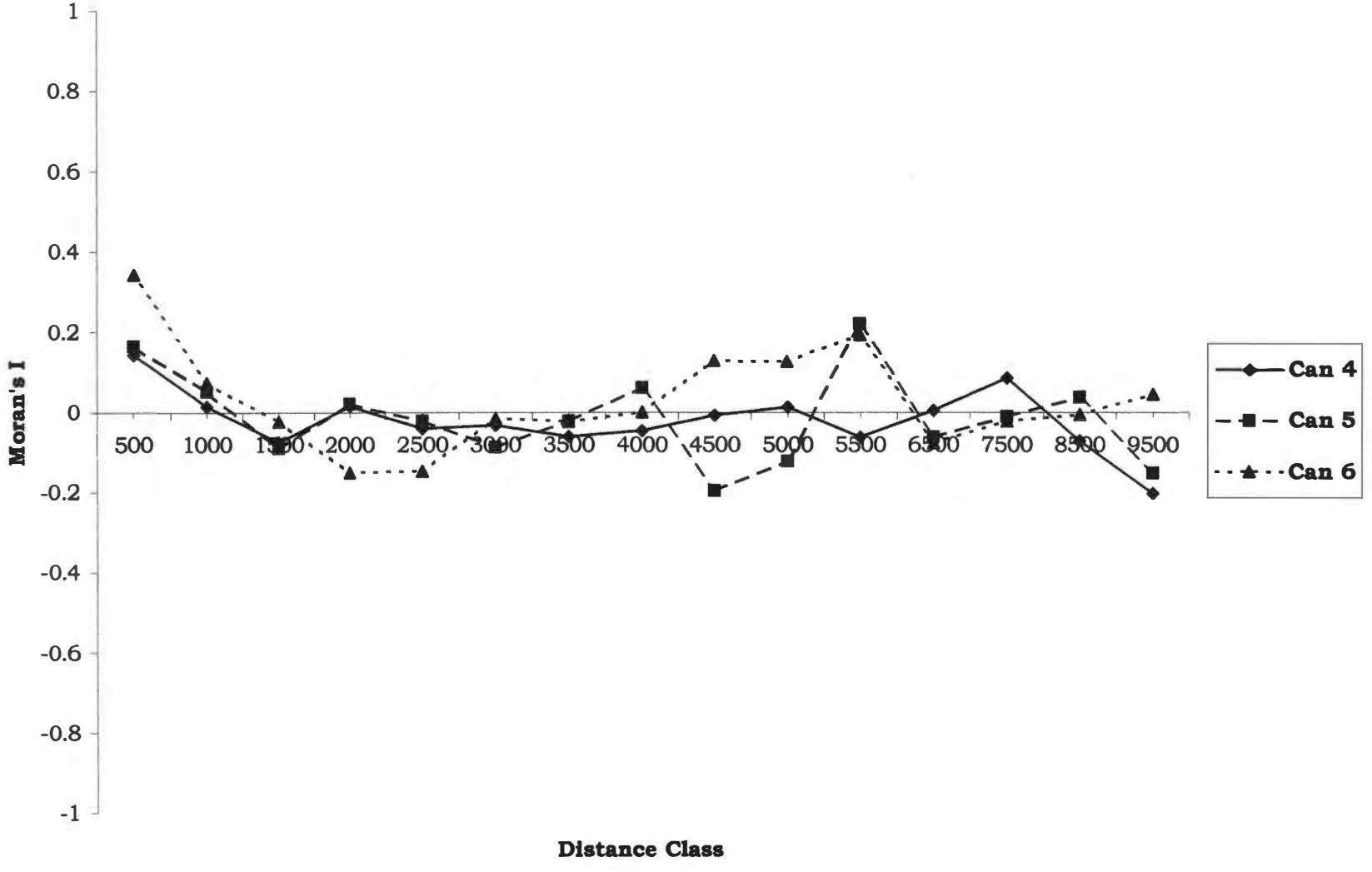

Figure 6.6. Moran's I Correlograms from Boas Head Data(Can 4,5,6).

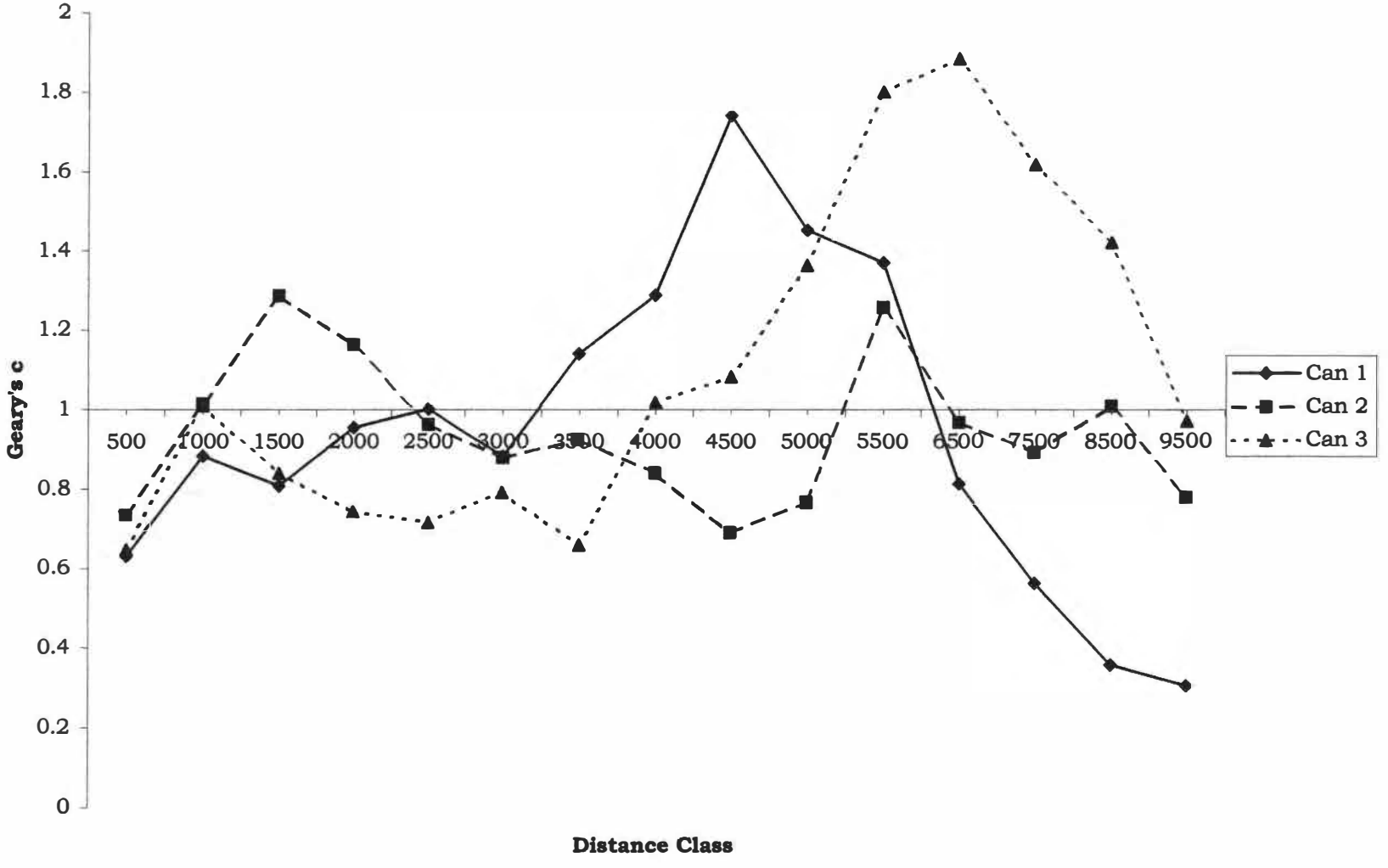

Figure 6.7. Geary's c Correlograms from Boas Head Data (Can 1, 2, 3).

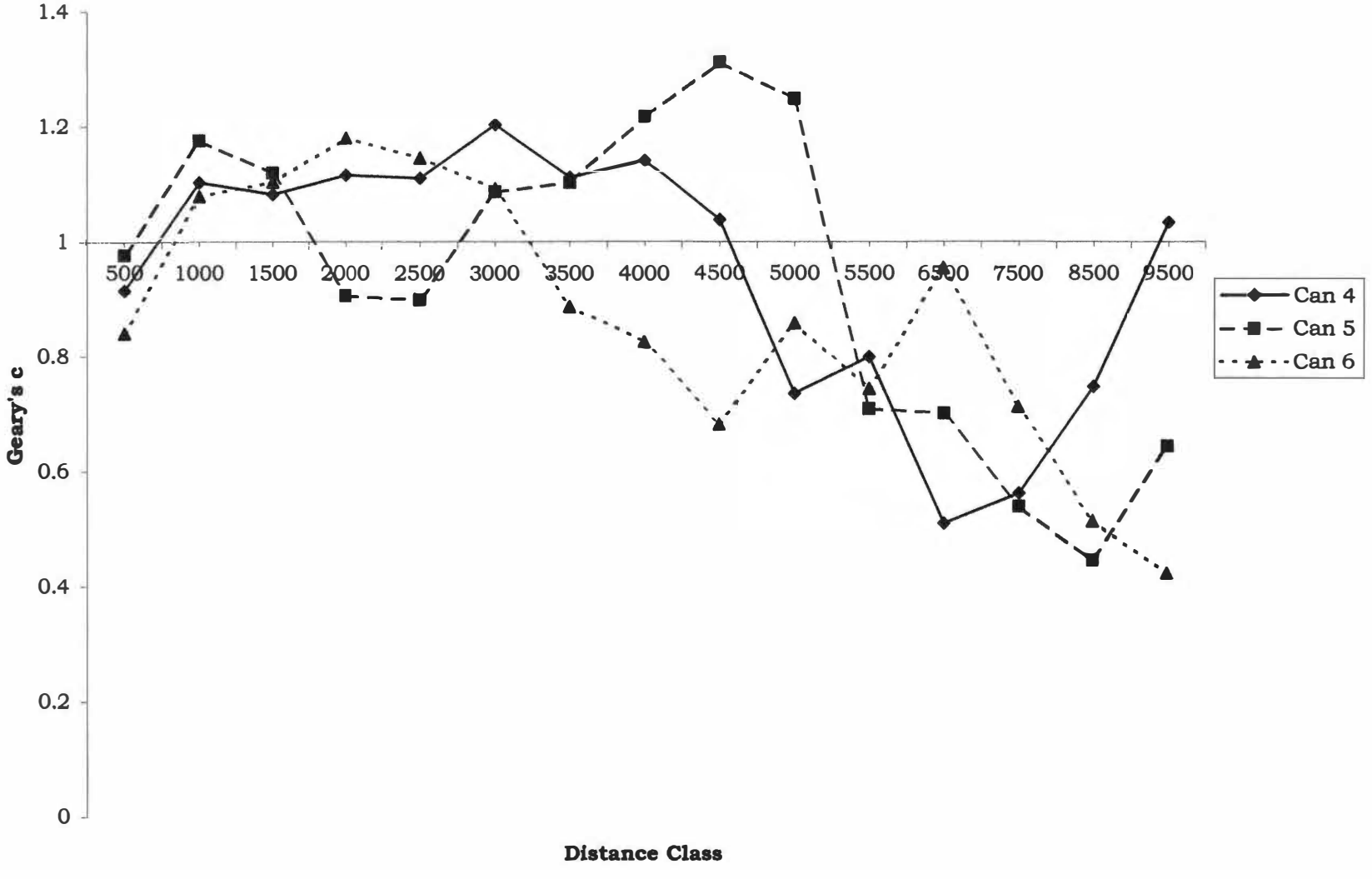

Figure 6.8. Geary's c Correlograms from Boas Head Data[Can 4,5,6(NS)].

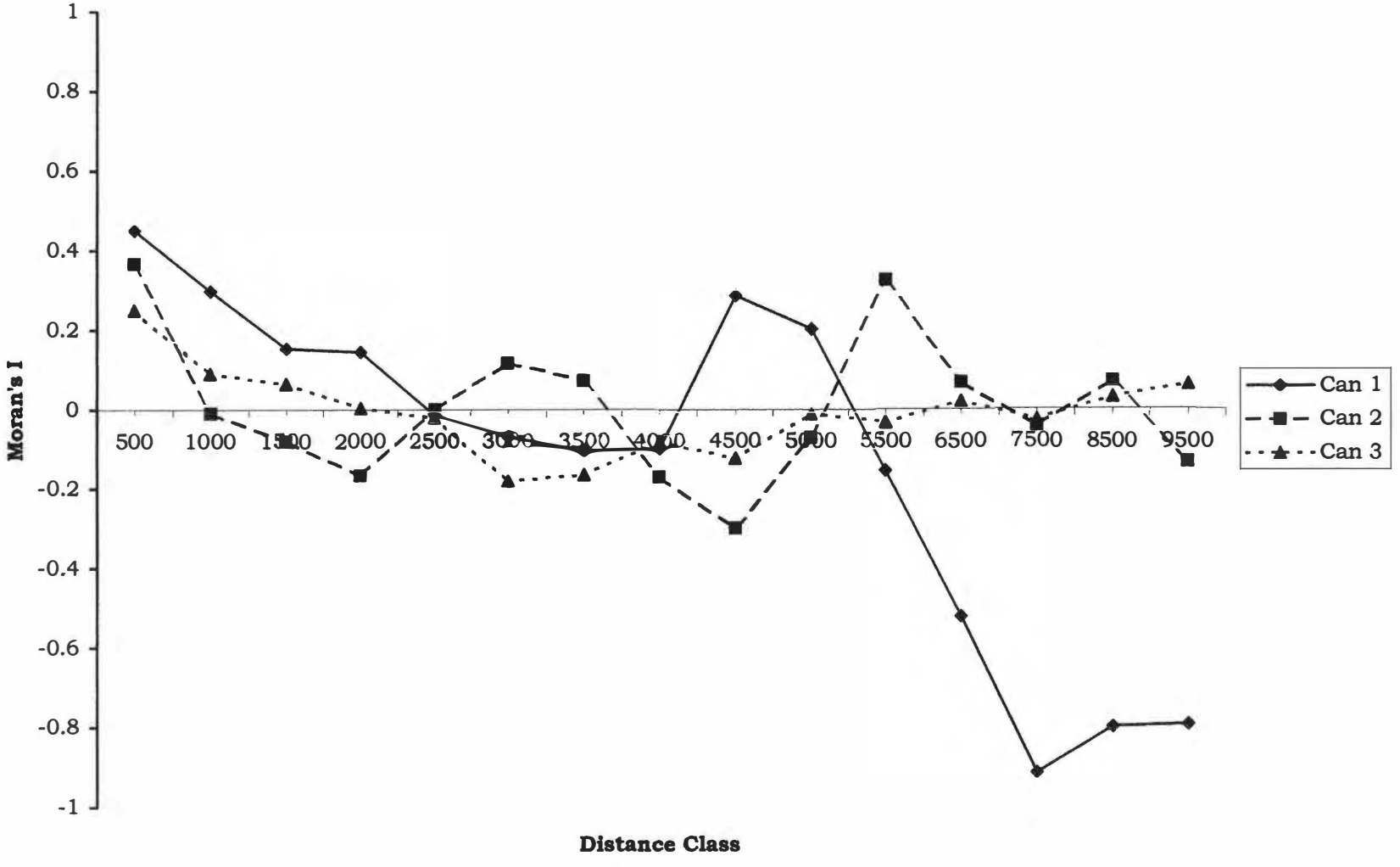

Figure 6.9. Moran's I Correlograms from Boas Body Data (Can 1,2,3).

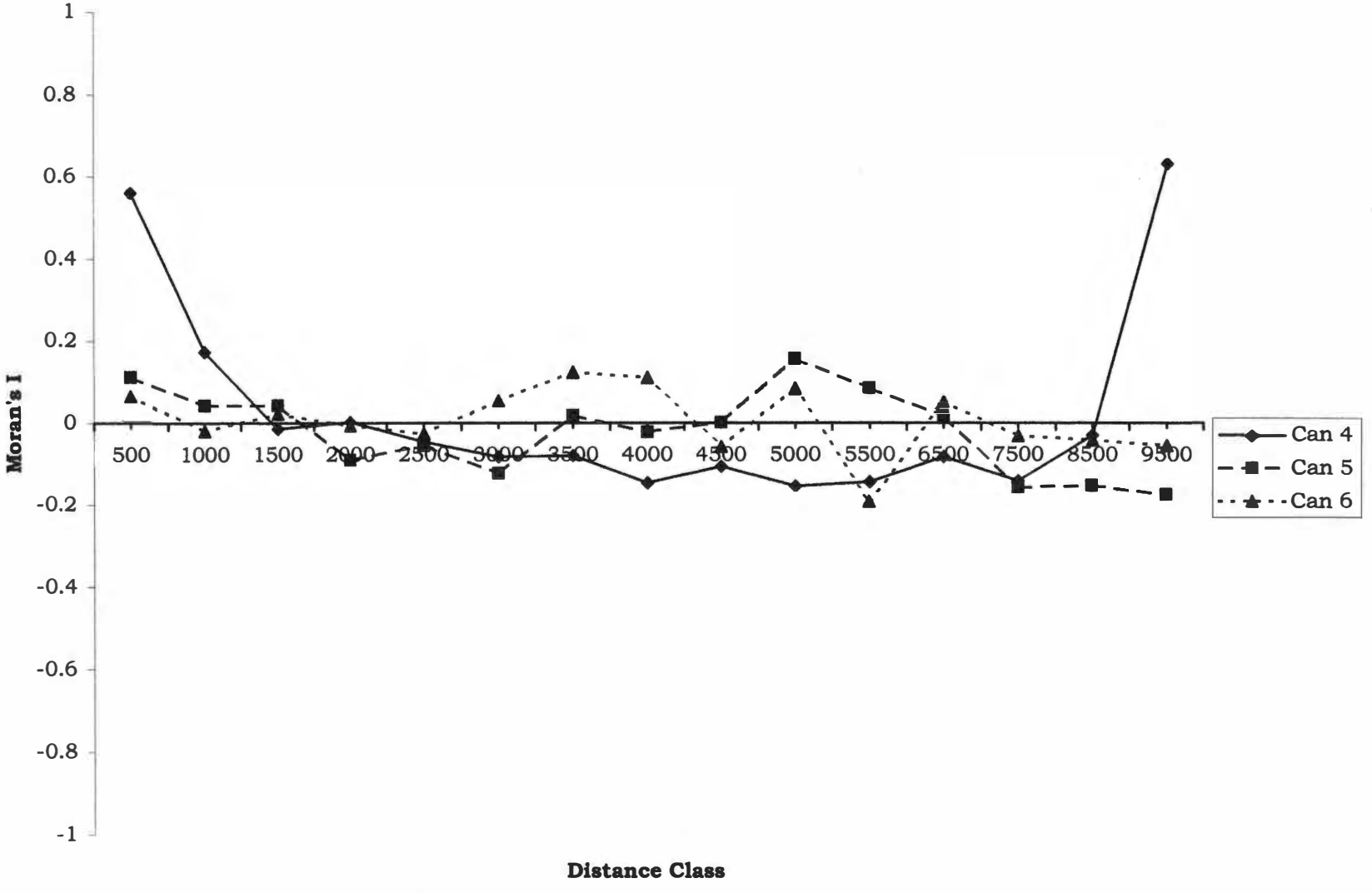

Figure 6.10. Moran's I Correlograms from Boas Body Data (Can 4,5,6).

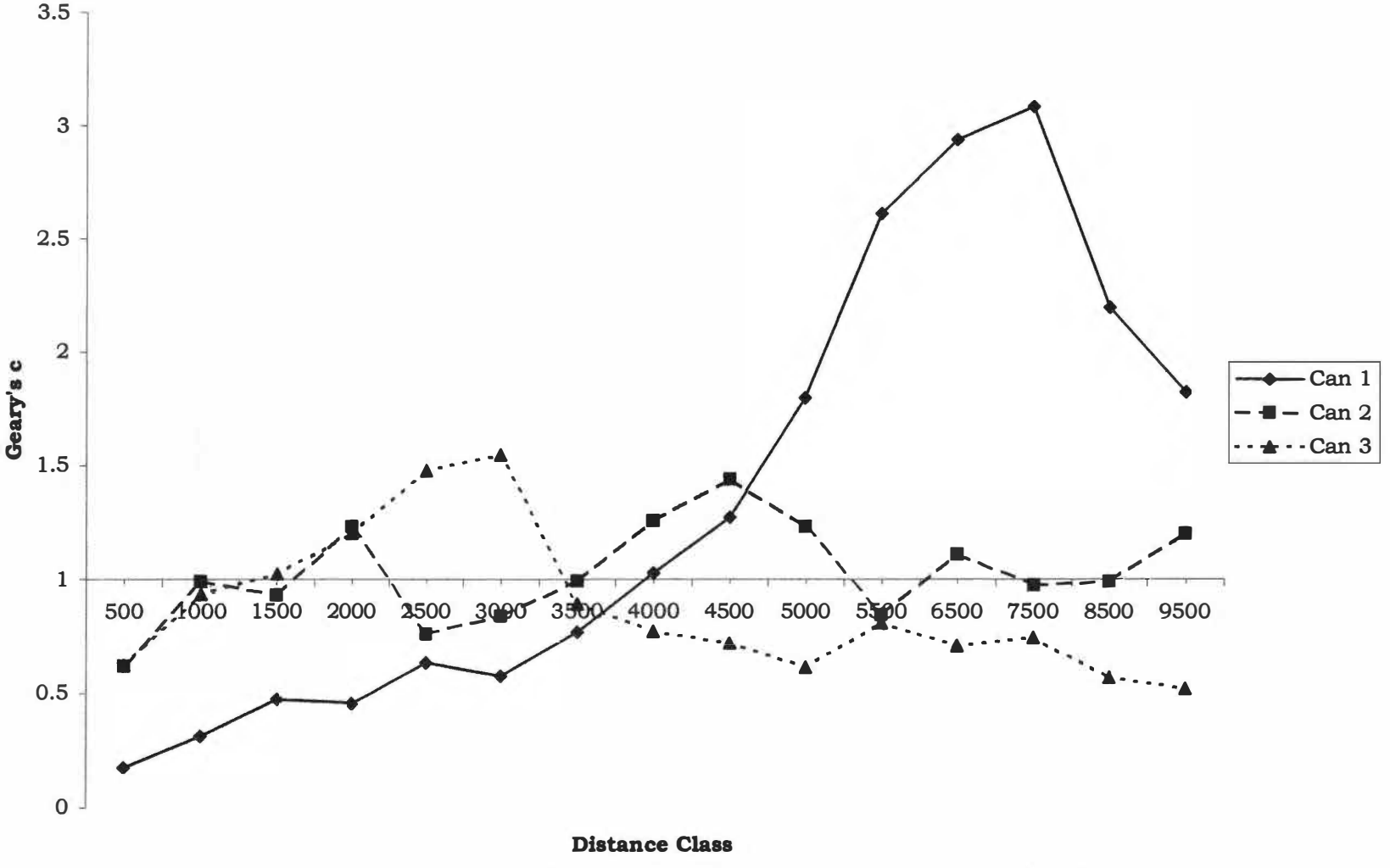

Figure 6.11. Geary's c Correlograms from Boas Body Data (Can 1,2,3).

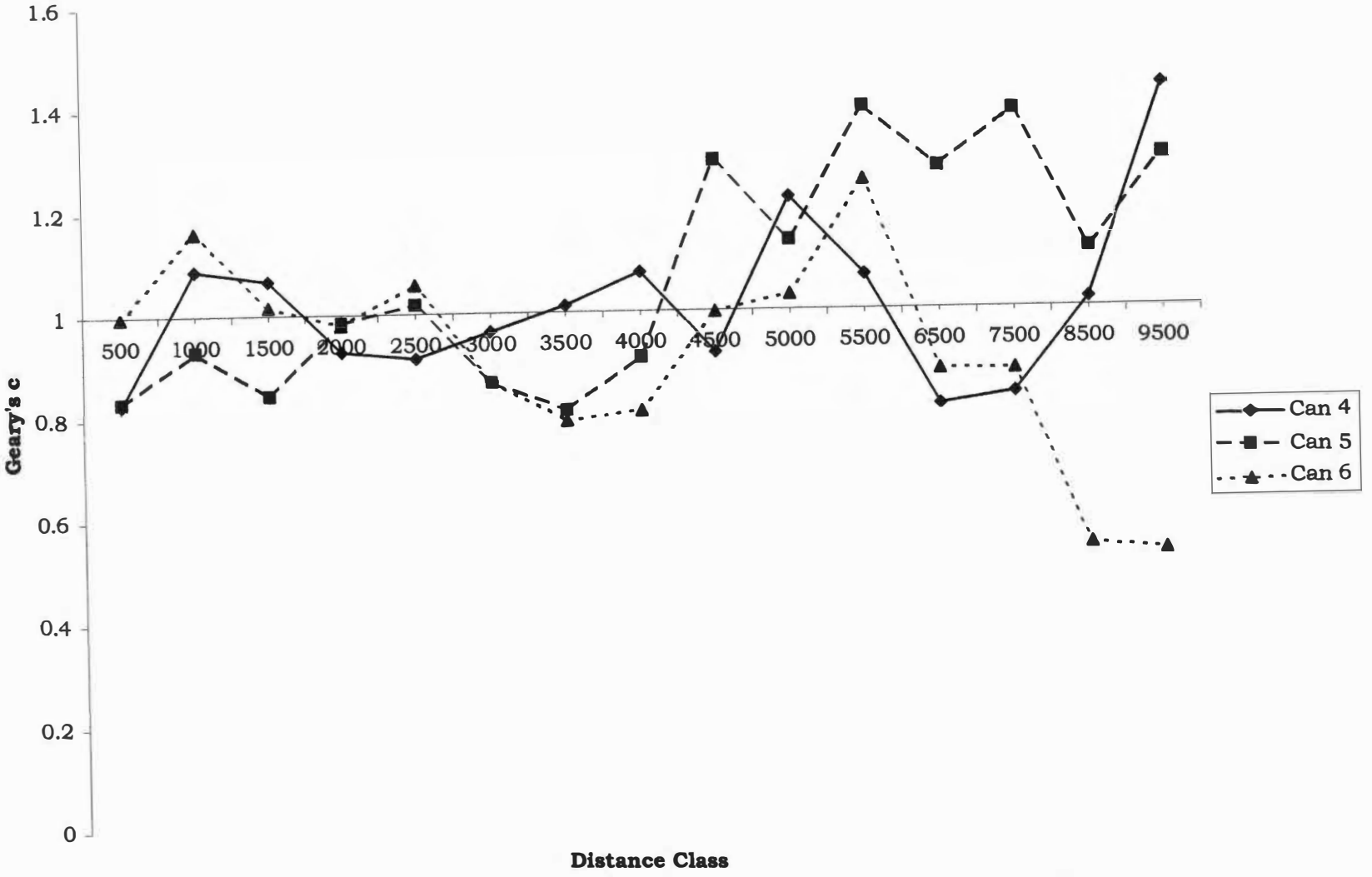

Figure 6.12. Geary's c Correlograms from Boas Body Data [Can 4,5,6(NS)].

look at them is necessary. The correlogram for canonical axis 1, in Figure 6.5, declines from significant positive autocorrelation for low distance classes to significant negative autocorrelation up to 4500 kilometers. This represents a cline. Significant negative autocorrelation then decreases up to 6500 kilometers where spatial autocorrelation becomes non-significantly positive before becoming non-significantly negative at 9500 kilometers. Taken as a whole, this plot can be interpreted as being a depression or regionally patchy as it is sometimes called (Barbujani, 2000; Sokal et al., 1989a; Sokal and Oden, 1978a). This means that the tribes that are located relatively close are similar in the dimensions of head breadth and head length, while tribes located up to 4500 kilometers are the most unalike in their dimensions of these two variables.

The correlogram for canonical axis 2, in Figure 6.5, has its highest positive autocorrelation at 500 kilometers; however, in Table 6.12 the Moran's I coefficent for this distance class is the lowest of the first three canonical axes, though still strongly significant. Positive autocorrelation then decreases until it reaches a spatial autocorrelation of 0, which occurs at approximately 1250 kilometers. Therefore, the patch size is approximately 1250 kilometers for the variables most heavily loaded in this canonical axis. This correlogram then has non-significant autocorrelation either positive or negative until 5500 kilometers, the highest negative autocorrelation in the correlogram. This arrangement is reminiscent of isolation-by-distance, but the occurrence of the highest negative autocorrelation at 5500 kilometers hints at a depression. This pattern could, therefore, be called quasi-isolation-by-distance or quasi-depression (Barbujani et al., 1994a).

This means that, as with canonical axis 1, the tribes that have the

most similar size faces and noses are those that are within 500 kilometers of each other and the tribes that have the most different size faces and noses are those that are 5500 kilometers from each other. There is no significant spatial autocorrelation for those tribes that are between 1500 kilometers and 5000 kilometers in terms of the length of their faces and noses. No strong autocorrelation occurs after 5500 kilometers with the exception of slightly significant positive spatial autocorrelation at 8500 kilometers.

Canonical axis 3's correlogram has its highest positive autocorrelation at 500 kilometers, which decreases to no autocorrelation at 2000 kilometers. Non-significant autocorrelation continues to 3000 kilometers where significant positive autocorrelation appears again at 3500 kilometers. There is then an alteration of no positive autocorrelation and significant positive autocorrelation from 4000 kilometers to 5000 kilometers where a decline to significant negative autocorrelation begins and appears at 5500 kilometers. The most significant negative autocorrelation appears at 6500 kilometers and 8500 kilometers. This pattern represents what has been called long-distance differentiation (Sokal et al., 1989a). The correlogram based on canonical axis 3 means that nasal breadth is most similar in tribes that are within 500 kilometers of each other, and is most different in tribes that are located 6500 and 8500 kilometers apart.

The correlograms in Figure 6.6 reveal patterns that are less interpretable. The correlogram from canonical axis 4 shows positive autocorrelation at 500 kilometers like the correlograms in Figure 6.5; however, the Moran's I coefficient for that distance class is much lower than any other I coefficient at that distance class. It is also the least significant of all the I coefficients at the first distance class.

Autocorrelation then decreases to 1500 kilometers where statistically significant negative autocorrelation appears. Significant autocorrelation does not appear again until 7500 kilometers where it is positive. Autocorrelation is then negative, but not significant, thereafter.
It appears that this correlogram is representative of a random pattern even though the correlogram was found to be Bonferroni significant. If one looks at the Moran's I coefficients in Table 6.12, based on canonical axis 4, the coefficients are quite low. This also hints at a random pattern in the correlogram based on canonical axis 4 in Figure 6.6.

The correlogram based on canonical axis 5 starts out in a similar way to the correlogram based on canonical axis 4, but at 4500 kilometers it shows significant negative autocorrelation that decreases at 5000 kilometers, though it is still significant. At 5500 kilometers significant positive autocorrelation reappears, which decreases to non-significant negative autocorrelation at 6500 kilometers where autocorrelation remains non-significant and negative throughout the rest of the correlogram.

This means that since canonical axis 5 had its highest loadings on face breadth, close tribes (within 500-1000 kilometers of each other) have similar sized face breadths as do those tribes that are 5500 kilometers apart. Tribes located 1500, 3000, and 4500-5000 kilometers apart are most different. Therefore, face breadth seems to vacillate between small areas of similarity and dissimilarity. This appears to be an example of local patchiness where the areas of greatest dissimilarity and similarity are statistically significant. Though the pattern revealed here looks very similar to a crazy quilt pattern discussed by Sokal and Oden (1978a), significant positive autocorrelation at short distances followed by a vacillation of dissimilar and similar patches probably qualifies this correlogram as a pattern of isolation-by-distance.

Canonical axis 6 resulted in a correlogram with a depression at 2000 and 2500 kilometers and mostly non-significant negative autocorrelation until 4000 kilometers where positive autocorrelation begins, which becomes significant at 4500 kilometers. Significant positive autocorrelation continues to increase until 5500 kilometers where it begins to decrease to non-significant negative autocorrelation.

Based on the configuration of this correlogram, tribes at 500 kilometers are most alike in the magnitude of the length of the face and tribes at 2000 and 2500 kilometers are most unalike. Similarity in the length of the face increases at 4500 kilometers and continues to 5500 kilometers. Therefore, this pattern represents a sort of quasi-double depression (Barbujani et al., 1994a).

Even though the patterns generated by canonical axes 4-6 were found to be Bonferroni significant, it must be remembered that these axes explained only approximately 25% of the variation, while the first three axes explained more than 75% of the variation.

The correlograms constructed from Geary's c coefficients based on the first 3 canonical axes calculated from the head data are found in Figure 6.7. The Geary's c correlogram based on canonical axis 1 is similar to the Moran's I correlogram in that they both represent a depression. This particular correlogram has significant positive autocorrelation at 500 kilometers and at 1500 kilometers. There is non-significant negative and positive autocorrelation until 4500 kilometers where the autocorrelation becomes significantly negative, just as it does in the Moran's I correlogram for this canonical axis. Significant negative autocorrelation continues to 5000 kilometers where autocorrelation increases to positive autocorrelation until it becomes significant at 7500 kilometers. Surprisingly, autocorrelation at extremely far distances is not

significantly positive even though the Geary's c coefficient is higher at 9500 kilometers than the Geary's c coefficient at 500 kilometers. One explanation for this is that there are too few pair wise distance connections to register significance at the highest distance classes. In any event, it appears that this correlogram is clinal up to 4500 kilometers, albeit more of a gradual cline. After 4500 kilometers the cline is more abrupt, which may be due to the switch from 500 kilometer distance classes to 1000.

As with the Moran's I correlogram for this canonical axis, tribes that are within 500 kilometers are the most alike in terms of the size of cranial length and breadth. Tribes are most unalike in the magnitude of these two variables at 4500 kilometers. Similarity then increases, although non-significantly, until 9500 kilometers so that tribes that are located this distance apart have cranial lengths and breadths most similar in size even though the Geary's c coefficient is not significant for this distance class. This pattern as with the Moran's I correlogram based on canonical axis 1 also represents a depression or regional patchiness (Barbujani, 2000; Sokal and Oden, 1978a; Sokal et al., 1989a).

Canonical axis 2's Geary's c correlogram has its highest positive autocorrelation at 500 kilometers, though it is not strongly significant. No other significant positive autocorrelation is present. The highest significant correlation is at 1500 kilometers, but it is negative. There is another peak of negative autocorrelation similar to that in the Moran's I correlogram of canonical axis 2 at 5500 kilometers, but it is not significant. In any event, this correlogram is similar to that of the Moran's I correlogram for canonical axis 2 because of the similar peak of negative autocorrelation at 5500 kilometers and because of its lack of significant autocorrelation. There seems to be a similar alteration of

non-significant negative and positive autocorrelation from about 1000 kilometers to 5500 kilometers.

Therefore, tribes would be most similar in face length and nose length at 500 kilometers, but most different in these dimensions at 1500 kilometers. The small depression located at 1500 kilometers makes this pattern one of quasi-regional patchiness or quasi-isolation-by-distance (Barbujani et al., 1994a).

The correlogram based on canonical axis 3 in Figure 6.7 reveals a depression (Barbujani, 2000; Sokal and Oden, 1978a). This pattern, as with all the other correlograms discussed thus far, begins with significant positive autocorrelation at 500 kilometers. A decrease to non-significant negative autocorrelation follows at 1000 kilometers, increasing to significant positive autocorrelation from 1500 to 3500 kilometers. At 4000 kilometers autocorrelation becomes negative and reaches peak significant negative autocorrelation at 6500 kilometers. This part of the correlogram, as with the corresponding Moran's I correlogram in Figure 6.5, represents a cline where the autocorrelation does not decline monotonically. Finally, the negative autocorrelation in this Geary's c correlogram decreases to non-significant positive autocorrelation at 9500 kilometers.

There is a similar meaning here, as in the other correlograms thus far discussed, which exhibited a depression or regional patchiness. In this case, tribes that are included in distance classes with significant positive autocorrelation had similar dimensions of nasal breadth, and those that were included in distance classes with significant negative autocorrelation were most different in the size of this variable.

Figure 6.8 contains the Geary's c correlograms from canonical axes 4-6. As discussed earlier, these correlograms were constructed from

canonical variates, which explain only around 25% of the variation in the head data. In addition, none of the spatial correlograms in this figure were found to be Bonferroni significant; consequently, no further discussion is needed on Figure 6.8.

Figure 6.9 presents the Moran's I correlograms constructed from canonical axes 1-3 of the body data. The correlogram based on canonical axis 1 begins with high significant positive autocorrelation at 500 kilometers, which declines to non-significant negative autocorrelation at 2500 kilometers. Negative autocorrelation increases and peaks at 3500 kilometers where it becomes significant. Negative autocorrelation then declines and becomes significantly positive at 4500 kilometers. This significant positive autocorrelation begins to decline at 4500 kilometers, turns significantly negative at 5500 kilometers, and declines and peaks at 7500 kilometers.

In this correlogram the decline to negative autocorrelation appears to be monotonic and would, therefore, represent a partial cline to 4000 kilometers. The spike of positive autocorrelation at 4500 and 5000 kilometers interrupts the monotonic decline. The monotonic decline then resumes at 5000 kilometers. This pattern appears to me to indicate long distance differentiation, but classification of the pattern as a cline cannot be ruled out.

Since canonical axis 1 loads most heavily on all body variables except sitting height and shoulder width, the tribes with the most similarity in these variables would occur at the lowest distance classes up to 2000 kilometers and at 4500 and 5000 kilometers. Tribes with the most heterogeneous dimensions of these variables would occur at 7500 to 9500 kilometers.

The correlogram corresponding to canonical axis 2 in Figure 6.9, as with most of the correlograms in this study, begins with its highest

significant positive autocorrelation at 500 kilometers, but this positive autocorrelation drops off rapidly to significantly negative autocorrelation at 2000 kilometers. Autocorrelation increases to significant positive autocorrelation at 3000 kilometers where it begins to decrease to the most significant negative autocorrelation at 4500 kilometers. There is then an upward trend to significant positive autocorrelation at 5500 kilometers, which decreases to non-significant positive autocorrelation at 6500 kilometers. Autocorrelation then alternates between negative and positive non-significant Moran's I values.

Therefore, canonical axis 2, which has its heaviest loadings on sitting height, shoulder width, and leg length, would be most homogeneous in tribes located within the lowest distance class. This homogeneousness decreases to 2000 kilometers and so on. Tribes located at 3000, 3500, and 5500 would also be homogeneous with respect to these variables. The most significant negative autocorrelation, at 4500 kilometers, would result in tribes with the highest heterogeneity of these variables in the study area.

However, the pattern here is more difficult to classify. It appears that this correlogram represents an example of a double depression, although it does not follow the simulated example presented by Sokal and Oden (1978a).

The correlogram based on canonical axis 3 from the body data shows a monotonic decline in positive autocorrelation from being significant at 500 kilometers to non-significantly negative at 2500 kilometers. There is then a further decline of autocorrelation to significant negative autocorrelation at 3000 and 3500 kilometers. Autocorrelation then increases to non-significant autocorrelation at 5000 kilometers, and significant autocorrelation never appears through the rest of the correlogram.

This pattern appears to represent regional patchiness up to 3500 kilometers (Sokal et al., 1989a). So this pattern would be classified as a depression, albeit a shallow one (Barbujani, 2000; Sokal and Oden, 1978a).

The variables most strongly loaded in canonical axis 3 of the body data were armspan or stretch, shoulder width, and arm length even though none of these variables was strongly loaded. Therefore, when the autocorrelation was most positive at 500 but declining to 2500 kilometers these variables would have been most homogeneous among the tribe separated by the closest distances, but homogeneousness would have decreased with decreasing positive spatial autocorrelation. The variables would have been most heterogeneous among tribes separated by 3000 and 3500 kilometers. The heterogeneity would have decreased, but not significantly, to 5000 kilometers.

Figure 6.10 contains the correlograms based on canonical axes 4-6. Canonical axis 4 resulted in a correlogram that shows a quick decrease in significant positive autocorrelation from 500 kilometers to 1500 kilometers. Negative autocorrelation appears at 2000 kilometers but it does not become significant until 4000 kilometers. There is then an alternation of non-significant and significant negative autocorrelation until 9500 kilometers where autocorrelation becomes significantly positive again. In fact, the positive autocorrelation is the highest of the entire correlogram.

This canonical axis had its heaviest loadings on shoulder width, so homogeneity of this variable would be its highest among tribes located at 500-1000 kilometers and at 9500 kilometers. Heterogeneity of this variable would be found among tribes that are separated by 1500-8500 kilometers. Significant heterogeneity would be among tribes separated by distances of 4000, 5000, 5500, and 7500 kilometers. This pattern

does resemble a depression, but the cline that is normally present to the highest significant negative autocorrelation is not monotonic. This pattern is more reminiscent of a depression (Barbujani, 2000; Sokal and Oden, 1978a) with high positive autocorrelation but low negative autocorrelation.

The correlogram based on canonical axis 5 of the body data is made up of rather low Moran's I coefficients. Autocorrelation at 500 kilometers is significantly positive, but it does not appear to be strong. The autocorrelation then decreases to significant negative autocorrelation at 2000 kilometers, but again the autocorrelation is not strong. Significant and non-significant negative autocorrelation then alternate until the autocorrelation increases to non-significant positive autocorrelation at 3500 kilometers. However, significant positive autocorrelation does not occur until 5000 kilometers. This is the highest positive autocorrelation in the correlogram. The highest negative autocorrelation does not occur until 7500 kilometers. Even these values are not very high.

This correlogram appears to be an example of an intrusion because the highest significant positive autocorrelation occurs at 5000 kilometers, one of the intermediate distance classes (Barbujani et al., 1994).

In addition, the loadings on canonical axis 5 were not very high for any of the body variables, but the highest loadings were on shoulder height, sitting height, shoulder width, and arm length. Therefore, tribes separated by 500 and 5000 kilometers would be most homogeneous with respect to the highest loaded variables in this canonical axis. Tribes separated by 2000, 3000, and 7500 kilometers would be most different with respect to these variables.

The correlogram based on canonical axis 6 was not a very strongly

significant one. In fact, significant positive autocorrelation does not appear until 3500 kilometers. Positive autocorrelation then decreases to non-significant negative autocorrelation at 4500 kilometers. There is then an increase of autocorrelation to non-significant positive autocorrelation at 5000 kilometers followed by a decrease to significant negative autocorrelation at 5500 kilometers.

Like canonical axis 5, canonical axis 6 did not have strong loadings on any variable, in fact, other than sitting height, the loadings were even weaker in canonical axis 6. Therefore, sitting height was the most heavily loaded variable. This means that tribes would have been most homogeneous at 3500 kilometers, and most heterogeneous at 5500 kilometers with respect to sitting height.

Finally, this correlogram appears to reveal an intrusion pattern because, as with the correlogram of canonical axis 5, the highest significant positive autocorrelation is at one of the intermediate distance classes, 3500 kilometers (Barbujani et al. 1994). In addition, as with the head data, canonical axes 4-6 only explained approximately 25% of the variation in the data and this is revealed in the types of patterns that were uncovered when the Moran's I coefficients were plotted.

The Geary's c correlograms based on canonical axes 1-3, in Figure 6.11, are somewhat similar to those constructed from the Moran's I coefficients. The Geary's c correlogram based on canonical axis 1 appears to be clinal up to 7500 kilometers. Then the autocorrelation appears to decrease to 9500 kilometers where it becomes non-significant. The cline begins at 500 kilometers, where positive autocorrelation is strongest. Significant positive autocorrelation decreases to 3500 kilometers where it becomes non-significant. Negative autocorrelation begins at 4000 kilometers, but it does not become significant until 5000

kilometers. This significant negative autocorrelation continues until 7500 kilometers where it reverses direction, begins to decrease, but remains significant until 9500 kilometers. This decline in autocorrelation from 500 kilometers to 7500 kilometers does indeed represent a monotonic decline, which is described as a cline in the literature (Sokal and Oden, 1978a, Barbujani, 2000).

As mention above, Canonical axis 1 had its heaviest loadings on shoulder height, armstretch, leg length, and arm length. Therefore, these variables would be most alike in tribes that are at close distance classes and most different in tribes that are 7500 kilometers apart. However, heterogeneity decreases in these variables in tribes located 8500 kilometers apart, but it is still significant.

The Geary's c correlogram based on canonical axis 2 has its most significant positive autocorrelation at 500 kilometers then decreases to non-significant autocorrelation at 1000 and 1500 kilometers. Significant negative autocorrelation appears at 2000 kilometers, which quickly increases to significant positive autocorrelation at 2500 kilometers. There is then a decline of autocorrelation to significant negative autocorrelation at 4500 kilometers where an increase of autocorrelation begins to positive, but not significant, autocorrelation at 5500 kilometers. An alteration of non-significant negative and positive autocorrelation occurs over the rest of the correlogram.

Again, as has been mentioned above, canonical axis 2 has its highest loadings on sitting height, shoulder width, and leg length though no variable really has high loadings in this canonical axis. In terms of these variables, tribes are most homogeneous at 500 and 2500 kilometers. Tribes located at 2000 kilometers and 4500 kilometers would have heterogeneous dimensions of these variables.

This pattern appears to be an example of a depression (Barbujani, 2000; Sokal and Oden, 1978a), with its highest negative autocorrelation at 4500 kilometers. However, the depression pattern is not as strong as has been seen in some correlograms thus far discussed.

Canonical axis 3's Geary's c correlogram presents a depression of sorts. However, there is little significant autocorrelation. Autocorrelation is significant only at 500 kilometers, which is positive, 2500 kilometers, which is negative, and 3000 kilometers, which is also negative. The autocorrelation then increases to non-significant positive autocorrelation throughout the rest of the correlogram.

Since the highest loadings in the 3rd canonical axis are on arm stretch, shoulder width and arm length, tribes that are located within 500 kilometers of each other would be homogeneous for these variables. Tribes that are located 2500 and 3000 kilometers away from each other would be most homogeneous in terms of these variables.

Finally, the Geary's c correlograms based on canonical axes 4-6 are shown in Figure 6.12. However, very few of the Geary's c Coefficients calculated from these canonical axes were found to be significant and none were strongly so. Therefore none of the resulting correlograms was found to be Bonferrroni significant; consequently, none of these correlograms will be discussed.

Two-Dimensional Correlograms

One drawback to the one-dimensional correlograms is that they do not show the compass direction of the pattern that is revealed. Therefore, two-dimensional correlograms are employed, which are presented in Figures 6.13-6.21. Ideally two-dimensional correlograms should be completely circular, however, when there are not enough distance direction classes to calculate a spatial coefficient that area is left

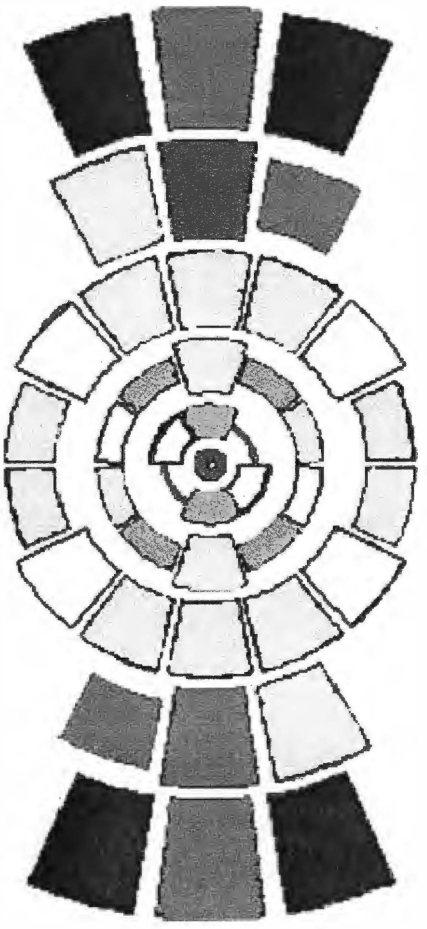

Figure 6.13. Moran's I Two-Dimensional Correlogram Based on Canonical Axis One from the Head Data. Shading is as follows: from -0.8504 to -0.6845, no shading; from -0.5186 to -0.3528, light gray; from -0.1869 to -0.0210, medium gray; from 0.1449 to 0.3108, dark gray; from 0.4766 to 0.8084, black. Large blocks are significant at $p < 0.05$, while small blocks are not significant.

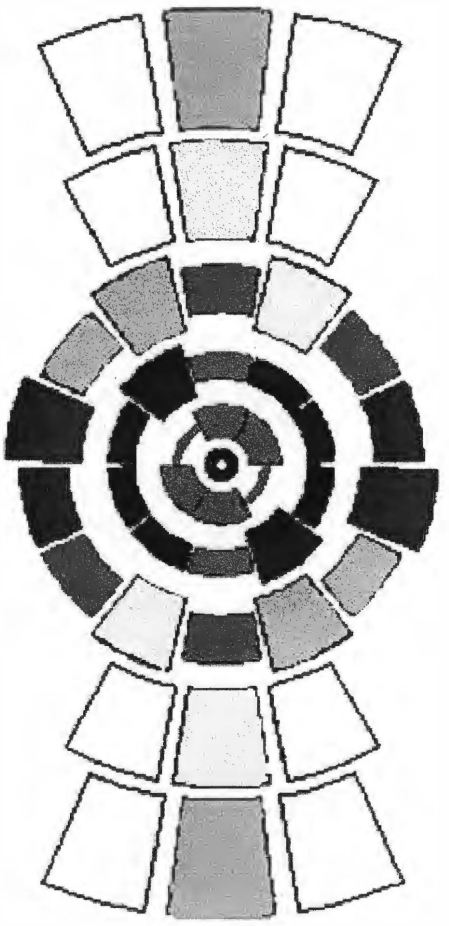

Figure 6.14. Moran's I Two-Dimensional Correlogram Based on Canonical Axis Three from the Head Data. Shading is as follows: from -1.0177 to -0.8709, no shading; from -0.7242 to -0.5774, light gray; from -0.4306 to -0.2838, medium gray; -0.1371 to 0.0097, dark gray; from 0.1565 to 0.4500, black. Large blocks are significant at $p < 0.05$, while small blocks are not significant.

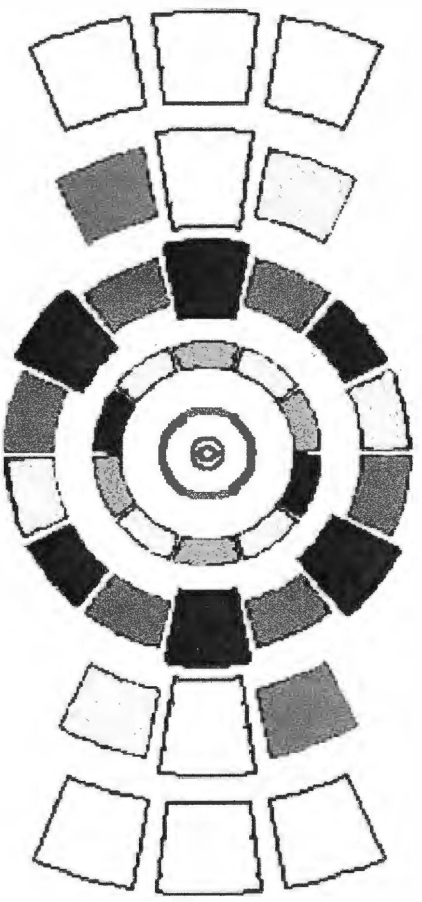

Figure 6.15. Geary's c Two-Dimensional Correlogram Based on Canonical Axis One from the Head Data. Shading is as follows: from 0.0715 to 0.0952, no shading; from 0.6863 to 0.8529, light gray; from 0.9662 to 0.9952, medium gray; from 1.1130 to 1.2927, dark gray; from 1.6030 to 2.2352, black. Large blocks are significant at $p < 0.05$, while small blocks are not significant.

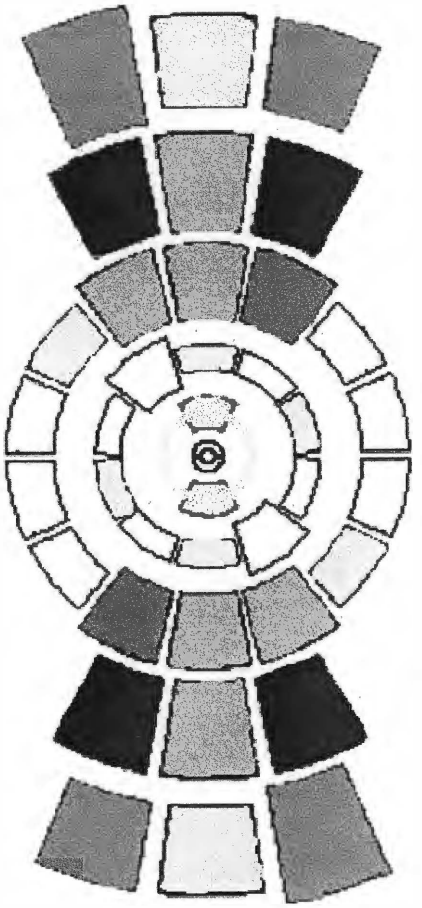

Figure 6.16. Geary's c Two-Dimensional Correlogram Based on Canonical Axis Three from the Head Data. Shading is as follows: from 0.2886 to 0.5303, no shading; from 0.7720 to 1.0138, light gray; from 1.2555 to 1.4972, medium gray; from 1.7389 to 1.9806, dark gray; from 2.2224 to 2.7058, black. Large blocks are significant at $p < 0.05$, while small blocks are not significant.

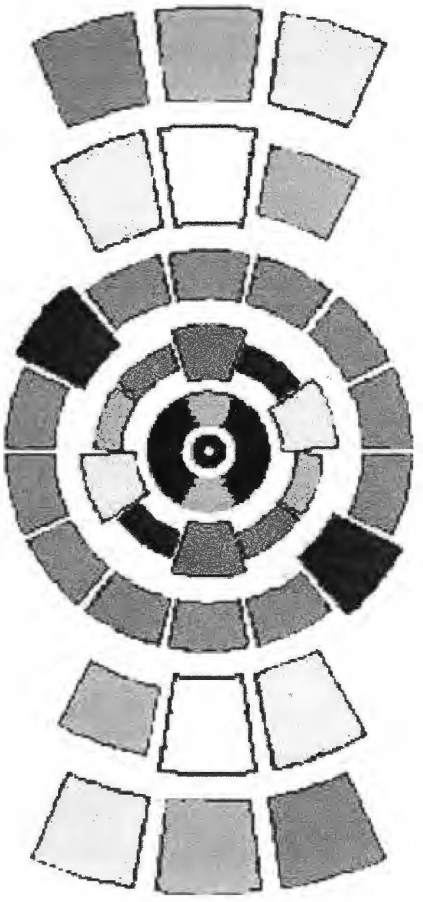

Figure 6.17. Moran's I Two-Dimensional Correlogram Based on Canonical Axis One from the Body Data. Shading is as follows: from -1.1734 to -1.0005, no shading; from -0.8277 to -0.6548, light gray; from -0.4819 to -0.3090, medium gray; from -0.1362 to 0.0367, dark gray; from 0.2096 to 0.5553, black. Large blocks are significant at $p < 0.05$, while small blocks are not significant.

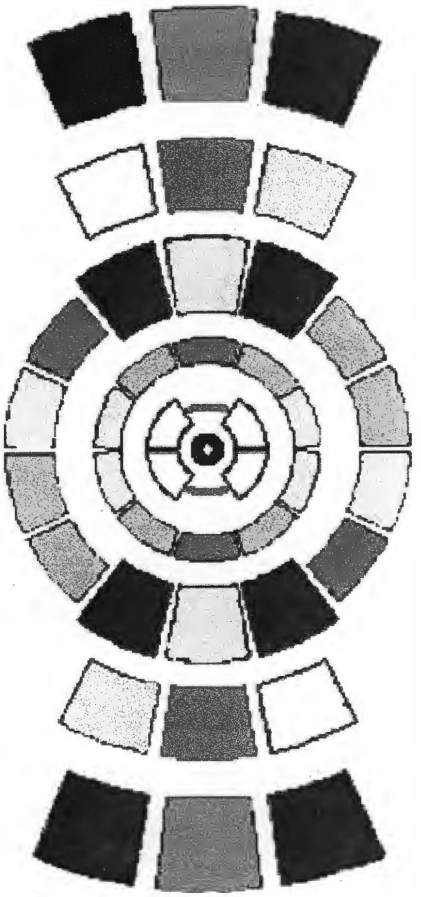

Figure 6.18. Moran's I Two-Dimensional Correlogram Based on Canonical Axis Two from the Body Data. Shading is as follows: from -0.5286 to -0.4832, no shading; from -0.2068 to -0.0855, light gray; from -0.0689 to -0.0608, medium gray; from -0.0301 to 0.0071, dark gray; from 0.0819 to 0.7061, black. Large blocks are significant at $p < 0.05$, while small blocks are not significant.

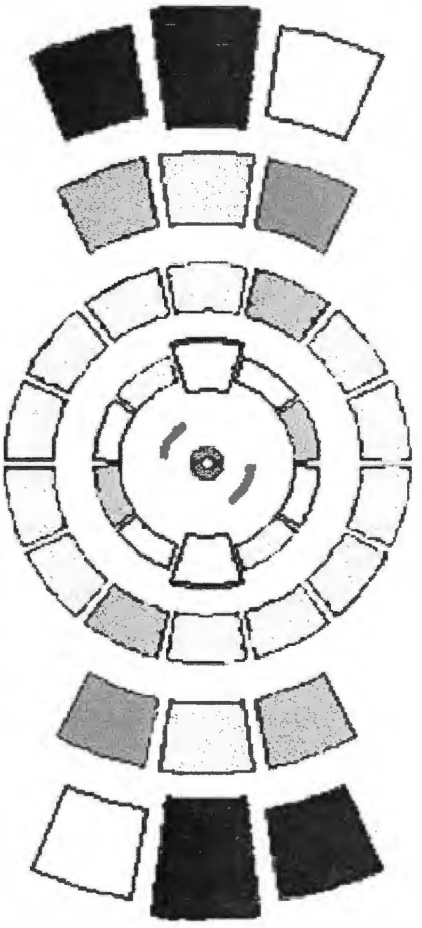

Figure 6.19. Moran's I Two-Dimensional Correlogram Based on Canonical Axis Three from the Body Data. Shading is as follows: from -0.2543 to -0.1876, no shading; from -0.1208 to -0.0541, light gray; from 0.0126 to 0.0793, medium gray; from 0.1461 to 0.2128, dark gray; from 0.2795 to 0.4130, black. Large blocks are significant at $p < 0.05$, while small blocks are not significant.

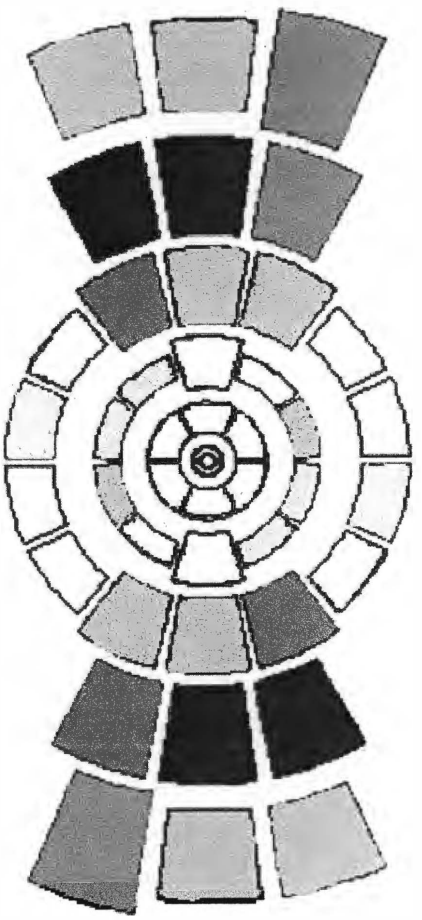

Figure 6.20. Geary's c Two-Dimensional Correlogram Based on Canonical Axis One from the Body Data. Shading is as follows: from 0.2296 to 0.5520, no shading; from 0.8743 to 1.1967, light gray; from 1.5191 to 1.8414, medium gray; from 2.1638 to 2.4862, dark gray; from 2.8086 to 3.4533, black. Large blocks are significant at $p < 0.05$, while small blocks are not significant.

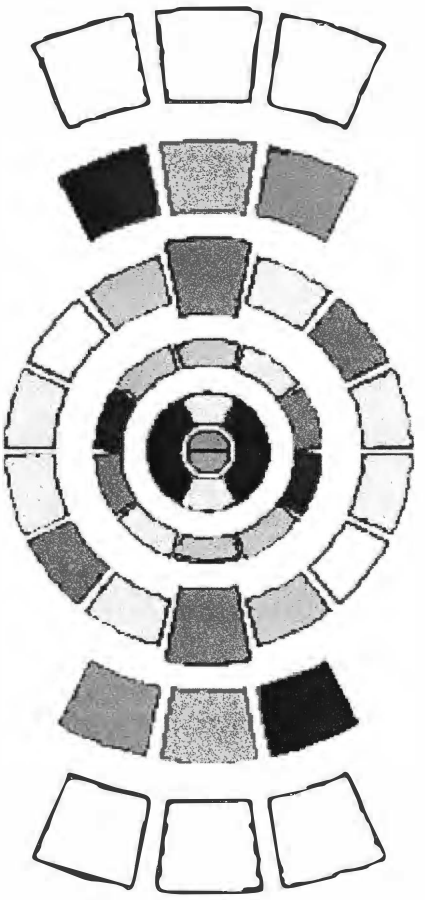

Figure 6.21. Geary's c Two-Dimensional Correlogram Based on Canonical Axis Two from the Body Data. Shading is as follows: from 0.0648 to 0.5384, no shading; from 0.5474 to 0.7748, light gray; from 0.8521 to 0.9084, medium gray; from 0.9736 to 1.0455, dark gray; from 1.5665 to 2.2870, black. Large blocks are significant at $p < 0.05$, while small blocks are not significant.

blank so that all circles in the correlogram are not complete. Therefore when coefficients could not be realized for this study, blank sections appeared and resulted in incomplete circles (i.e. distance classes). In addition, the two-dimensional correlograms are shaded according to the level of the Moran's I or Geary's c coefficient calculated according to each distance-direction class. The shading ranges from black to white or no shading. The higher the Moran's I, the darker the shading, the higher the Geary's c, the darker the shading. However, the darker the Moran's I, the more positive is the I coefficient; the darker the Geary's c, the more negative the c coefficient.

In the caption for each figure, I mentioned that small blocks are not significant. This statement is relative to each concentric circle. The blocks in the outer circle are the largest and the blocks in each circle get smaller the closer they get to the center. The center block is almost always the smallest. Therefore, the smallest blocks in each circle are the ones that are not significant. This situation appears to be an artifact of the way distance direction classes were calculated in the C2D program. The C2D program calculated all Moran's I and Geary's c statistics and then used them to construct the two-dimensional correlograms.

For this study, the C2D program constructed 24 two-dimensional correlograms, six each based on Moran's I from the head and body data and six each based on Geary's c from the head and body data. Out of these 24 correlograms, the C2D program found 14 to be Bonferroni significant. The significant correlograms were made up of those constructed from the Moran's I coefficients from canonical axes 1,3, 5, and 6 from the head data and canonical axes 1-6 from the body data. Signficant two-dimensional correlograms constructed from Geary's c coefficients were based on canonical axes 1 and 3 from the head data

and canonical axes 1 and 2 from the body data. As was written above, because some of the canonical axes explained only very small amounts of the variation exhibited by the data, canonical axes 4-6 from the head and body data were not included in this discussion. Therefore, only 9 two-dimensional correlograms were included. Figures 6.13-6.21 included two-dimensional correlograms constructed from Moran's I coefficients based on canonical axes 1 and 3 from the head data, and correlograms constructed from Geary's c coefficents based on canonical axes 1 and 3. The body data produced two-dimensional correlograms based on Moran's I calculated from canonical axes 1-3 and those based on Geary's c calculated from canonical axes 1 and 2.

With the above being said, a discussion of the results of the two-dimensional correlograms can be presented. Detailed instructions about how to interpret two-dimensional correlograms are provided in Oden and Sokal (1986). Figure 6.13, which is based on the Moran's I coefficients calculated from canonical axis 1 of the head data, represents a depression. According to Oden and Sokal, a depression pattern is represented by an area of high spatial autocorrelation in the center, or lowest distance/direction class, followed by a decrease to more moderate spatial autocorrelation in the moderate distance/direction classes and increasing to high positive spatial autocorrelation at greater distance/direction classes. This is what happens in this correlogram which matches the one-dimensional correlogram constructed from canonical axis 1 (figure 6.5).

Figure 6.14 is based on the Moran's I coefficients calculated from canonical axis three of the head data. It represents long-distance differentiation in a north-south direction. This is because there is a ridge of high values running east to west and the pattern would be classified

as a cline or long-distance differentiation running in a north-south direction. According to Oden and Sokal (1986) a cline always runs perpendicular to the ridge of high values. The pattern shown in this direction most coincides with the one-dimensional correlogram from canonical axis 3 in Figure 6.5. Long-distance differentiation has been classified as a cline (see for example Barbujani et al., 1994) and in some of Sokal's more recent work he attributes a direction to this pattern (i.e. Falsetti and Sokal, 1993). The long-distance differentiation pattern in this study begins with high significant positive autocorrelation at 500 kilometers, decreases to significant negative autocorrelation at 1500 kilometers, then non-significant autocorrelation at 3000 and 5000 kilometers, with autocorrelation decreasing to being significantly negative at 7500, and finally increasing in negative autocorrelation at 10,500 kilometers. Again, this is somewhat similar to the pattern representing canonical axis 3 in Figure 6.5 and represents long-distance differentiation. Therefore, long-distance differentiation running in a north south direction can be thought to be the more likely pattern.

Figure 6.15 is constructed from the Geary's c coefficients based on canonical axis 1. This two-dimensional correlogram is similar to the two-dimensional correlogram of canonical axis 1 from the head data, which was classified as a depression. Figure 6.15 shows high values in the center (500km) and the values drop-off to moderate autocorrelation levels at the intermediate distance/direction classes and returns to higher levels of autocorrelation at the greater distance/direction classes. Consequently, this two-dimensional correlogram can also be classified as a depression

Figure 6.16 is also a Geary's c two-dimensional correlogram, but it is

based on canonical axis 3 calculated from the head data. It runs in a north-south direction and most closely corresponds to the one-dimensional correlogram in Figure 6.7 that is calculated based on canonical axis 3. The two-dimensional correlogram begins with significant positive autocorrelation at 500 kilometers, which continues through 1500 kilometers. At 3000 kilometers the positive autocorrelation becomes insignificant, but becomes significant negative autocorrelation at 5000 and 7500 kilometers. The autocorrelation then becomes nonsignificant again at 10,500. This pattern also represents a cline because there is a ridge of high values running east to west and the cline runs perpendicular to this ridge of high values making it a north-south cline.

Figure 6.17 is based on the Moran's I coefficients calculated from canonical axis one of the body data. This two-dimensional correlogram has a ridge of high values that runs in a northwest to southeast direction and another ridge of high values going from northeast to southwest. Because it is impossible to have a cline running perpendicular to either ridge of high values it appears that the two ridges would cancel each other out. The pattern would therefore be a north-south cline. This two-dimensional correlogram begins with significant positive autocorrelation at 500 kilometers, then decreases to significant negative autocorrelation at 1500 and 3000 kilometers. There is then an increase of autocorrelation to non-significant positive autocorrelation at 5000 kilometers, a decrease to significant negative autocorrelation at 7500 kilometers, and an increase to non-significant negative autocorrelation at 10500 kilometers. This pattern is, thus, representative of a cline although the monotonicity up to 7500 kilometers does not appear to be strongly clinal. In any event, this two-dimensional

correlogram seems to represent a north-south cline.

The following two-dimensional correlogram, Figure 6.18, is based on the Moran's I coefficients calculated from canonical axis 2 from the body data. It seems to correspond most closely to the pattern of the one-dimensional correlogram in Figure 6.9 based on canonical axis 2. This two-dimensional correlogram shows more of a regionally patchy pattern in which the highest significant positive autocorrelation occurs at 500 kilometers. The autocorrelation then decreases to more moderate autocorrelation at 1500 and 3000 kilometers. Significant negative autocorrelation then picks up at 5000 kilometers and decreases to non-significant autocorrelation at 7500 and 10500 kilometers. This pattern seems to be more of a depression or regionally patchy because it more closely follows the description of a depression pattern as discussed in Oden and Sokal (1986).

Figure 6.19 is based on the Moran's I coefficients calculated from canonical axis 3 of the body data. The pattern of the two-dimensional correlogram looks as if it most conforms to the one-dimensional correlogram based on canonical axis three in Figure 6.9. Again, this pattern has significant positive autocorrelation at 500 kilometers. The autocorrelation decreases to non-significant autocorrelation at 1500 kilometers, decreases further to negative autocorrelation at 3000 kilometers, increases to non-significant negative autocorrelation at 5000 and 7500 kilometers, and, finally, increases to an alternation of positive and negative autocorrelation at 10500 kilometers. Because autocorrelation increases to mostly positive autocorrelation at the greater distance classes, the pattern revealed by this two-dimensional correlogram can only be classified as a depression. Therefore, this pattern can be said to be regional patchiness or a depression.

The last two figures of the two-dimensional correlograms are based on the Geary's c statistics calculated from canonical axes one and two of the body data. Figure 6.20 is based on the c statistics from canonical axis 1. The two-dimensional correlogram in this figure most closely coincides with the one-dimensional correlogram of canonical axis 1 in Figure 6.10 and shows that it runs in a north-south direction because of the ridge of high values running east to west (see Oden and Sokal, 1986). The two-dimensional correlogram, as with almost all the other two-dimensional correlograms discussed thus far, begins with significant positive autocorrelation at 500, but there is also significant positive autocorrelation at 1500 and 3000 kilometers. This is indicative of a gradual monotonic decline in positive autocorrelation. Significant negative autocorrelation begins at 5000 kilometers and further declines to its most significant negative autocorrelation at 7500 kilometers. At 5000 kilometers the decline in autocorrelation appears to have become steeper. Autocorrelation then increases to non-significant negative autocorrelation at 10,500 kilometers. The pattern revealed here is probably the best example of a cline in the entire study.

Finally, Figure 6.21 is based on the Geary's c coefficients from canonical axis 2. This correlogram shows no clear pattern. Because there is no ridge of high values in any direction, it cannot be called a cline. Because there is not an area of high values at the lowest distance/direction class followed to a decline to more moderate spatial autocorrelation at more moderate distance/direction classes followed by a return to higher negative values, the pattern cannot be labeled a depression. Because there are no areas of alternating high and low areas of spatial autocorrelations at the more moderate to high distance/direction classes, the pattern cannot be classified as a patchy surface. Finally, because the correlogram is statistically significant, it cannot

represent stochastic processes such as gene drift. Therefore, there is no clear pattern to this two-dimensional correlogram.

One can then conclude that these two-dimensional correlograms mostly represent depressions (figures 6.13, 6.15, 6.18, and 6.19), but three patterns represent north-south clines (figures 6.16, 6.17, and 6.20), and another correlogram can be classify as long-distance differentiation also running in a north-south direction (figure 6.14). Finally, the last two-dimensional correlogram discussed (figure 6.21) represented no clear pattern.

Matrix Correlation

Another problem with spatial autocorrelation is that it is unable to assess the role that language plays in population variation. As discussed in Chapter 5, matrix correlation was utilized in this study to determine how, or if, language affected the variation in the data and, also, to asses the interplay between language and geographical distance on the variation in the data.

The results of the matrix correlation analysis are shown in Table 6.16. This table presents the matrix correlation and partial correlation results of the analysis performed on the head and body data. The results show no correlations between the head squared distance matrix and the geographical distance matrix or linguistic distance matrix. There are also no correlations between the geographical distance matrix holding the language distance matrix constant nor with the linguistic distance matrix holding the geographical distance matrix constant. In contrast, there are statistically significant differences between the body squared

Table 6.16. Matrix Correlations and Partial Correlations Among Geographic, Linguistic, and Head and Body Anthropometric Data.

	Head		Body	
Correlation with**	**r**	**p**	**r**	**p**
Geography	0.03158	0.278	0.38482	0.001*
Language	0.05604	0.153	0.26493	0.001*
Geo.Lang	0.00066	0.497	0.41575	0.001*
Lang.Geo	0.05869	0.182	0.09783	0.076

*significant at $p \leq 0.05$ ** 999 permutations

distance matrix and geographical distance matrix and linguistic distance matrix. Statistically significant differences also exist with the body squared distance matrix and the geographical distance matrix holding the language distance matrix constant, but not with the language distance matrix holding the geographical distance matrix constant.

Wombling Analysis

The results of the Wombling analysis are shown in Figures 6.22 and 6.23. The location of the points in the figures were determined by scaling the latitude and longitude according to the scaling of that used in the Womble 2 program. A table identifying the points in these figures with their scaled latitude and longitude is presented as Table 6.17. I accomplished the scaling by subtracting the minimum latitude (32.07°) from the other latitudes and setting each longitude to negative and adding the maximum longitude (230.17°) to the other longitudes. This was done to set the minimum and maximum coordinates to zero. The plot of the population localities was then superimposed onto the Wombling plot.

Figure 6.22 shows the Wombled average surface calculated from the head data, and Figure 6.23 shows the Wombled average surface calculated from the body data. The lines in the plot indicate the presence of barriers. Only the longest lines would represent barriers. Barbujani and colleagues' (1989) instruction has been to count only the largest 5% of vectors as significant. Therefore, only the largest 5% of vectors would be plotted. However, I chose to plot all vectors to give a frame of reference as to which vectors were the largest and which were the smallest and, therefore, not significant.

In Figure 6.22, Wombling on the head data uncovered very few

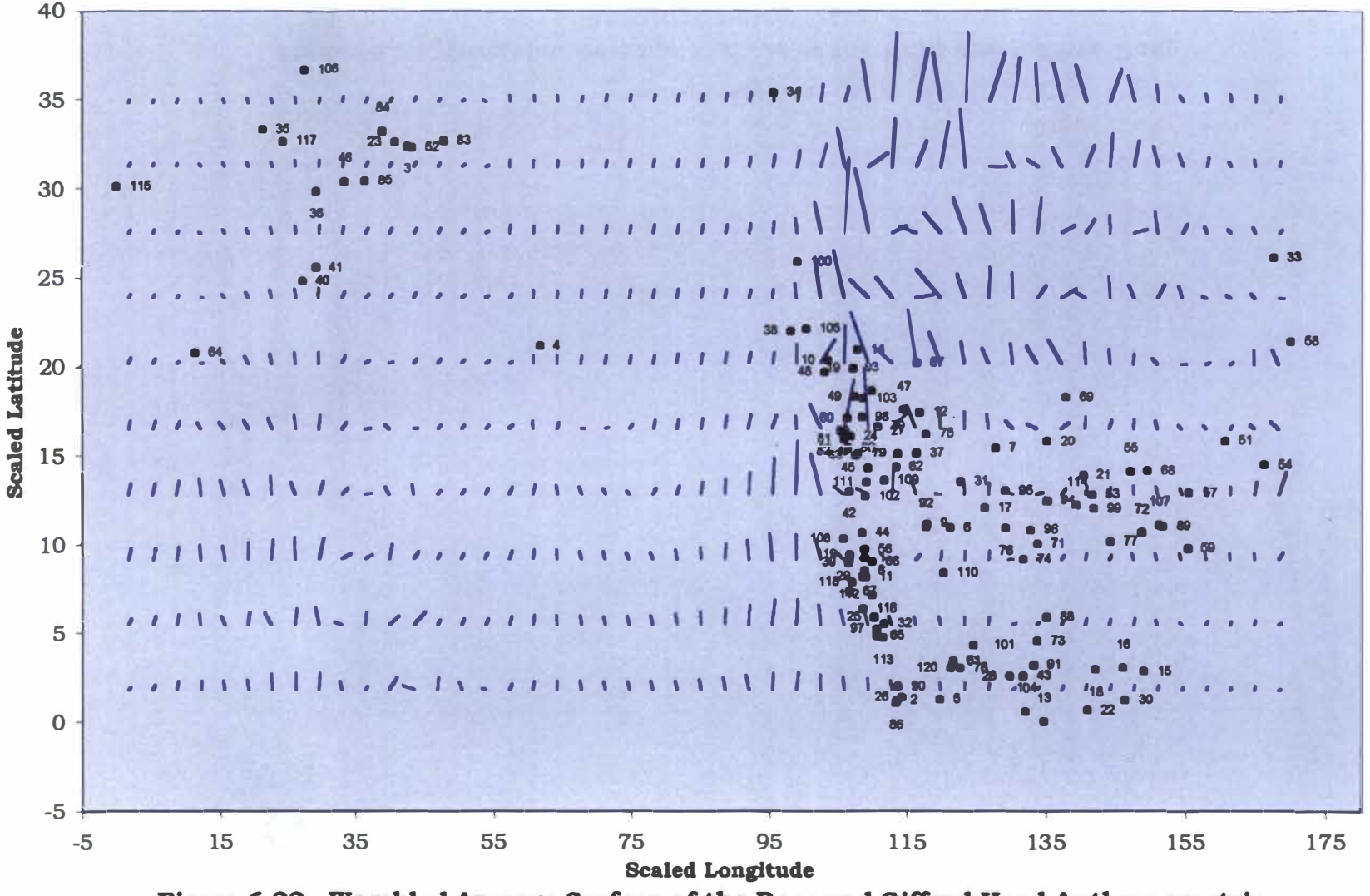

Figure 6.22. Wombled Average Surface of the Boas and Gifford Head Anthropometric Data.

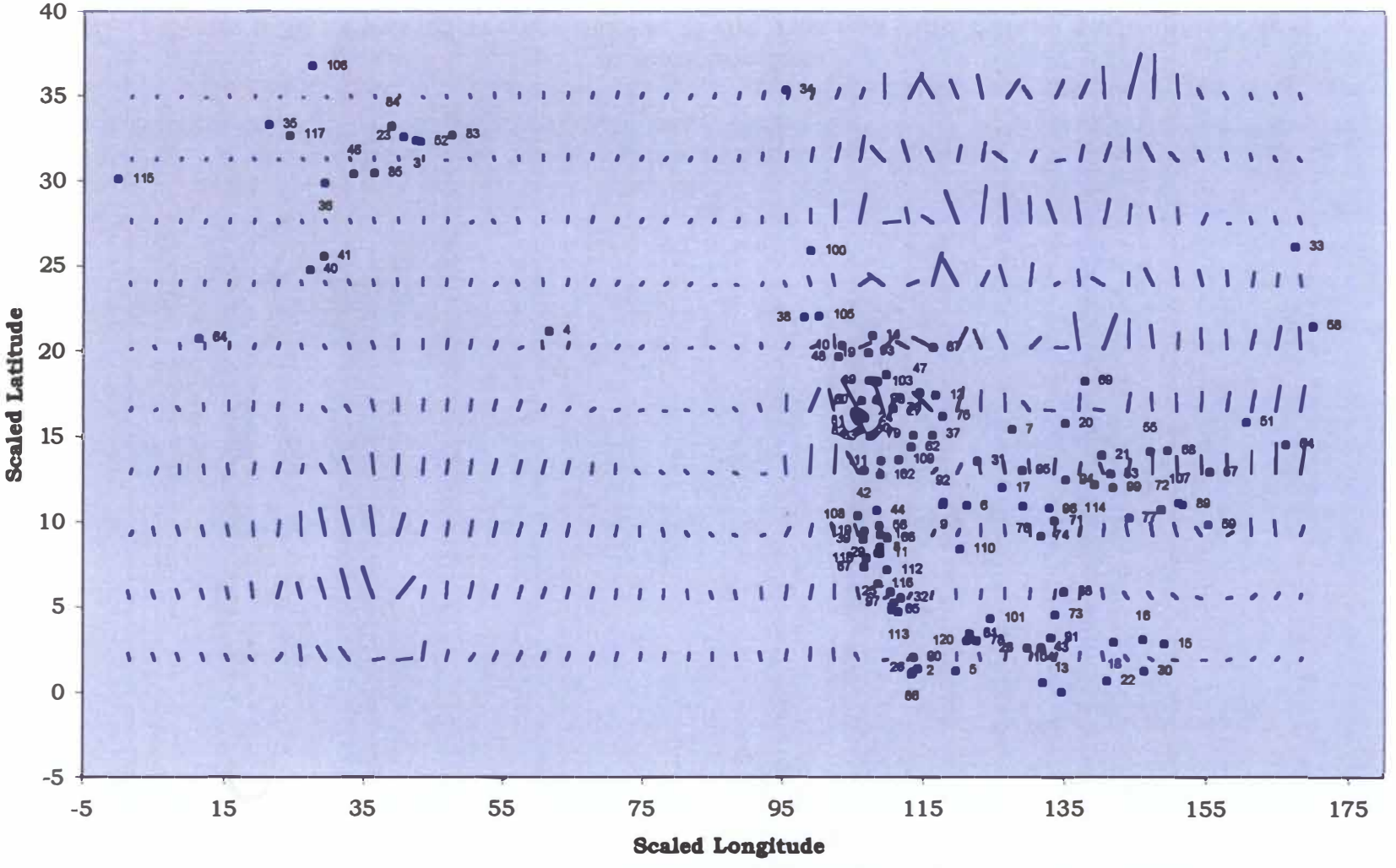

Figure 6.23. Wombled Average Surface of the Boas and Gifford Body Anthropometric Data

Table 6.17. Scaled Geographical Coordinates of Populations Used in the Wombling Analysis.

Population	Location	Latitude	Longitude
1. Achomawi	N. California	9.23°	108.92°
2. Agua Caliente	Warm Springs, CA	1.20°	113.55°
3. Aiwan	Indian Pt., Siberia	32.35°	42.42°
4. Aleut	Umnak Is., AK	21.18°	61.67°
5. Apache	San Carlos, AZ	1.28°	119.71°
6. Arapaho	Ft. Washakie, WY	10.93°	121.24°
7. Assiniboin	N. Dakota	15.43°	127.67°
8. Atsugewi	N. California	8.48°	108.92°
9. Bannock	Blackfoot, ID	11.13°	117.88°
10. Bella Coola	Bella Coola, BC	20.30°	103.42°
11. Big Meadow	Lake Almanor, CA	8.15°	109.00°
12. Blood	Blood Res., ALTA	17.41°	116.81°
13. Caddo	Cobb Creek, TX	0.00°	134.67°
14. Carrier	Quesnelle, BC	20.90°	107.69°
15. Catawba	Rock Hill Co., SC	2.84°	149.14°
16. Cherokee	Cherokee Co., NC	3.07°	146.11°
17. Cheyenne	S. Dakota	12.03°	126.17°
18. Chickasaw	Mississippi	2.93°	142.07°
19. Chilcotin	Hanceville, BC	19.85°	107.14°
20. Chippewa	Red Lake, MN	15.79°	135.17°
21. Chippewa	Lac Du Flambeau, WI	13.90°	140.29°
22. Choctaw	Neshoba Co., MS	0.68°	141.05°
23. Chuvantsy	Markovo, Siberia	32.60°	40.59°
24. Clallum	Port Angeles, WA	16.05°	106.75°
25. C. Miwok	C. California	5.88°	110.22°
26. Coahuilla	Salton, CA	1.40°	114.29°
27. Coeur d'Alene	De Smet Mission, ID	15.06°	113.63°
28. Comanche	Ft. Sill, OK	2.53°	129.77°
29. Concow	Round Valley, CA	8.16°	108.67°
30. Creek	Ocmulgee River, GA	1.25°	146.34°
31. Crow	Crow Agency, MT	13.53°	122.71°
32. E. Mono	C. California	5.53°	111.67°
33. Lab. Eskimo	Hebron, NFL	26.13°	167.54°
34. Mack. Eskimo	Ft. McPherson, NWT	35.36°	95.30°
35. Even	Nelemnoye, Siberia	33.30°	21.20°
36. Evenk	Nayakhan, Siberia	29.85°	29.14°
37. Flathead	Jocko R., MT	15.11°	116.32°
38. Haida	Masset, BC	21.95°	98.02°

Table 6.17 continued.

Population	Location	Latitude	Longitude
39. Hoopa	Hoopa Valley, CA	8.96°	106.52°
40. Itelman	Khayryuzovo, Siberia	24.76°	27.15°
41. Itelman	Sedanka, Siberia	25.53°	29.17°
42. Kalapuya	Grand Ronde, OR	12.98°	106.57°
43. Kiowa	Ft. Sill, OK	2.59°	131.76°
44. Klamath	Klamath Co., OR	10.61°	108.52°
45. Klickitat*	Ft. Simcoe, WA	14.26°	109.34°
46. Koryak	Kuel, Siberia	30.38°	33.39°
47. Kutenai	Ft. Steele, BC	17.55°	114.54°
48. Kwakiutl	Rivers Inlet, BC	19.63°	102.92°
49. Lillooet	Pemberton, BC	18.25°	107.35°
50. Makah	Neah Bay, WA	16.29°	105.56°
51. Malecite	Cacouna, QUE	15.85°	160.67°
52. Maritime Chukchi	Chechen, Siberia	32.30°	43.02°
53. Menomini	Keshina, WI	12.81°	141.53°
54. Micmac	Lennox Is., PEI	14.53°	166.32°
55. Mississagua	Mississagi R., ONT	14.10°	147.15°
56. Modoc	N. California	9.73°	108.77°
57. Mohawk	St. Regis Res., NY	12.91°	155.52°
58. Montagnais	Northwest R., LAB	21.46°	170.02°
59. Munsee	S. New York	9.78°	155.22°
60. Nanaimo	Nanaimo, BC	17.08°	106.25°
61. Navajo	Ft. Wingate, NM	3.40°	121.64°
62. Nez Perce	Ft. Lapwai, ID	14.33°	113.37°
63. Nisqually	Nisqually, WA	14.98°	107.47°
64. Nivkhi	Pronge, Siberia	20.78°	11.37°
65. N. Hill Yokut	C. California	4.83°	110.62°
66. N. Paiute	N. California	9.03°	109.92°
67. N. Pomo	N. California	7.33°	106.67°
68. Ojibwa	Trout Lake, ONT	14.15°	149.59°
69. Ojibwa	Lac Seul, ONT	18.25°	137.89°
70. Okanagan	Tenasket's Sawmill, WA	16.63°	110.74°
71. Omaha	Omaha Res., NE	10.03°	133.67°
72. Oneida	Oneida, ONT	10.68°	148.75°
73. Osage	Osage Co., OK	4.56°	133.77°
74. Pawnee	St. Paul, NE	9.14°	131.71°
75. Piegan	Piegan, MT	16.19°	117.76°
76. Ponca	S.W. S. Dakota	10.93°	129.17°

Table 6.17 continued.

Population	Location	Latitude	Longitude
77. Potawatomi	S. W. Michigan	10.18°	144.17°
78. Pueblo	Casa Blanca, NM	3.01°	122.70°
79. Puyallup	Puyallup, WA	15.11°	107.89°
80. Queets	Quinault, WA	15.40°	106.34°
81. Quillayute	Forks, WA	15.88°	105.79°
82. Quinault	Taholah, WA	15.26°	105.89°
83. Reindeer Chukchi	Anadyr', Siberia	32.68°	47.65°
84. Reindeer Evenk	Yeropol, Siberia	33.18°	38.84°
85. Reindeer Koryak	Kamenskoye, Siberia	30.43°	36.37°
86. San Luis Rey	Mesa Grande, CA	1.10°	113.40°
87. Sarcee	Red Deer, ALTA	20.18°	116.37°
88. Sauk	S. Fork Little Osage R, KA	5.88°	134.97°
89. Seneca	Tonawanda Res., NY	11.00°	151.73°
90. Serrano	Morongo, CA	1.99°	113.58°
91. Shawnee	Tecumseh, OK	3.19°	133.24°
92. Shoshoni	Ross Fork, ID	10.99°	117.72°
93. Shuswap	Kamloops, BC	18.60°	109.84°
94. Sioux(Santee)	Lower Sioux Res., MN	12.46°	135.19°
95. Sioux(Teton)	Cheyenne R. Res., SD	13.01°	129.05°
96. Sioux(Yankton)	Yankton, SD	10.80°	132.79°
97. S. Miwok	C. California	5.23°	110.67°
98. Stalo	Popkum, BC	17.13°	108.44°
99. Stockbridge	Stockbridge, WI	12.00°	141.89°
100. Tahltan	Telegraph Creek, BC	25.86°	99.00°
101. Taos	Taos, NM	4.32°	124.59°
102. Tenino	Warm Springs, OR	12.70°	108.88°
103. Thompson	Lytton, BC	18.16°	108.60°
104. Tonkawa	Brazos, TX	0.58°	132.05°
105. Tsimshian	Port Essington, BC	22.08°	100.22°
106. Tundra Evenk	Menekhtyakh, Siberia	36.71°	27.37°
107. Tuscarora	Tuscarora Res., NY	11.10°	151.21°
108. Tututni	Gold Beach, OR	10.33°	105.75°
109. Umatilla	Umatilla Res., OR	13.60°	111.62°
110. Ute	Whiterocks, UT	8.40°	120.25°
111. Wasco	The Dalles, OR	13.51°	109.00°

Table 6.17 continued.

POPULATION	LOCATION	LATITUDE	LONGITUDE
112. Washo	C. California	7.13°	109.94°
113. W. Mono	C. California	4.73°	111.52°
114. Winnebago	Black River Falls, WI	12.21°	139.32°
115. Yakut	Yakutsk, Siberia	30.10°	00.00°
116. Yokuts	Tule River, CA	6.35°	108.60°
117. Yukaghir	Korkodon R., Siberia	32.66°	24.17°
118. Yuki	N. California	7.85°	107.00°
119. Yurok	N. California	9.41°	106.66°
120. Zuni	Zuni, NM	3.00°	121.32°

*Head data only.

barriers over all. The Siberian populations (3, 23, 35, 36, 40, 41, 46, 52, 64, 83, 84,85, 106, 115, 117) appear not to be restricted by any barriers. Therefore, migration would have been unimpeded in any direction for these groups. Neither are the Aleut (4). It is surprising that neither the north Pacific nor the Bearing Sea presents an impediment to eastern or southern (or northern in the case of the Aleut) movement. However, it is speculated that this may be due more to the small number of populations represented here than a failure of the method to detect barriers. The strongest barrier in this plot appears to cover most of Canada, particularly the western provinces of British Columbia, Alberta, Saskatchewan, the Yukon Territory, and the Northwest Territory. This barrier also runs south into the Pacific Northwest states of Washington and Oregon and eastward to Idaho. However, when only the largest 10% of vectors are taken into account, this barrier becomes somewhat smaller, including only the western provinces of Canada (British Columbia, Alberta, and the Yukon) and the Pacific northwestern U.S. and eastward to Idaho. When the largest 10% of vectors is taken into account another boundary appears in central Canada, but because no populations are present in this boundary it almost assuredly is an artifact of the interpolation process. There do not appear to be any other barriers present in Figure 6.22. All the tribes located within this barrier might not have interbred with tribes located outside this barrier. This would have included many of the tribes located in the Pacific Northwest, the plateau area of the northwestern United States and Canada and the Yukon Territory.

In Figure 6.23 the situation is quite similar to Figure 6.22. As in Figure 6.22, neither the Siberian populations nor the Aleut appear to be located in a barrier. The boundary that appears in Canada and the

Pacific Northwest does exist in Figure 6.23; however, it appears to be moderated somewhat due to the appearance of shorter vectors.

The difference between Figures 6.23 and 6.22 is that larger vectors are visible in eastern Canada in figure 6.23. The barrier that is formed in eastern Canada seems to be physical or geographical in that it separates the Malecite (51) from the Micmac (54). The Micmac in this study are located on Prince Edward Island, in Canada, and the Malecite are located in Quebec; therefore, this barrier would undoubtedly be the body of water between Prince Edward Island and the mainland. The barrier that is formed in the northeastern United States appears to form between Algonquian speakers and Iroquoian speakers, however, because this boundary is not included in the largest 10% of vectors it could not be considered to be significant. In addition, barriers located in central Canada, as with figure 6.22, do not have points located close to them and, therefore, should be considered to be artifacts of the interpolation process. Finally, in the Pacific, located close to the lower left hand corner of the plot is another barrier, but, again, because there are no points located nearby it is probably also an artifact of the interpolation process.

Overall, the barriers that were revealed by Wombling in Figures 6.22 and 6.23 appear to be physical in nature, but they seem to be weaker in Figure 6.23. However, one caveat must be mentioned here: due to the disproportion of the size of the study area (approximately 9500 kilometers) and the relatively small number of populations included in the study, there may be a certain amount of error present in terms of the significance and number of barriers revealed by this method.

In this study there were several analytical methods utilized in an attempt to glean as much information about the variation present in the Boas and Gifford datasets. This chapter reported the results of these analyses. The interpretation of these results will be discussed in Chapter 7.

CHAPTER SEVEN

DISCUSSION AND CONCLUSIONS

Summary of Results

The results of this study can be summarized with the following. The tests for homogeneity of locality means using ANOVA showed that there was Bonferroni significant variability between the populations. Therefore, the null hypothesis for homogeneity among group means was rejected and further analysis on the data was warranted.

The Multivariate analysis included canonical discriminant analysis with the calculation of D^2-matrices on the head and body data performed separately. Because the analyses on the head and body data were calculated separately, there were six variables for each analysis. The statistics for the head data using the canonical discriminant analysis showed that all the canonical axes were highly significant. The between canonical structure revealed that canonical axis 1 accounted for 32.9% of the variation in the head data and had its highest loadings on head length and head breadth. This situation represented a contrast between head breadth and head length. Canonical axis 2 accounted for 26.2% of the variation with the highest loadings on nose length and face length, making this axis one of face size. Canonical axis 3 accounted for 16.15% of the variation, and face breadth was the highest loaded variable. However, Canonical axis 4-6 accounted for only 24.75% of the variance in the head data.

Plots of canonical axis 1 on canonical axis 2 were constructed, which represented 59.1% of the total variation in the head data. In general, the plots showed that on canonical axis 1, tribes with higher mean scores had shorter-broader heads and those with lower scores tended toward

longer, narrower heads. With respect to canonical axis 2, tribes with higher mean scores had longer faces and noses, while those with lower scores had shorter faces and noses. Finally, the dispersion of these tribes in the plots revealed little separation due to geographical distance or language. The D^2-matrices showed a similar situation to the plot. Therefore, these results hint that the variation in the head data appeared to be due more to genetic or historic relationships rather than to geographical distance or language.

As with the head data, all six canonical axes that resulted from the canonical discriminant analysis were found to be highly significant. Canonical axis 1 accounted for 35.55% of the body data. All of the body variables were heavily loaded in this axis, with shoulder height, arm stretch, arm length, and leg length being the most heavily loaded. Canonical axis 2 accounted for 24.9% of the variation, with sitting height, shoulder width and leg length being the most heavily loaded. Canonical axis 3 accounted for 16.1% of the variation, the most heavily loaded variables being shoulder width, arm length, and arm stretch. Also, as with the head data, canonical axes 4-6 explained very little of the variation in the body data with only 23.37% of the variation explained.

Plots of canonical axis 1 on canonical axis 2, which together explained 60.45% of the variation, were constructed using the mean scores of the tribes from these two axes. Tribes plotted on canonical axis 1 with high scores would tend to have greater shoulder heights, longer legs, greater armspans, and longer arms, while those with lower scores would be shorter and have shorter arms and legs. Tribes plotted on canonical axis 2, with high scores, would tend to have shorter sitting heights or torsos, wider shoulders, and longer legs, while those with lower scores would have longer sitting heights or torsos, narrower shoulders, and shorter legs. There was more evidence for relationships due to geography and

language in the body data then for the head data. The D^2-matrix, as with the head data, showed a similar situation. Therefore, taken as a whole, the plot and D^2-matrix revealed that both geography and language had affected the variation in the body data.

The spatial autocorrelation analysis, calculated from the head data, resulted in 46% of the Moran's I coefficients being significant and 23% of the Geary's c coefficients being significant at the 0.05 level. A total of 44% of the Moran's I coefficients and 21% of the Geary's c coefficients, calculated from the body data, were significant at the 0.05 level.

These coefficients were used to construct 24 one-dimensional correlograms. The correlograms based on canonical axes 1-3 were considered to be the most important because these axes explained the most variation and the Geary's c correlograms based on axes 4-6 were not Bonferroni significant. The correlogram patterns revealed isolation-by-distance, depressions (regional patchiness), long-distance differentiation, and intrusions. There was very little true clinal activity discovered by the spatial autocorrelation analysis.

The two-dimensional correlograms utilized to determine the direction of the patterns revealed above resulted in the construction of 24 two-dimensional correlograms. However, only 9 two-dimensional correlograms were presented because only the two-dimensional correlograms from canonical axes 1 and 3 from the head data and canonical axes 1, 2 and 3 from the body data were found to be significant and explain a large amount of the variation in the data. The patterns of the two-dimensional correlograms showed mostly depressions or regionally patchy spatial structure. Clines and patterns of long-distance differentiation that are present show a direction of north-south. One pattern (figure 6.21) showed no clear pattern.

Matrix correlation was employed to identify the role that language played in the variation displayed by the data. The head data showed no correlation with language, geography, language with geography held constant, or geography with language held constant. The body data, however, revealed significant correlations with language, geography, and geography with language held constant, but not language with geography held constant.

The Wombling analysis revealed no barriers to rapid genetic change in the Siberian populations for either the head or body data. So gene flow between these populations would have been unimpeded. Wombling on the head data showed a barrier running across the western section of Canada. Wombling on the body data also included the above barrier, but it was weaker. An additional barrier separating the Malecite, in Quebec, from the Micmac on Prince Edward Island was also discovered. The interpretation of these findings follows.

Discussion

Spatial Autocorrelation. The interpretation of the results of the spatial autocorrelation analysis is quite complex; however, one hypothesis can be eliminated at the start, panmixia. Because the null hypothesis of no difference between the tribal means was rejected by the analysis of variance, on both the head and body data, the idea of panmixia, or complete intermixing of the populations, can be discarded.

As discussed in Chapter 4, the null hypothesis for the spatial autocorrelation analysis is isolation-by-distance (IBD). Some spatial patterns could be interpreted as IBD, also known as locally patchy, especially in the head data. The Moran's I correlograms from the head data revealed IBD patterns in canonical axes 2 and 4-6. The Geary's c

correlograms differed in that canonical axis 2 revealed an IBD pattern, but canonical axes 4-6 were not significant. The body data revealed no IBD patterns. The Geary's c correlograms constructed from canonical axes 4-6 were insignificant, as in the head data. Thus, the null hypothesis was accepted with respect to the spatial patterns of the head data, while it was rejected with respect to the body data.

Strictly speaking, this leaves those patterns that show forms of depressions, long-distance differentiation, or intrusions. The typical monotonically decreasing pattern called a cline is absent here. However, the depression, also known as regional patchiness, does show a clinal pattern over a portion of the study area. Long-distance differentiation, as seen here, and as defined by Barbujani et al. (1994b), is just a cline where the middle portion of the pattern is irregular. Populations at near distances are similar and populations at long distances are often strongly dissimilar. Sokal et al. (1989a) have previously identified long-distance differentiation as a pattern existing between the extremes of clinal and IBD patterns. Therefore, a long-distance differentiation pattern is, basically, nothing more than a moderate or step cline where the central portion does not decline monotonically. The long-distance differentiation patterns revealed in this study show just this situation. Barbujani et al. have also defined an intrusion, as seen in this study, as a spatial pattern where the highest positive autocorrelation is at one of the intermediate distance classes, while autocorrelation at the largest distance classes is insignificant. With the exception of the non-significant Geary's c patterns, there are approximately four mechanisms involved in the formation of the variation present in the head and body data--IBD, long-distance differentiation, depressions, and intrusions.

With the exception of the Geary's c patterns and the Moran's I pattern constructed from canonical axis 6, all the coefficients at the lower

distance classes are significantly positive. This is an indication of gene flow between near neighbors. The ethno-historical literature has clearly documented that intertribal marriage was not uncommon among neighboring tribes and can be surveyed within culture areas. For example, in the Pacific Northwest the Lillooet intermarried with the Thompson and Shuswap, and at least some admixture with the Chilcotin also occurred (Teit, 1906, 1909). Teit (1909) remarks that the Cañon band of the Shuswap was so strongly admixed with the Chilcotin that many households spoke mostly Chilcotin in the mid to late nineteenth century. Intermarriages may often have taken place in order to have access to resources. Romanoff (1992 and described by Teit, 1909) has written that the Shuswap of the Bonaparte River, in British Columbia, intermarried with the Lillooet granting them access to the salmon that swam up the river each year. Garfield (1939) reported that intermarriage took place between the Tsimshian and Haida as long as the clans were not related. Hence, the Haida eagle clan could not marry members of the Tsimshian eagles and the Haida ravens could not marry members of the Tsimshian blackfish and wolves because these clans were considered to be related even though they were members of different tribes. Further south, in Washington State, the Quinault intermarried with such tribes as the Makah, Quillayute, Queets, Nisqualli, Puyallup, Clallum, and Yakima (Colson, 1953 and Olsen, 1936).

In California, the Achomawi and Atsugewi often intermarried (Garth, 1978 and Olmsted and Stewart, 1978). Ray (1963) has reported that the Modoc intermarried only with the Klamath of Oregon. Furthermore, he writes that marital unions that occurred with the nearby Pitt River area Indians (Achomawi, Atsugewi, and Paiute) were with slave women who had been taken during raids. In addition, Stern (1966) confirms Ray's

observations in writing of the large amount of intermarriage between members of the Klamath and Modoc, and adds that the unions between the Modoc and Pitt River area Indians, which had been captured during raids, were indeed Achomawi, Atsugewi, and Paiute.

In the Plains culture area, the Cheyenne are known to have intermarried with the Arapaho and Sioux, and also married women captured from such enemies as the Crow and Pawnee (Moore, 1987). While not an example of gene flow between adjacent populations, the Omaha and Ponca, according to folk traditions, were once one tribe, evidenced by the similarity of their common tribal organization and language similarity (Fletcher and La Flesche, 1972; Howard, 1995). The split between these tribes has occurred fairly recently (Jantz et al., 1992).

The Creek Confederacy, in the Southeast culture area, formed at the end of the seventeenth century and was a hodgepodge of different Muskogean speaking tribes (Walker, 2004), which most obviously resulted in gene flow between these tribes. Similarly, Fogelson (2004) writes that speakers of other American Indian languages existed within the Cherokee tribe either through marriage or capture. Brown (2004) reports that well-defined trade routes among the Southeast Indians have existed for the last 6000 years and that some of this trade resulted in intermarriage.

Further to the north, the Chippewa and Menomini were said to have intermarried extensively (Spindler, 1978), while Parker (1926) mentions the mixture of the Munsee, Cherokee, Shawnee, and Chippewa within the Seneca Tribe. Shawnee have also been reported to have had close ties with other Algonquian speaking tribes such as the Sauk (Clark, 1993). And on the plateau of the northwestern United States, the Nez Perce and Flathead were said to have intermarried (Josephy, 1965).

A similar situation occurred in Siberia. The Aiwan, or Siberian Eskimo, had close ties with other Siberian tribes. Fitzhugh (1988) writes that in recent centuries the Aiwan lived near, and intermarried with, the Chukchi, while Menovshchikov (1964) mentions that the Aiwan are related to the Chukchi. Unfortunately, the ethno-historical literature seems to be silent on the amount of intermarriage, if any, that took place between the Koryak and Aiwan. In addition, as mentioned in Chapter 6, Jochelson (1926) noted that gene flow had occurred between the Yukaghir, Even, and Evenk to such an extent that it is hard to think of the Yukaghir as being separate from the Even and Evenk tribes, but they do differ, physically, to a certain extent.

Not surprisingly, many tribes that were located within 500 kilometers of each other also tended to be positioned in close proximity to each other in Figures 6.1 to 6.4 with respect to canonical axis 1 and/or 2 of the head and body data, meaning that these tribes were related to each other on the basis of at least some of the head or body variables. For example, the Californian tribes--Achomawi and Atsugewi--the Northwestern tribes--Chilcotin and Shuswap--the Northeastern tribes--Wisconsin Chippewa and Menomini--the Plains tribes--Arapaho, Crow, and Cheyenne--the Southeast tribes--Catawba and Cherokee--and the Siberian tribes--Yukaghir, Even, and Evenk--were, in general, positioned quite closely with respect to canonical axes 1 and 2 in Figures 6.1 to 6.4.

As the tribes become more distant from each other, the spatial patterns of the correlograms appear more dissimilar. According to Sokal (1984) and Sokal and Wartenberg (1981), the interpretation of the spatial patterns from the observed processes is not always easy since cause and effect are not always closely associated on a one-to-one basis. One spatial pattern may have various causes. For example, a monotonic decline from significant positive autocorrelation to significant negative

autocorrelation, a cline, can have more than one cause. It can be due to adaptation to the environment (i.e. selection), migration, or the spread of a trait through a population. Furthermore, these researchers write that migration from different areas, at varying rates or varying environmental pressures on different variables, can cause different patterns. Therefore, they conclude that different patterns should yield different correlograms, and similar patterns should, in most cases, result in similar correlograms. Thus if the variation exhibited by the data in a study is due to migration across the study area, the correlograms, for each variable, should show clinal patterns unless migrations at different rates occurred. Processes that can cause different patterns can be random ones that affect independent (uncorrelated) variables. For example, if there is low order gene flow and stochastic processes, such as sampling error and/or gene drift, within the samples of a variable, such as a morphological or gene frequency variable, there will be no correlation with another variable affected by the same processes. Another situation that can cause different spatial patterns is that of populations migrating at different rates because of the pressures of different environmental forces originating from different compass directions. Sokal and Wartenberg (1981) conclude that the most common cause of different patterns is due to different environmental forces acting on different variables or traits.

When Sokal and others (Barbujani and Sokal, 1991; Falsetti and Sokal, 1993; Harding, 1990; North et al., 1999; Sokal et al., 1989a; Sokal et al., 1992; Sokal et al., 1996; Sokal and Livshits, 1993; Sokal and Thomson, 1998; Sokal and Uytterschaut, 1987; and Sokal and Winkler; 1987) have searched for similar correlograms, they generally have used a clustering method such as K-means clustering or UPGMA to determine the clusters of similar correlograms. Sokal and Wartenberg (1981:211)

have coined the term for this method the "multivariable" approach because clusters of similar correlograms made from multiple variables are sought. This approach was not performed here because the multivariate approach was utilized with the application of canonical discriminant analysis. Therefore, it was thought that the correlograms from the variables, most heavily loaded on each canonical axis, would be similar to using a clustering method to find groups of similar correlograms. With the guidelines for interpretation of spatial patterns set down by Sokal and Wartenberg, paraphrased here, and discussed further in Chapter 4, the mechanisms that brought about the spatial patterns exhibited by the Boas and Gifford datasets can be discussed.

As mentioned in Chapter 6, the first canonical axis was most heavily loaded on head length and head breadth, and the spatial pattern that resulted was classified as a depression. Therefore, with respect to this pattern it appears that tribes located at distances greater than 4000 kilometers and less than 4500 kilometers are most different. Note that most of these tribes are located in different climatic zones because it would be difficult to travel 4500 kilometers, in any direction, and remain in an area with the same climate. At 8500 and 9500 kilometers the tribes appear to be more similar, though the autocorrelation is not strong enough to be significant.

These are Siberian tribes that show similarities to Native American tribes. They tend to be Southeastern and Northeastern tribes. For example, in terms of head length and head breadth, the Catawba, a Southeastern tribe, shows a relationship with the Even, Evenk, Itelman, Koryak, Reindeer Koryak, Tundra Evenk, and Yukaghir. The Cherokee, Creek, and Chickasaw show a similar relationship. The Itelman from Khayryuzovo and Sedanka, in Siberia, have positive spatial relationships with many of the northeastern tribes, such as the Malecite, Micmac,

Mohawk, and Munsee. However, most of these relationships between Siberian and Native American tribes are with the Yakut and Nivkhi. So with respect to those tribes located between 8500 and 9500 kilometers, they tend to be connected with two Siberian tribes, the Nivkhi and Yakut. The relationships between Southeastern and Siberian tribes are with the Yakut. However, the northeastern tribes, such as the Potawatomi, Sauk, and Shawnee, show a similar relationship with the Nivkhi as do the Caddo and Comanche of the Plains. Situations like the above have been interpreted by Sokal and Oden (1978b:23) as indicating that the populations "will presumably experience the same environmental conditions." However, it would seem impossible for environments in the Southeast to be similar to environments at any location in Siberia, even in the southern Siberian regions of the Amur and Kamchatkin peninsula where the Nivkhi and Itelman reside. Sokal's statement might be more convincing when applied to tribes that were located in parts of the Northeast, such as the Sauk and Potawatomi in Michigan. The only way the Southeastern tribes and the Yakut could have adapted to similar environments is if the Southeastern tribes had previously adapted to a harsh Siberian-like environment in Canada in their distant history, or if there was some kind of genetic connection between the ancestors of the Southeastern tribes and the Yakut before they migrated into North America. It appears that the adaptation to a Siberian environment or the relationship to a common ancestor has been retained in the head length and breadth of some Northeastern and Southeastern tribes. Perhaps the Southeastern tribes migrated into their traditional tribal lands later than did other Native American tribes, thus not giving enough time for the head size and shape of these tribes to adapt to their new environment.

Returning to a discussion of the tribes that are located between 4000 and 4500 kilometers apart: many of these tribes may have migrated into

their traditional tribal lands early enough to have adapted to the new environments that they would have encountered and may have intermarried with neighboring tribes. Sokal and Oden (1978a, 1978b) have termed this type of pattern a depression, but they also call it a circular cline. As stated above, Sokal and Oden say a depression makes an interpretation of selection more likely; however, for reasons stated above, selection cannot be the sole interpretation of this pattern. Any selection that has occurred must be considered to be incomplete because some tribes still retain some genetic connections to Siberia. Because of what is known about the history of Native Americans, migration, as a mechanism for producing this pattern, must be taken into account. The migrations would not be large continental migrations but rather more regional ones. Historically, and prehistorically, Native American tribes are known to have made short regional migrations to their traditional lands after having arrived in the New World. In fact, migration, or replacement, seems to be more the rule than continuity (Jantz, 1999). I believe most of these migrations were relatively short, being not much more than 1000 to 1500 kilometers; however, some were longer. For example, the Athebaskan speaking Navajo and Apache are known to have migrated from their northern homes in Canada and to have arrived in the Southwest by the early sixteenth century (Cordell, 1984 and Locke, 1976). Some Athebaskan speakers migrated into California. Elsasser (1978) writes that the Yurok could have migrated into California from the north along the coast or northeast from the upper Columbia River area more than 1000 years ago. In any event, Elsasser reports that the Athebaskan speakers (i.e. Yurok and Hoopa) migrated into California at about A.D. 900.

According to Moore (1987) Cheyenne ancestors (perhaps members of the Arvilla Complex in central Minnesota approximately A. D. 800-1400)

took a shorter route. They are thought to have migrated from around the Great Lakes into the northern plains. About the same time, from an area north of Lake Superior, the Blackfoot and Arapahos are thought to have arrived on the Great Plains. The Sioux took a more northerly route from the southeast, traveled through the Great Lakes, then turned westward onto the plains.

According to recent archaeological evidence, the Osage, Ponca, and Omaha, all plains tribes (collectively known as the Dhegiha Sioux) and the Winnebago, also known as the Chewere Sioux are thought to be descended from the Indian Knoll and shell mound people of Kentucky and Tennessee (Burns, 2004). From their ancestral homes these plains tribes migrated there in the sixteenth century. The Winnebago continued into Wisconsin, the Omaha and Ponca being the last tribes to split sometime in the eighteenth century (Burns, 2004; Howard, 1995; Radin, 1970).

Hyde (1951) has written that the Pawnee and Caddo, who apparently descended from mound builders living along the Mississippi River, migrated, as one tribe as early as A. D. 1300, northwestward into Kansas and Nebraska, where they split later.

The early Algonquian speaking tribes are believed to have lived originally around Lake Winnipeg in Manitoba, Canada, because of the hunting and fishing resources. The Algonquian speaking Shawnee were one of the first of these tribes to migrate south into the Ohio Valley as has been revealed by archaeological evidence (Clark, 1993). However, the Shawnee were more of a fragmented tribe that moved frequently without a defined territory (Callender, 1978a). The Sauk, another Algonquian speaking tribe, was documented to have moved from southeast Wisconsin to eastern Iowa in 1733 and returned in 1740. They then moved to Illinois in 1764, back to Iowa in 1829, then further south

in 1842 before making their final move to Oklahoma in 1869 (Callender, 1978b).

Simmons (2000) writes that most authorities believe that the Uto-Aztecan speakers (includes the Ute, Shoshone, and Southern Paiute) migrated north from Mexico around 2000 B.C. into the southern Great Basin. Apparently from there another migration began with the Shoshones moving north and the Utes moving northeast. The Southern Paiutes remained in the southern Great Basin. Simmons reports that the best evidence of these migrations has to do with the structure of the Numic branch of the Uto-Aztecan language family and the relatedness of the languages these tribes speak. This relatedness causes scholars to believe that these migrations were relatively recent occurrences. More recently, additional evidence for an expansion of Numic speakers has been found through the analysis of mtDNA data (Kaestle and Smith, 2001).

It has been stated (Elsasser, 1978) that in California the Hoken speakers were the first inhabitants of the central valley. Because of pressure from climatic change, Penutian speakers migrated in a series of waves possibly from the Great Basin and gradually replaced the Hoken speakers. Recently, mtDNA data has been utilized to test this Hokan-Penutian hypothesis and evidence has been found to support it (Eshleman et al., 2004).

Because of the Tuscarora Wars and the unbearable conditions in North Carolina, the Tuscarora, who had been a Southeastern tribe until the early eighteenth century, migrated northward where the Iroquois adopted them (Landy, 1978).

Finally, in Siberia similar migrations were historically documented. Crawford et al. (1997) using genetic frequency data has uncovered depression patterns in the gene frequencies of the Duffy, Haptoglobin, P,

MN, and RH genetic systems. Crawford et al. (1997:188) interpreted these patterns as possible evidence for the "historically documented migrations and invasions of Siberia." Because of these examples, it appears unwise to ignore the role that migration would have played in shaping the variation of head size and shape present in the Boas and Gifford data after Native Americans arrived in the New World, but the role of selection cannot be ignored either.

The correlogram, based on canonical axis two from the head data (Figure 6.5), which had its highest loadings on face length and nose length, can be interpreted as IBD or a depression. However, the depression is not very clear and the rest of the pattern matches the IBD pattern more closely. Therefore, IBD appears to be the more reasonable pattern.

If this is indeed an IBD pattern, it may very well be representative of the decrease in population size, or bottleneck, caused by the epidemic diseases and warfare brought to this country as a consequence of European contact beginning in the sixteenth century and resulting in local gene flow between neighboring tribes and gene drift in more isolated populations. While the gene flow may be due to intertribal marriage between neighboring tribes, as discussed above, it may also be due to the coalescence of tribes hit hard by the epidemics and warfare. Historically, it is known that the Creek coalesced with other nearby tribes to form the Creek Confederacy at the end of the seventeenth century (Walker, 2004). Waselkov (2004) reports that because of the need for defense, protection from disease, and trade, inhabitants of the Chickasawhay villages moved toward the west to join up with the Choctaw, and Southeastern Siouan speakers migrated into the Carolina Piedmont and became the Catawba.

In California, the placement of some Native American tribes into missions in the late eighteenth and early nineteenth centuries

exacerbated the onset of disease epidemics resulting in sharp drop-offs of the populations of affected tribes (Cook, 1978; Castillo, 1978; Schuyler, 1978). This situation may also have been true of bands almost annihilated by epidemics (such as smallpox), the remains of which would have been absorbed by other bands of the same tribe. For example, the Buckskin Creek band of the Shuswap was almost exterminated by smallpox, but the Soda Creek band adopted the few remaining members (Teit, 1909).

A coalescence of villages or tribes may also have been brought on by the need for protection. For example, in the early seventeenth century, perhaps around the beginning of the league of the Iroquois, villages of the Mohawk, Oneida, and Onondaga merged as a protective device from warfare that had broken out (Pratt, 1976).

The interpretation for the Geary's c correlogram, based on canonical axis 2, is similar even though the correlogram looks quite different from the Moran's I correlogram. The significance levels are similar to that in the Moran's I correlogram of canonical axis two (Table 6.14), and, therefore, makes the interpretation similar.

As mentioned in chapter six and discussed above, the spatial pattern constructed using the Moran's I coefficients of canonical axis 3 from the head data showed a rather weak cline or long-distance differentiation. Canonical axis 3 had its highest loading on nasal breadth and is the only head variable to exhibit anywhere near a clinal pattern. This weak cline may be due to the selective forces of temperature and rainfall on the breadth of the nose as well as gene flow.

Hall and Hall (1995) have found a negative correlation of the nasal index with rainfall and a positive one with average January temperature on the Western tribes contained in the Boas data. They interpreted this

relationship to mean that the width of the nose can be influenced by either rainfall or temperature. They also imply that gene flow can affect the breadth of the nose. To illustrate this, Hall and Hall say that lower rainfall results in a broader nose and that a low mean January temperature will result in a narrower nose. As an example, they use the Coquille tribe of Oregon who they found had intermarried extensively with the nearby Penutian speakers thought to have been present on the Oregon coast for a long period of time. Therefore, this spatial pattern can be interpreted as being caused by gene flow working against the force of natural selection, such as rainfall and temperature. The gene flow, however, may be an effect of the short-range migration that has occurred in the natural history of Native Americans.

While the Geary's c plot for Canonical axis 3 from the head data may vary slightly from that of the Moran's I plot, I believe a similar interpretation can be rendered. This is because the clinal pattern within the depression has its lowest negative autocorrelation at 6500 kilometers but continues to be negative and significant until 7500 kilometers, though producing what appears to be a weak cline.

As also stated in Chapter 6, the correlograms from canonical axes 4-6 collectively explain less than 25% of the total variation in the head data. However, because they are all significant, further discussion is warranted. Canonical axes 4 had its highest loadings on head length and face breadth. This is almost certainly a pattern of IBD and, therefore, a similar interpretation to the spatial pattern of canonical axis 2 can be given. Since the patterns of canonical axes 5 and 6 are similar to that of canonical axes 2 and 4, a similar interpretation can be rendered. In contrast, the Geary's c correlograms from canonical axes 4-6 were not statistically significant, so no interpretation can be discussed.

The Moran's I and Geary's c correlograms, constructed from canonical axis 1 based on the body data, reveal spatial patterns that are classified as long-distance differentiation and a depression respectively. However, based on Sokal and Barbujani' s definitions, as discussed above, long-distance differentiation can be considered to be a cline, and because the largest distance classes remain significant until 9500 kilometers, which was not significant, this pattern can also be considered roughly to be a cline. As revealed in Table 6.11, canonical axis 1 had its highest loadings on shoulder height, arm stretch, leg length, and arm length. That is four of the six body variables included in this study. Shoulder height and leg length are both components of stature; in fact, leg length is also a component of shoulder height. Arm length is a component of arm stretch as well as stature. According to Sokal and Wartenberg (1981), and discussed further by Sokal and Friedlander (1982), one reason for similar patterns in variables is a developmental correlation. This may occur especially with anthropometric data. Sokal and Friedlander (1982:222) write: "Thus similarity of pattern, say between stature and arm length, implies that there is a single response pattern to the underlying morphological factor that is being assayed by these two variables." I believe that a similar situation has occurred in the body variables that produced the spatial patterns of the Moran's I and Geary's c coefficients. Therefore, it appears that these patterns are the result of selective pressures on these variables.

The plot shown in Figure 6.3 reveals that canonical axis 1 divided the populations in terms of the size of these variables along climatic lines; that is, those populations with smaller dimensions of these variables tended to form a cold weather cluster containing Siberians and some Eskimo tribes, and tribes living in warmer climates, having larger canonical score means on these variables, formed another cluster.

Obviously, Native Americans migrated into the New World, but selection followed in the adaptation process to the new environments they encountered. Hall and Hall (1995), using the west coast tribes from the Boas data, found evidence for selection in the body in terms of rainfall and temperature. The authors believed the data revealed responses to selection that obeyed Bergmann's rule. Along these lines, the body variables, most heavily loaded on canonical axis 1, reveal spatial patterns that are reminiscent of a cline due to selection. It appears that these tribes had been here for at least the last 12.5 to 15 thousand years, which would probably have been enough time for selection to have contributed strongly to the variation reflected in the body data. It would have taken at least that amount of time not only for the population to have adapted to the diverse climates of North America but also for the level of diversity found in Native American languages to have developed to their known level of complexity.

As mentioned in Chapter 6, the second canonical axis was identified as a double depression because of the alternations of significant positive and negative autocorrelation. Sokal and Ord (1978a) consider this to be similar to a depression. There are three areas of significant positive autocorrelation and four areas of significant negative autocorrelation. Obviously, with this much significant autocorrelation present stochastic mechanisms (i.e. gene drift) are unlikely to be the strongest affecting the body variables most heavily loaded on canonical axis 2. Therefore, the distance classes featuring significant positive autocorrelation would be areas in which tribes, separated by that distance, had migrated sometime in their history, adapted to similar environments, or had retained some kind of genetic relationship with other tribes. In the first distance class it is known that neighboring tribes often did intermarry. Those tribes that were separated by 3000 and 5500 kilometers would be

similar either through migration, selection, or some kind of genetic relationship. However, those tribes that are heterogeneous at 2000 and 4500 kilometers would be different most likely because of adaptations to different environments. When Siberian tribes showed a close relationship to Native Americans (as in Figure 6.3) at 3000 or 5500 kilometers, the similarity is probably due to a genetic relationship to a common ancestor, although back migration of Eskimos cannot be ruled out, particularly at 3000 kilometers. Therefore, the variables of sitting height, shoulder width, and leg length might have tended to track selection and/or gene flow on a regional basis or genetic relationships. The Geary's c correlogram, constructed from canonical axis 2, looked roughly similar to the Moran's I correlogram and, therefore, can be interpreted similarly.

The Moran's I correlogram based on canonical axis 3 displayed a shallow depression. Since the variables most heavily loaded (i.e. arm stretch, shoulder width, and arm length) are all related in terms of the size of arm stretch or arm span, they would be correlated to some degree. This could exist for reasons discussed above and because there is some degree of genetic relatedness in arm length and shoulder width in tribes that are located at long distances from each other. This would be similar to the interpretation of the spatial pattern based on the first canonical axis from the head data. The Geary's c correlogram for this canonical axis is similar, and therefore, has a similar interpretation.

As I indicated in chapter six, the correlogram constructed from canonical axis four, using the body data, looks roughly like a depression. The highest loadings are on sitting height, shoulder width and leg length, though shoulder width seems to be the most heavily loaded. Because there is significant positive autocorrelation at 9500 kilometers, the

interpretation for this pattern would be similar to that of canonical axis 3.

The final canonical axes (5-6) resulted in patterns that appear to be intrusions. The heaviest loadings on canonical axis 5 are on sitting height, arm length, shoulder width, and shoulder height, while the heaviest loading on canonical axis 6 is on sitting height. The highest positive autocorrelation is at 5000 kilometers for canonical axis 5 and at 3500 kilometers for canonical axis 6. The largest distance classes show non-significant negative autocorrelation, which matches the definition of Barbujani et al. (1994b) as an intrusion. The intrusion implies an invasion of populations into another region. It is unlikely that there would have been a migration of 5000 kilometers unless the spatial pattern of canonical axis 5 was referring to the migration of the first Americans into the New World. This possibility cannot be ignored, but with respect to what the other patterns suggest, it is unlikely. Based on what has been discussed above about the possibility of adaptation to similar environments for populations that are located at large distances, it also seems unlikely that this would be a reasonable interpretation. Therefore, some kind of genetic relationship to tribes located at 5000 kilometers apart would be the most reasonable explanation.

The most significant positive autocorrelation in the spatial pattern of canonical axis 6 may have come about due to migration. Perhaps it is tracking the migrations of such tribes as the Navajo and Apache as they migrated from the north to the southwestern United States. However, selection to similar environments or genetic similarity is not out of the question either.

Two-Dimensional Correlograms. The two-dimensional correlograms, as mentioned in chapter six, that showed a direction had an orientation

of north-south. There appears to be some evidence for north-south patterns in the population history and structure of Native Americans with respect to body dimensions. Crawford (1998) has noted that such body measurements as stature should show a north-south gradient or cline. In the first canonical axes of this study, which were most heavily loaded on shoulder height, leg length, arm stretch, and arm length, the variables shoulder height and leg length are components of stature, while arm length is a component of arm stretch; therefore, from an environmental perspective, it makes sense that there would be a spatial pattern that at least roughly corresponds to a north-south cline. Crawford (1998:203) considers these north-south gradients to be due to "ecosensitivity." This term, according to Crawford, is used to imply that such factors as nutrition and climate brought about the north south clines of the body measurements. However, he does not necessarily carry this over to head measurements, but it is not unreasonable to think that some adaptation would have occurred in the head, too. The variation in the body data cannot be solely attributed to natural selection, so some north-south migration must have also occurred as shown by the previously discussed ethnohistories.

These directional correlograms have one problem, however. If the direction of the correlogram is north south, it is impossible to go directly north south for 7500 or 10500 kilometers. Attempts to solve this problem, such as reversing the signs of the coordinates or using different direction classes, did not effect this north-south direction. Canada and the United States combined are less than 7500 kilometers in a north-south direction. In fact, the most northern tribe in Canada, used in this study, are the Mackenzie Delta Eskimos and they are only, approximately 4500 kilometers away from the most southern Native American Tribes.

However, this kind of problem is not unique. It has been documented in the literature. Sokal and Thomson (1998), in analyzing gene frequency data from Japan, found that six of the genetic systems revealed north-south clines. A north south pattern, they say, is impossible for Japan because of the way the country is oriented in a northeast-southwest direction. The authors conclude that this direction is compatible with diffusion that moves along the length of Japan. However, they state further that the north-south clines can be representative of selection or diffusion from a time when the Jomon first arrived in Japan.

Sokal and colleagues (Barbujani and Sokal, 1991; Falsetti and Sokal, 1993; Sokal et al., 1989a; Sokal and Thomson, 1998; Sokal and Uytterschaut, 1987) have also presented techniques that could serve as checks for this study. Using a mapping program, such as SURFER, Sokal and others have often employed gene frequency maps to show better the direction of spatial patterns revealed by the data they have studied. Unfortunately, there are some problems that have been voiced about the use of such maps. Barbujani (2000) lists two. He states that there are often several maps made for each gene frequency, which will almost always differ; therefore, some way has to be found to summarize these maps. Second, Barbujani (2000:136) writes that interpolation of the data onto the maps can introduce "artificial patterns" which make it difficult to determine the real from the false. These problems could very well occur when used with anthropometric data, but the construction of such maps is, nevertheless, worth attempting.

Another technique was first presented by Falsetti and Sokal (1993), which involves either using the program BEARING, written by Oden and Thomson (Sokal and Thomson, 1998), or using the formulas to write a similar program oneself. Sokal and Thomson (1998) performed this test

on the genetic systems that they were analyzing. They constructed genetic distance matrices (in this case it would be on the scores of each canonical axes) and geographic distance matrices. The great circle distances were weighted according to "the squared cosine of the angle between a line connecting any two localities and a strictly east west reference line" (Sokal and Thomson, 1998:8). The reference line was rotated counter-clockwise every 5 degrees and a new weighted geographic distance matrix was calculated at each increment. Thirty-six matrices resulted from this and matrix correlations were calculated based on the genetic distance versus the geographic distances. The correlations were then plotted with degrees north of due east on the x-axis and the correlations on the Y-axis. The highest correlation is supposed to represent the direction of the greatest genetic change. Unfortunately, for reasons to be discussed below, this technique might not work as well on the head data.

Matrix Correlation. The results of this analysis showed no correlation between the anthropometric distances of the head and geographic distance or language distance and no significant correlation for geography holding language constant or language holding geography constant. The opposite occurred for the body data with the exception of the partial correlation—language holding geography constant.

With the idea that body measurements tend to be more susceptible to measurement error and secular trends than head measurements, it would seem that significant correlations should occur with the head data rather than with the body data. There appears to be several reasons why the above could occur. The squared distance matrix from the head data has 120 populations, while the squared distance matrix from the body data has 119 populations. As mentioned in chapter five, because no

body measurements were present from the Klickitat tribe, there were only 119 populations used. Therefore, this presents the possibility that measurement error in the Klickitat data could be responsible for the lack of correlations in the head data. However, it would appear that for one tribe to affect the results of an analysis this severely, the level of error would have to have been quite high, but the means (Appendices A and B) of the dimensions of the Klickitat do not seem to be severely out of line. Also, the Klickitat do not seem to be an outlier in Figures 6.1 and 6.2. Nevertheless, additional analysis, excluding the Klickitat, would be beneficial.

It should also be pointed out that with the exception of nose length and face length at nasion, the body data showed more among group variation, as revealed by the ANOVA's and shown in Tables 6.3 and 6.4. In addition, Figures 6.1 and 6.2 constructed from the canonical discriminant analysis on the head data showed little evidence of geographical or linguistic patterning, but Figures 6.3 and 6.4 revealed more evidence for geographical and linguistic patterning in the body data. This also carried over to the spatial autocorrelation analysis in that only the correlograms for nose breadth revealed a pattern that was anything like a clinal pattern. All others were either depressions or isolation-by-distance. I believe these were clues that the correlations of head anthropometrics, geography, and linguistics would not be significant.

Another possibility would be sampling error due either to much smaller sample sizes in the head data or measurement error of the anthropometric dimensions. Table 5.1 shows that the sample sizes for the body data were actually smaller than the sample sizes of the head data. One would also think that the measurements of the head would be

much easier to take than the body dimensions because of their smaller size.

With respect to language, it has been suggested (Jantz, personal communication) that the way the language distance matrices were constructed could have prevented correlations between language and the anthropometric head data. The idea is based on the fact that many linguists disagree with Ruhlen's (1987) grouping of what they consider to be distantly related languages, for example, including the Penutian and Algonquian language families into the Amerind phylum and the Northern Amerind sub-phylum. Other linguists have proposed that diverse languages be included in less encompassing phyla such as Macro-Algonquian and Macro-Siouan. Therefore, if the language distance matrix constructed for this study (Matrix 1F, Appendix F) grouped such languages as Zuni and Cheyenne, which are both included in the Northern Amerind subphylum but given a two because they are in separate families, while languages within and outside the Amerind phylum, such as Chilcotin which are classified in the Na-Dene Phylum, get a 4 because they are languages contained in separate phyla, can this be the cause of non-significant correlations between the head data and linguistics? A possible answer has been suggested by Jantz (personal communication, 2004): set the Central Amerind and Northern Amerind sub-phyla as separate phyla and then move lower classifications up a level. This would do away with the Amerind phylum created by Greenberg and supported by Ruhlen (1987) and increase the grouping of what are considered to be diverse languages by other linguists. However, the same language distance matrix was also used to make comparisons with the body data, the only difference being the exclusion of the Klickitat tribe. The body revealed a significant correlation with language, while the head did not. In addition, the classification of Greenberg and

Ruhlen may have gotten a new lease on life. Some anthropological geneticists (Schurr, 2004; Schurr and Sherry, 2004) have found evidence to support a two-migration model, using mtDNA data, which may correlate with the Amerind language classification of Greenberg and Ruhlen. Schurr (2004) writes that there is a general consensus that the tribes that make-up the Na-Dene language phylum and the Eskimo-Aleut language family made up the last migration of Indians into the New World. The issue has been how many migrations compose the genetic variation of Amerindians; Schurr, however, says that evidence is growing for a single migration. In any event, it would be a good idea to do further analysis on this issue using a language distance matrix, such as I used in this study, one constructed as suggested above, and other language distance matrices constructed according to the classifications developed by other linguists to see how it affects the correlations.

The final possibility is that because of the greater level of genetic drift (approximately 50.95% in the head data vs. close to 0% in the body data), as revealed by the spatial patterns discussed above, the matrix correlation analysis was prevented from detecting significant correlations either with language or geography in the head data. This appears to be the reason because gene drift is considered to be a stochastic process and higher levels of gene drift would prevent the detection of correlations. It must also be realized that a squared distance matrix looks at the entire variation of the data and a statistical technique, such as canonical discriminant analysis, breaks the variation down into linear combinations of the variables. Non-random patterns that might be picked up by spatial autocorrelation, performed on the canonical axes, would, therefore not be revealed in the matrix correlation analysis.

Wombling Analysis. As mentioned in Chapter 6, and shown in Figures 6.23 and 6.24, the Siberian tribes did not appear to be cut off by

any barriers either geographical or linguistic. This also has been documented historically as was discussed above in the section on spatial autocorrelation analysis. While not clearly shown in this study, it has been documented that back migration may have occurred between Eskimos and Siberian populations. Crawford (1998:88) writes that, "up to World War II, Alaskan Eskimos crossed the winter icepacks into Siberia to obtain wives." Crawford goes on to state that it is his belief "that complete reproductive isolation between the Old and New Worlds is a myth." This analysis, at least, allows for the possibility of back migration.

As for the boundaries in North America shown in Figure 6.23, the boundary that coincides with the mountainous regions of British Columbia, Alberta, and the Yukon Territory, would have prevented any west to east migration into the interior of Canada, but it might have allowed for a constrained coastal route along Alaska and British Columbia, south to the Pacific coast states of the United States. With the end of the Barrier reached, movement to the south, east, and north would have been possible. Tribes such as the Mackenzie Delta Eskimos, Tahltan, and Tsimshian would be most isolated from the Native American tribes to the south except for the aforementioned north-south coastal route. Not surprisingly, the Mackenzie Delta Eskimo, Tahltan, and Tsimshian are tribes that were most different from many of the others at 4500 kilometers in the spatial autocorrelation analysis as displayed in the spatial pattern of canonical axis 1. Any close relationship (for example, in Figures 6.1 and 6.2) tribes might show to these three tribes can be thought of as resulting from adaptation to similar environments or genetic relationships. Any gene flow that occurred would have been constrained by the coastal route through

British Columbia; however, regional gene flow in the United States or between Siberia and Canada may certainly have occurred.

In short, this boundary effectively cuts the study area into two regions. The first region includes the Siberian tribes, western Arctic and Sub-Arctic, as well as parts of the Pacific Northwest. The second region would include all the rest of the tribes. The depression correlogram of canonical axis one revealed a similar pattern. Either side of the boundary has climatic zones that are quite different. The more northern area is an Arctic or Sub-Arctic zone, which features a very cold and snowy climate in the winter and short summers. In the second region, the climate tends to be warmer with longer summers that get warmer and longer the further south one goes. This situation is summed up in the following statement: "In principle, a sharp genetic boundary could also arise from differential selection in response to sharply divergent environmental factors to both sides of the boundary" (Falsetti and Sokal, 1993:266).

However, it does not appear that boundaries caused by isolation-by-distance were revealed here. In a simulation study using simulated gene frequency data, no boundaries were uncovered in an isolation-by-distance surface and only two boundaries were uncovered when a patchy distribution surface was added (Barbujani et al., 1989). Because of the number of isolation-by-distance patterns found in the spatial autocorrelation analysis, the above may reveal a reason why only one boundary was uncovered. This situation appears to correspond to the regionally patchy distribution, or depression, pattern of canonical axis one, but, in addition, would allow for a constrained level of migration, hence the long-distance differentiation patterns of canonical axis 3 using Moran's I coefficients.

The boundary in Figure 6.24, based on the body data appears to be much weakened, but a non-significant language barrier in the northeast is visible, which appears to be between Algonquian and Iroquoian speakers.

The same situation with the Siberian data, as in figure 6.23, also exists in Figure 6.24. This shows that the possibility of back migration may have existed between the Siberians and Eskimos. Because the northwestern barrier, corresponding to the various mountain ranges of that area, appears to be weakened, it corresponds to the extent to which selection and gene flow have affected the body data. I think that this situation would better allow for a cline appearing because of selection and the development of languages. (Though barriers between language families were not uncovered in this study.) However, since this physical barrier is still present, a strong cline would have been prevented and a weaker cline, in the guise of long-distance differentiation or a depression and revealed in the spatial patterns of canonical axis 1 and 4 of the body data, would have appeared. Falsetti and Sokal (1993) have noted that in the presence of clines, formed by selection, no boundaries would be found. Since a weak boundary was found in this analysis and shown in figure 6.24 and weak clines were discovered in the spatial autocorrelation analysis, the interpretation that the clines were formed by a combination of selection and migration is strengthened. In addition, the non-significant barrier between Algonquian and Iroquoian speakers shows that there was some differentiation between these tribes as discovered by Langdon (1993).

More focused Wombling analyses performed separately on the data from the United States, and perhaps Canada and Siberia, might reveal additional boundaries caused by selection, isolation-by-distance, and

language diversification that were not uncovered in this analysis (Konigsberg, personal communication, 2005). However, it is my opinion that any additional boundaries that were discovered would be weaker because they were not revealed in the Wombling analysis done here.

While the Wombling analysis appears to corroborate the previously discussed analyses of this study to some degree, the question as to whether or not the number of populations utilized, with respect to the size of the study area, was sufficient to produce accurate results still remains. Many of the studies of Barbujani and Sokal, which utilized Wombling analysis, have included more populations. For example, Barbujani and Sokal (1990) utilized 3119 European populations in studying the genetic variation of Europeans. Barbujani et al. (1994a) used genetic data from 793 samples from the Caucasus region of Europe. Sokal and Thomson (1998) employed genetic frequency data from 1125 samples in Japan. Finally, Barbujani et al. (1992) used genetic data from 242 samples in Italy. In comparison, the present study included only 119 populations from the body data and 120 populations from the head data.

Wombling has an additional disadvantage in that interpolation procedures must be utilized. This is the same process used to make maps of gene frequencies and other data. Therefore, they may have many of the same problems as discussed above. Barbujani (2000) has argued that Wombling does not create boundaries where they do not exist, though this statement is debatable.

A new method of detecting barriers may prove to be more accurate. This method is called Monmonier's maximum-distance algorithm (Manni et al., 2004). The authors report that this method uses Delaunay Triangulation that connects all sampled locations in a geometric network and finds the areas where the rate of change is

greatest. The software needed to carry out the necessary computations is available, from the authors, in a program called "Barriers." The program requires only a "distance matrix between items" (Manni et al., 2004:175) and knowledge of sampling areas.

Conclusions

Several hypotheses can be generated from this study. First, different evolutionary mechanisms can be postulated from the head and body data. The variation in the head data has been affected by gene drift with only local gene flow among near populations, which may be a reflection of the genetic bottleneck that occurred due to epidemic diseases and warfare caused by European contact and intertribal warfare. The spatial patterns that do show at least partial or weak clines (Moran's I and Geary's c, canonical axes 1 and 3) appear to be due to selection and/or gene flow on a regional basis. This would be in the sense that tribes at moderate distances are located in different environments and would have at least partially adapted to those environments, while tribes located at long distances, up to 9500 kilometers, tend to show some kind of genetic relationship rather than adaptation to similar environments. The above situation tended to occur with Southeast and Northeast tribes. Because the Southeastern tribes were located in environments unlike Siberian ones, these populations cannot have adapted to similar environments unless they had adapted to a cold weather climate before moving south or were genetically related to the Siberian tribes and had retained that relationship when they migrated into their known traditional lands. Another possibility, not necessarily mutually exclusive to the above, is that these patterns represent the many historically documented regional migrations that occurred. Because of this, there might be little in the way of geographic or linguistic correlation with the anthropometric head

data as occurred with matrix correlations. The Wombling analysis performed on the head data also showed how regional migrations could have occurred instead of more long-range migrations. Because of the barrier in northwestern North America, mostly regional migration in the continental United States or possible back migration between Siberians and Eskimos would have occurred. Any migration between Siberia, Alaska, Canada, and the continental U.S. would have been possible only through a constrained coastal route along southern Alaska and the northwestern Pacific coast of Canada earlier in the natural history of Native Americans. For this reason, I do not believe that the head data represents the first migrations of Native Americans into the New World but rather documents some of the adaptations and interactions of Native Americans after they arrived.

The body data revealed spatial patterns that represented little gene drift. The six canonical axes represented patterns that are reminiscent of selection, some gene flow on at least a regional basis, and genetic relationships to tribes located at great distances apart. It was found that the body data (especially variables most heavily loaded on canonical axis 1) tended to obey Bergmann's rule better than the head data. As with the head data, these patterns tended to be oriented in a north-south direction. Because of the smaller amount of gene drift present in the body data, the correlations of geography and language were much stronger than in the head data, although geography appeared to have the stronger correlation. The northwestern barrier that was so strong in the head data is weaker in the body data, thus allowing a better chance for clines to form, on an inter-continental basis, due to gene flow and/or selection. However, the fact that the physical barrier is still visible would prevent strong clines from forming. Hence, this is the reason why no true clinal patterns were revealed by the spatial autocorrelation analysis.

That there appears to be only one barrier produced by language distances allows for the development of clines since language barriers, as determined by research using Wombling done by Sokal and colleagues (i.e. Barbujani et al., 1989 and Barbujani and Sokal, 1990), can disrupt the formation of any cline whether partial, as in a depression, or over the entire study area. Furthermore, one reason why the spatial patterns, which hint at clines, are not fully clinal may be that adaptations had not fully occurred before the collection of the body data.

In terms of the body data, I believe that these analyses, especially the spatial autocorrelation analysis, do reveal that at least one inter-continental migration occurred followed by the adaptation of the tribes to the new environments as well as the development and diversification of their languages. The spatial autocorrelation also showed evidence for regional migration, as did the head data. What is shown in the spatial autocorrelation analysis (i.e. canonical axis 1, body data) is, therefore, the end result of, at least, partial adaptation of these variables produced by natural selection, development of the Amerind languages and regional migration. I believe the reason why this situation does not show-up in the head data is that the head had adapted more slowly to the New World environments than the body data; gene drift also seems to have affected the head more than the body. Because of this slower rate of adaptation, gene flow might have affected the rate of adaptation by producing a sort of slight whitewashing effect, thus slowing down the rate of selection. Many Amerind scholars (see for example, Powell and Neves, 1999) seem to have noticed this in that they argue the cranium had not fully adapted to the New World environments. Perhaps the above statements present a reason why.

In closing, these results reveal a complex network of gene drift, gene

flow, and natural selection, which produced the variation present in the data. However, such results should be considered tentative because additional work needs to be done regarding the use of alternate methods to determine the direction of spatial patterns, analyzing the effects of different language matrices on the correlations with the anthropometric data, and the ability for Monmonier's Algorithm to detect barriers.

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APPENDICES

APPENDIX A

Descriptive Statistics-Body Data

---------- sex=F tribe=ACHOMAWI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	15	1532.13	36.6895600	1440.00	1590.00
hsh	15	1265.53	36.2331077	1180.00	1320.00
hmf	15	588.7333333	26.3722437	560.0000000	650.0000000
str	15	1557.40	39.1914714	1490.00	1640.00
hs	15	817.2666667	28.2450164	760.0000000	860.0000000
wsh	15	364.4000000	20.4408554	340.0000000	420.0000000
ll	15	714.8666667	31.3206155	670.0000000	780.0000000
al	15	676.8000000	30.4846566	620.0000000	725.0000000

---------- sex=F tribe=AGUA CALIENTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	18	1565.06	53.0509990	1466.00	1650.00
hsh	18	1303.28	54.0411668	1200.00	1380.00
hmf	18	604.0555556	35.2428086	557.0000000	667.0000000
str	18	1546.06	78.9567806	1403.00	1710.00
hs	18	808.0000000	29.8624297	767.0000000	862.0000000
wsh	18	371.5555556	19.2605119	332.0000000	398.0000000
ll	18	757.0555556	45.4655296	682.0000000	811.0000000
al	18	699.2222222	39.4529587	633.0000000	802.0000000

---------- sex=F tribe=AIWAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	75	1517.31	46.3800322	1422.00	1620.00
hsh	75	1249.23	43.3660015	1160.00	1345.00
hmf	75	628.3333333	32.1996866	533.0000000	700.0000000
str	75	1507.87	57.5934806	1380.00	1660.00
hs	75	815.5733333	30.7782713	742.0000000	883.0000000
wsh	75	331.8933333	17.5442093	284.0000000	378.0000000
ll	75	701.7333333	33.9770723	632.0000000	770.0000000
al	75	620.8933333	39.0839614	480.0000000	697.0000000

---------- sex=F tribe=ALEUT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	17	1490.06	41.3604137	1417.00	1570.00
hsh	17	1229.24	39.6949767	1151.00	1305.00
hmf	17	569.6470588	23.4945238	526.0000000	600.0000000
str	17	1546.65	75.7883081	1387.00	1672.00
hs	17	832.8235294	23.1307028	785.0000000	871.0000000
wsh	17	325.5882353	25.3082467	260.0000000	358.0000000
ll	17	657.2352941	39.4707636	588.0000000	747.0000000
al	17	659.5882353	28.3417952	611.0000000	705.0000000

---------- sex=F tribe=APACHE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	37	1552.49	51.8644717	1417.00	1668.00
hsh	37	1302.19	51.5680984	1175.00	1409.00
hmf	37	607.6216216	30.1812592	544.0000000	675.0000000
str	37	1600.27	74.4422403	1442.00	1735.00
hs	37	816.6216216	32.2321021	726.0000000	879.0000000
wsh	37	334.9729730	15.4245232	289.0000000	361.0000000
ll	37	735.8648649	40.8480668	651.0000000	833.0000000
al	37	694.5675676	40.5199132	627.0000000	793.0000000

---------- sex=F tribe=ARAPAHO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	8	1603.38	49.2948490	1527.00	1683.00
hsh	8	1332.00	44.7692497	1260.00	1402.00
hmf	8	609.8750000	39.3607400	544.0000000	664.0000000
str	8	1670.63	41.5827488	1618.00	1740.00
hs	8	844.0000000	27.6198686	811.0000000	881.0000000
wsh	8	356.5000000	16.2392822	329.0000000	380.0000000
ll	8	759.3750000	26.6079338	716.0000000	802.0000000
al	8	722.1250000	18.8939711	687.0000000	744.0000000

---------- sex=F tribe=ASSINIBOIN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	5	1559.00	51.3760645	1485.00	1627.00
hsh	5	1295.40	46.3497573	1241.00	1367.00
hmf	5	595.6000000	29.7707911	551.0000000	630.0000000
str	5	1649.20	59.0228769	1563.00	1700.00
hs	5	799.8000000	21.0879112	773.0000000	825.0000000
wsh	5	332.0000000	21.4476106	305.0000000	363.0000000
ll	5	759.2000000	36.1690475	712.0000000	813.0000000
al	5	699.8000000	39.2071422	644.0000000	753.0000000

---------- sex=F tribe=ATSUGEWI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	8	1536.25	50.4090411	1460.00	1610.00
hsh	8	1266.88	43.7474489	1200.00	1340.00
hmf	8	588.7500000	31.0241841	550.0000000	650.0000000
str	8	1568.75	43.2393670	1510.00	1620.00
hs	8	832.5000000	34.5377640	770.0000000	880.0000000
wsh	8	360.6250000	16.1328193	340.0000000	390.0000000
ll	8	703.7500000	35.4310195	660.0000000	770.0000000
al	8	678.1250000	28.0226312	640.0000000	715.0000000

---------- sex=F tribe=BANNOCK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	22	1535.14	46.3468245	1449.00	1630.00
hsh	22	1278.95	42.6698034	1200.00	1360.00
hmf	22	597.6363636	34.8651080	537.0000000	675.0000000
str	22	1564.09	47.8389253	1475.00	1647.00
hs	22	800.3181818	29.4624642	732.0000000	856.0000000
wsh	22	360.5454545	16.5377700	335.0000000	395.0000000
ll	22	734.8181818	48.6881587	633.0000000	829.0000000
al	22	681.3181818	29.9243274	612.0000000	729.0000000

---------- sex=F tribe=BELLA COOLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	5	1571.40	34.7749910	1525.00	1614.00
hsh	5	1279.80	31.4197390	1244.00	1317.00
hmf	5	565.2000000	24.8133029	530.0000000	597.0000000
str	5	1661.20	50.6329932	1607.00	1713.00
hs	5	854.8000000	25.0339769	826.0000000	883.0000000
wsh	5	351.6000000	18.9683948	321.0000000	367.0000000
ll	5	716.6000000	15.1921032	699.0000000	733.0000000
al	5	714.6000000	24.5214192	685.0000000	740.0000000

---------- sex=F tribe=BIG MEADOW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	3	1593.33	15.2752523	1580.00	1610.00
hsh	3	1313.33	11.5470054	1300.00	1320.00
hmf	3	613.3333333	32.1455025	590.0000000	650.0000000
str	3	1613.33	28.8675135	1580.00	1630.00
hs	3	863.3333333	15.2752523	850.0000000	880.0000000
wsh	3	366.6666667	15.2752523	350.0000000	380.0000000
ll	3	730.0000000	30.0000000	700.0000000	760.0000000
al	3	700.0000000	30.0000000	670.0000000	730.0000000

---------- sex=F tribe=BLOOD ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	4	1598.75	16.9779268	1575.00	1614.00
hsh	4	1338.75	10.5316982	1329.00	1353.00
hmf	4	595.2500000	16.3783394	583.0000000	619.0000000
str	4	1650.50	33.8279963	1611.00	1690.00
hs	4	805.5000000	32.4396876	773.0000000	842.0000000
wsh	4	334.7500000	21.9905283	306.0000000	356.0000000
ll	4	793.2500000	46.4354391	733.0000000	841.0000000
al	4	743.5000000	6.3508530	734.0000000	747.0000000

---------- sex=F tribe=CADDO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	10	1530.90	59.6553993	1439.00	1633.00
hsh	10	1276.90	42.0831188	1210.00	1343.00
hmf	10	596.3000000	38.1897310	510.0000000	648.0000000
str	10	1597.10	40.1813943	1520.00	1643.00
hs	10	810.4000000	35.2710142	753.0000000	879.0000000
wsh	10	341.6000000	23.5381487	298.0000000	374.0000000
ll	10	720.5000000	44.0964851	652.0000000	795.0000000
al	10	680.6000000	31.5143706	612.0000000	715.0000000

---------- sex=F tribe=CARRIER ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1566.33	30.2324329	1540.00	1630.00
hsh	9	1299.11	34.3782069	1267.00	1370.00
hmf	9	619.7777778	29.1623806	570.0000000	655.0000000
str	9	1586.00	72.2720555	1500.00	1690.00
hs	9	812.0000000	22.1020361	792.0000000	849.0000000
wsh	9	340.8888889	18.4217565	318.0000000	370.0000000
ll	9	754.3333333	33.8932147	695.0000000	810.0000000
al	9	679.3333333	41.7103105	632.0000000	752.0000000

---------- sex=F tribe=CATAWBA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	6	1606.83	35.9522832	1560.00	1659.00
hsh	6	1337.83	33.2650968	1297.00	1381.00
hmf	6	614.3333333	42.0317340	562.0000000	670.0000000
str	6	1650.33	26.1508445	1619.00	1684.00
hs	6	806.5000000	13.5904378	788.0000000	827.0000000
wsh	6	328.1666667	24.7339173	290.0000000	355.0000000
ll	6	800.3333333	25.9435284	762.0000000	832.0000000
al	6	723.5000000	19.0866445	705.0000000	756.0000000

---------- sex=F tribe=CHEROKEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	136	1558.64	53.4916640	1412.00	1723.00
hsh	136	1292.00	49.6574936	1164.00	1418.00
hmf	136	592.7426471	33.6760155	516.0000000	710.0000000
str	136	1604.35	65.5295668	1438.00	1748.00
hs	136	802.4191176	28.9910727	711.0000000	867.0000000
wsh	136	347.2500000	15.6459674	305.0000000	390.0000000
ll	136	756.2205882	39.8814338	656.0000000	861.0000000
al	136	699.2573529	32.4790522	620.0000000	774.0000000

---------- sex=F tribe=CHEYENNE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	3	1615.67	17.8978583	1596.00	1631.00
hsh	3	1344.67	11.1504858	1332.00	1353.00
hmf	3	623.6666667	12.2202019	613.0000000	637.0000000
str	3	1669.67	4.9328829	1664.00	1673.00
hs	3	830.0000000	36.0416426	793.0000000	865.0000000
wsh	3	329.0000000	16.0934769	314.0000000	346.0000000
ll	3	785.6666667	26.6333125	755.0000000	803.0000000
al	3	721.0000000	6.2449980	716.0000000	728.0000000

---------- sex=F tribe=CHICKASAW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	34	1566.94	44.5420749	1455.00	1655.00
hsh	34	1279.50	52.2002264	1085.00	1378.00
hmf	34	592.4705882	28.5712669	520.0000000	652.0000000
str	34	1622.47	75.4582908	1465.00	1764.00
hs	34	802.4705882	29.4085488	734.0000000	860.0000000
wsh	34	349.1176471	16.6456195	317.0000000	383.0000000
ll	34	764.4705882	34.4491151	701.0000000	831.0000000
al	34	687.0294118	44.2126304	553.0000000	763.0000000

---------- sex=F tribe=CHILCOTIN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	23	1563.83	32.9209137	1502.00	1621.00
hsh	23	1292.52	32.6062871	1223.00	1364.00
hmf	23	595.1739130	29.3329665	526.0000000	650.0000000
str	23	1610.74	45.6440949	1524.00	1718.00
hs	23	819.6086957	31.8601192	778.0000000	870.0000000
wsh	23	338.3043478	17.3032703	308.0000000	373.0000000
ll	23	744.2173913	27.5614298	680.0000000	791.0000000
al	23	697.3478261	33.0984876	650.0000000	774.0000000

---------- sex=F tribe=CHIPPEWA(MN) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	76	1579.26	42.1519057	1487.00	1698.00
hsh	76	1298.91	40.2075209	1212.00	1425.00
hmf	76	583.3684211	27.8944879	528.0000000	688.0000000
str	76	1655.50	51.0700173	1554.00	1749.00
hs	76	815.0526316	33.0828837	741.0000000	917.0000000
wsh	76	358.8947368	18.9480546	315.0000000	407.0000000
ll	76	764.2105263	32.3140076	681.0000000	841.0000000
al	76	715.5394737	28.1507564	638.0000000	782.0000000

---------- sex=F tribe=CHIPPEWA(WI) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	59	1575.44	56.6913212	1415.00	1692.00
hsh	59	1296.83	50.5739992	1196.00	1400.00
hmf	59	591.2711864	36.7572796	507.0000000	683.0000000
str	59	1647.37	68.3865530	1432.00	1805.00
hs	59	829.8305085	38.3766059	740.0000000	905.0000000
wsh	59	350.8813559	17.9213654	305.0000000	384.0000000
ll	59	745.6101695	37.0475077	623.0000000	822.0000000
al	59	705.5593220	34.2955065	639.0000000	782.0000000

---------- sex=F tribe=CHOCTAW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	72	1570.79	44.4927396	1466.00	1658.00
hsh	72	1293.60	42.1050530	1200.00	1388.00
hmf	72	588.2916667	33.4059274	493.0000000	671.0000000
str	72	1622.74	56.2884906	1474.00	1753.00
hs	72	802.5972222	31.6034673	749.0000000	895.0000000
wsh	72	341.1111111	19.7402538	302.0000000	386.0000000
ll	72	768.1944444	35.4125143	677.0000000	850.0000000
al	72	705.3055556	30.6119000	636.0000000	798.0000000

---------- sex=F tribe=CHUVANTSY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	7	1503.71	40.2231869	1430.00	1556.00
hsh	7	1204.71	36.6820314	1152.00	1263.00
hmf	7	555.4285714	35.4864159	522.0000000	622.0000000
str	7	1524.29	47.0096241	1478.00	1590.00
hs	7	774.5714286	30.8321107	733.0000000	823.0000000
wsh	7	334.2857143	9.2864469	324.0000000	350.0000000
ll	7	729.1428571	41.6270288	682.0000000	780.0000000
al	7	649.2857143	20.5403204	626.0000000	681.0000000

---------- sex=F tribe=CLALLAM ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	12	1528.83	62.0173485	1402.00	1613.00
hsh	12	1274.25	52.7672850	1173.00	1347.00
hmf	12	559.0833333	38.4742141	465.0000000	604.0000000
str	12	1612.33	47.4367202	1540.00	1691.00
hs	12	818.2500000	36.6088042	726.0000000	862.0000000
wsh	12	323.4166667	14.9815543	297.0000000	343.0000000
ll	12	710.5833333	34.3840828	662.0000000	780.0000000
al	12	715.1666667	41.7695699	621.0000000	779.0000000

---------- sex=F tribe=CMIWOK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	6	1525.83	38.5248837	1475.00	1580.00
hsh	6	1258.33	40.0832467	1210.00	1315.00
hmf	6	595.8333333	31.8459835	545.0000000	640.0000000
str	6	1555.00	70.0000000	1425.00	1620.00
hs	6	793.5000000	22.2238611	760.0000000	815.0000000
wsh	6	340.1666667	21.6371594	315.0000000	370.0000000
ll	6	732.3333333	29.1387485	700.0000000	767.0000000
al	6	662.5000000	27.5227179	630.0000000	710.0000000

---------- sex=F tribe=COAHUILLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	19	1578.89	68.9169345	1374.00	1686.00
hsh	19	1314.37	54.1379006	1186.00	1407.00
hmf	19	610.8421053	48.6201412	512.0000000	724.0000000
str	19	1585.89	78.3616224	1348.00	1673.00
hs	19	824.1578947	41.8559211	689.0000000	880.0000000
wsh	19	363.5263158	19.2768382	314.0000000	389.0000000
ll	19	754.7368421	51.1075577	679.0000000	830.0000000
al	19	703.5263158	33.7612013	648.0000000	772.0000000

---------- sex=F tribe=COEUR D'ALENE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	12	1554.33	50.3268107	1495.00	1635.00
hsh	12	1291.08	42.4166741	1242.00	1361.00
hmf	12	584.2500000	43.3025823	522.0000000	663.0000000
str	12	1601.08	60.4670584	1517.00	1725.00
hs	12	818.4166667	35.3359419	758.0000000	897.0000000
wsh	12	330.6666667	20.5352616	304.0000000	375.0000000
ll	12	735.9166667	36.6865304	694.0000000	816.0000000
al	12	706.8333333	42.8482170	600.0000000	773.0000000

---------- sex=F tribe=COMANCHE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	32	1563.63	46.0635956	1454.00	1683.00
hsh	32	1322.97	41.6269798	1220.00	1426.00
hmf	32	604.0937500	29.6107646	537.0000000	654.0000000
str	32	1637.78	58.2828113	1500.00	1740.00
hs	32	806.8750000	40.8709614	695.0000000	936.0000000
wsh	32	345.7812500	16.7230464	292.0000000	382.0000000
ll	32	756.7500000	35.3334348	686.0000000	834.0000000
al	32	718.8750000	32.9131310	657.0000000	776.0000000

---------- sex=F tribe=CONCOW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	10	1563.30	50.2218412	1494.00	1691.00
hsh	10	1292.40	54.6853627	1231.00	1416.00
hmf	10	608.5000000	31.0921569	564.0000000	657.0000000
str	10	1579.80	58.1736863	1530.00	1725.00
hs	10	826.6000000	28.7796224	782.0000000	887.0000000
wsh	10	339.7000000	10.9244883	320.0000000	356.0000000
ll	10	736.7000000	33.8199481	690.0000000	804.0000000
al	10	683.9000000	39.6357022	640.0000000	759.0000000

---------- sex=F tribe=CREEK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	6	1605.67	27.9833284	1576.00	1649.00
hsh	6	1357.50	26.1973281	1330.00	1394.00
hmf	6	654.3333333	27.0530343	614.0000000	681.0000000
str	6	1596.50	45.0721644	1528.00	1661.00
hs	6	823.3333333	40.3716072	783.0000000	893.0000000
wsh	6	347.1666667	16.9164614	325.0000000	371.0000000
ll	6	782.3333333	16.6453197	756.0000000	808.0000000
al	6	703.1666667	37.4348323	660.0000000	758.0000000

---------- sex=F tribe=CROW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	102	1583.30	49.3890975	1482.00	1733.00
hsh	102	1338.51	48.5414481	1217.00	1485.00
hmf	102	598.3333333	33.0676874	504.0000000	685.0000000
str	102	1665.60	63.6786891	1528.00	1818.00
hs	102	825.5588235	31.1882097	751.0000000	899.0000000
wsh	102	365.0392157	24.0498334	308.0000000	422.0000000
ll	102	757.7450980	34.4391230	680.0000000	853.0000000
al	102	740.1764706	35.6110484	672.0000000	838.0000000

---------- sex=F tribe=EASTERN MONO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1547.22	58.1544877	1475.00	1640.00
hsh	9	1281.67	52.7967802	1210.00	1360.00
hmf	9	597.7777778	24.7627633	560.0000000	630.0000000
str	9	1598.33	76.1577311	1520.00	1705.00
hs	9	821.1111111	25.3448439	785.0000000	870.0000000
wsh	9	343.8888889	43.1405970	240.0000000	380.0000000
ll	9	726.1111111	42.9227342	685.0000000	810.0000000
al	9	683.8888889	39.8260105	640.0000000	735.0000000

---------- sex=F tribe=ESKIMO(EC) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	14	1497.79	54.6530013	1386.00	1611.00
hsh	14	1227.00	50.0599640	1124.00	1308.00
hmf	14	569.8571429	39.3404414	497.0000000	629.0000000
str	14	1525.57	59.0797561	1398.00	1616.00
hs	14	799.9285714	39.4431710	734.0000000	864.0000000
wsh	14	331.6428571	22.6770204	281.0000000	358.0000000
ll	14	697.8571429	39.4302834	632.0000000	777.0000000
al	14	657.1428571	41.7333240	580.0000000	717.0000000

---------- sex=F tribe=ESKIMO(WC) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	11	1533.09	47.9717720	1470.00	1620.00
hsh	11	1254.45	50.6702351	1190.00	1342.00
hmf	11	600.8181818	38.9302406	540.0000000	650.0000000
str	11	1531.36	39.8805033	1480.00	1600.00
hs	11	813.8181818	22.6575294	780.0000000	845.0000000
wsh	11	340.0000000	21.4476106	310.0000000	375.0000000
ll	11	719.2727273	31.0776154	680.0000000	785.0000000
al	11	653.6363636	31.1296409	620.0000000	712.0000000

---------- sex=F tribe=EVEN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	17	1460.88	52.3448688	1380.00	1580.00
hsh	17	1186.71	47.1364571	1092.00	1284.00
hmf	17	549.4705882	26.0098963	512.0000000	610.0000000
str	17	1491.76	64.0776184	1390.00	1640.00
hs	17	785.1764706	24.5642914	734.0000000	830.0000000
wsh	17	328.2941176	19.0878388	290.0000000	358.0000000
ll	17	675.7058824	40.1664734	609.0000000	750.0000000
al	17	637.2352941	31.6909479	567.0000000	691.0000000

---------- sex=F tribe=EVENK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	64	1465.09	37.7484232	1377.00	1560.00
hsh	64	1196.59	38.1728395	1085.00	1282.00
hmf	64	542.5468750	26.2133673	482.0000000	610.0000000
str	64	1514.61	46.4110746	1395.00	1606.00
hs	64	771.0937500	20.6303204	725.0000000	816.0000000
wsh	64	318.9843750	14.8884660	275.0000000	348.0000000
ll	64	694.0000000	29.4041353	604.0000000	765.0000000
al	64	654.0468750	26.0965422	578.0000000	712.0000000

---------- sex=F tribe=FLATHEAD ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	4	1537.50	21.7638845	1515.00	1566.00
hsh	4	1277.50	17.5214155	1261.00	1301.00
hmf	4	598.5000000	14.4798711	582.0000000	617.0000000
str	4	1581.25	16.8992110	1565.00	1605.00
hs	4	802.0000000	24.8596058	776.0000000	830.0000000
wsh	4	369.2500000	18.0992633	350.0000000	390.0000000
ll	4	735.5000000	38.8286836	698.0000000	790.0000000
al	4	679.0000000	17.8699002	663.0000000	701.0000000

---------- sex=F tribe=HAIDA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	10	1564.40	45.7194342	1499.00	1663.00
hsh	10	1280.20	47.9022152	1211.00	1370.00
hmf	10	599.3000000	37.6122025	530.0000000	664.0000000
str	10	1596.90	35.3347484	1531.00	1650.00
hs	10	824.5000000	19.2194924	778.0000000	850.0000000
wsh	10	357.9000000	19.3990263	321.0000000	391.0000000
ll	10	739.9000000	31.6173300	708.0000000	813.0000000
al	10	680.9000000	28.2938941	632.0000000	713.0000000

---------- sex=F tribe=HOOPA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	25	1540.36	51.9020552	1445.00	1636.00
hsh	25	1279.96	52.4670373	1175.00	1390.00
hmf	25	601.4400000	34.6543408	528.0000000	668.0000000
str	25	1559.80	71.0563157	1373.00	1673.00
hs	25	812.6800000	43.6412649	738.0000000	953.0000000
wsh	25	355.7600000	54.7511644	276.0000000	470.0000000
ll	25	727.6800000	47.1590571	655.0000000	833.0000000
al	25	678.5200000	40.4331959	560.0000000	732.0000000

---------- sex=F tribe=ITELMAN(KH) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	77	1505.77	46.6935407	1410.00	1622.00
hsh	77	1234.30	41.0631942	1147.00	1330.00
hmf	77	565.2597403	27.3598835	510.0000000	621.0000000
str	77	1565.69	59.9743936	1433.00	1700.00
hs	77	814.4025974	28.3011343	750.0000000	885.0000000
wsh	77	339.1558442	15.2669793	298.0000000	370.0000000
ll	77	691.3636364	33.5566721	618.0000000	775.0000000
al	77	669.0389610	33.2405276	585.0000000	733.0000000

---------- sex=F tribe=ITELMAN(SE) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	49	1478.80	46.4345326	1400.00	1620.00
hsh	49	1206.69	41.2154927	1150.00	1336.00
hmf	49	550.5918367	29.6190524	500.0000000	636.0000000
str	49	1546.43	51.9214150	1446.00	1665.00
hs	49	808.1836735	33.3420864	730.0000000	895.0000000
wsh	49	332.3061224	18.5092365	300.0000000	370.0000000
ll	49	670.6122449	32.9752536	615.0000000	750.0000000
al	49	656.1020408	35.1278883	585.0000000	759.0000000

---------- sex=F tribe=KALAPUYA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	4	1485.75	60.6980230	1396.00	1530.00
hsh	4	1220.00	65.3962282	1124.00	1262.00
hmf	4	580.7500000	32.7248631	535.0000000	611.0000000
str	4	1518.25	82.6453265	1401.00	1585.00
hs	4	782.5000000	40.6816912	732.0000000	831.0000000
wsh	4	375.2500000	16.0908877	353.0000000	391.0000000
ll	4	703.2500000	40.7216159	664.0000000	752.0000000
al	4	639.2500000	37.6153781	589.0000000	679.0000000

---------- sex=F tribe=KIOWA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	35	1577.51	48.2672532	1429.00	1687.00
hsh	35	1324.66	48.1877107	1182.00	1436.00
hmf	35	591.0857143	36.9541619	526.0000000	668.0000000
str	35	1651.57	61.0873462	1425.00	1759.00
hs	35	821.2571429	34.5460842	743.0000000	891.0000000
wsh	35	342.7142857	16.8881640	311.0000000	382.0000000
ll	35	756.2571429	37.6769104	668.0000000	834.0000000
al	35	733.5714286	35.1946568	627.0000000	834.0000000

---------- sex=F tribe=KLAMATH ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	37	1579.49	49.5426985	1450.00	1688.00
hsh	37	1295.57	41.5655710	1176.00	1371.00
hmf	37	601.6486486	43.8077975	526.0000000	759.0000000
str	37	1618.81	58.9556509	1466.00	1760.00
hs	37	846.1891892	38.4063347	733.0000000	930.0000000
wsh	37	358.3243243	37.1835194	236.0000000	430.0000000
ll	37	733.2972973	40.5701483	643.0000000	826.0000000
al	37	693.9189189	38.1214276	567.0000000	762.0000000

---------- sex=F tribe=KORYAK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	142	1497.89	44.1523954	1380.00	1605.00
hsh	142	1224.40	41.1429026	1105.00	1340.00
hmf	142	564.5422535	32.6808386	484.0000000	650.0000000
str	142	1503.64	76.1990992	1310.00	1700.00
hs	142	794.2535211	34.5461838	702.0000000	870.0000000
wsh	142	325.1338028	18.8721826	270.0000000	370.0000000
ll	142	703.6338028	31.5690123	629.0000000	790.0000000
al	142	659.8591549	35.9648354	564.0000000	750.0000000

---------- sex=F tribe=KUTENAI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	3	1464.33	91.5113836	1411.00	1570.00
hsh	3	1249.33	69.8665394	1208.00	1330.00
hmf	3	532.0000000	73.1368580	477.0000000	615.0000000
str	3	1552.33	37.2334975	1510.00	1580.00
hs	3	773.3333333	50.2924779	734.0000000	830.0000000
wsh	3	306.3333333	16.9213869	292.0000000	325.0000000
ll	3	691.0000000	43.7149860	656.0000000	740.0000000
al	3	717.3333333	14.6401275	704.0000000	733.0000000

---------- sex=F tribe=KWAKIUTL ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	47	1531.30	41.0518839	1457.00	1634.00
hsh	47	1245.89	41.4997297	1171.00	1353.00
hmf	47	589.3829787	34.6633205	505.0000000	670.0000000
str	47	1572.70	54.8523373	1422.00	1672.00
hs	47	840.8085106	29.8209427	762.0000000	923.0000000
wsh	47	342.6170213	15.9435870	308.0000000	383.0000000
ll	47	690.4893617	37.8600813	621.0000000	787.0000000
al	47	656.5106383	28.3310188	576.0000000	714.0000000

---------- sex=F tribe=LILLOOET ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	69	1521.93	59.2381333	1327.00	1621.00
hsh	69	1256.70	57.4103660	1056.00	1347.00
hmf	69	579.4057971	44.0729071	457.0000000	670.0000000
str	69	1578.14	65.0204211	1375.00	1680.00
hs	69	789.7391304	39.5290854	666.0000000	866.0000000
wsh	69	346.1739130	19.3108903	295.0000000	385.0000000
ll	69	732.1884058	39.2181963	603.0000000	809.0000000
al	69	677.2898551	33.2747482	584.0000000	760.0000000

---------- sex=F tribe=MAKAH ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	31	1526.03	47.6861153	1412.00	1605.00
hsh	31	1255.32	49.1883368	1154.00	1342.00
hmf	31	571.8387097	40.9813753	470.0000000	645.0000000
str	31	1593.26	57.7748317	1480.00	1748.00
hs	31	817.0645161	34.6996018	758.0000000	881.0000000
wsh	31	335.5483871	20.8947182	296.0000000	380.0000000
ll	31	708.9677419	39.4575585	637.0000000	769.0000000
al	31	683.4838710	31.9007534	606.0000000	770.0000000

---------- sex=F tribe=MALECITE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	13	1540.85	65.6529336	1385.00	1628.00
hsh	13	1263.08	59.8922109	1101.00	1314.00
hmf	13	559.1538462	44.2546535	428.0000000	599.0000000
str	13	1626.23	77.4770437	1460.00	1738.00
hs	13	804.6153846	28.2622789	758.0000000	844.0000000
wsh	13	343.0769231	19.5638337	312.0000000	365.0000000
ll	13	736.2307692	55.1560723	585.0000000	799.0000000
al	13	703.9230769	31.0710517	624.0000000	736.0000000

---------- sex=F tribe=MARITIME CHUKCHI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	23	1528.57	61.0103017	1382.00	1616.00
hsh	23	1257.48	55.7688978	1120.00	1324.00
hmf	23	616.3913043	36.4226941	530.0000000	680.0000000
str	23	1521.52	72.6672801	1370.00	1680.00
hs	23	816.4782609	43.8197440	713.0000000	870.0000000
wsh	23	330.9565217	18.5459583	291.0000000	368.0000000
ll	23	712.0869565	39.9020540	647.0000000	826.0000000
al	23	641.0869565	38.3724724	571.0000000	719.0000000

---------- sex=F tribe=MENOMINI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	22	1569.91	46.2600404	1483.00	1676.00
hsh	22	1296.41	36.9667278	1233.00	1362.00
hmf	22	590.7272727	30.7357118	526.0000000	649.0000000
str	22	1644.05	49.4806141	1570.00	1766.00
hs	22	821.3181818	27.1054139	772.0000000	865.0000000
wsh	22	343.9090909	17.1822419	303.0000000	388.0000000
ll	22	748.5909091	41.1867513	693.0000000	853.0000000
al	22	705.6818182	29.9847364	628.0000000	770.0000000

---------- sex=F tribe=MICMAC ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	58	1572.57	54.7902258	1441.00	1669.00
hsh	58	1293.67	53.5413885	1167.00	1412.00
hmf	58	596.4137931	34.9952551	524.0000000	675.0000000
str	58	1649.28	68.2374063	1488.00	1829.00
hs	58	818.2068966	30.7392877	740.0000000	874.0000000
wsh	58	342.1206897	18.4724333	299.0000000	386.0000000
ll	58	754.3620690	43.8012650	628.0000000	861.0000000
al	58	697.2586207	36.7153873	614.0000000	783.0000000

---------- sex=F tribe=MISSISSAGUA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	33	1566.94	57.6687412	1455.00	1687.00
hsh	33	1288.33	56.8158575	1203.00	1422.00
hmf	33	587.4545455	34.3393824	498.0000000	664.0000000
str	33	1638.00	60.1311068	1509.00	1749.00
hs	33	825.1515152	41.9010152	705.0000000	880.0000000
wsh	33	349.4545455	18.3815310	317.0000000	391.0000000
ll	33	741.7878788	35.2887709	677.0000000	807.0000000
al	33	700.8787879	34.5378032	623.0000000	787.0000000

---------- sex=F tribe=MODOC ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1553.89	66.1805191	1475.00	1690.00
hsh	9	1293.33	64.3234017	1215.00	1415.00
hmf	9	593.3333333	36.3145976	535.0000000	650.0000000
str	9	1609.44	76.9108430	1480.00	1750.00
hs	9	829.4444444	31.3692170	780.0000000	880.0000000
wsh	9	391.1111111	29.0234579	355.0000000	440.0000000
ll	9	724.4444444	41.0369075	680.0000000	810.0000000
al	9	700.0000000	36.8272997	655.0000000	765.0000000

---------- sex=F tribe=MOHAWK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	13	1584.77	65.3250256	1465.00	1724.00
hsh	13	1296.46	49.3028319	1200.00	1403.00
hmf	13	594.0000000	34.6289859	556.0000000	652.0000000
str	13	1640.31	72.3744713	1480.00	1806.00
hs	13	816.6153846	27.9688471	766.0000000	863.0000000
wsh	13	350.0000000	16.7878925	318.0000000	383.0000000
ll	13	768.1538462	48.0899264	683.0000000	861.0000000
al	13	702.4615385	38.3962138	623.0000000	762.0000000

---------- sex=F tribe=MONTAGNAIS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	25	1507.36	41.4265213	1418.00	1598.00
hsh	25	1231.52	39.4758576	1153.00	1304.00
hmf	25	556.6800000	35.5360380	491.0000000	630.0000000
str	25	1570.64	46.5240798	1467.00	1684.00
hs	25	785.6400000	23.9406906	748.0000000	825.0000000
wsh	25	331.9200000	19.7102342	303.0000000	382.0000000
ll	25	721.7200000	30.7280003	663.0000000	786.0000000
al	25	674.8400000	32.0295176	626.0000000	737.0000000

---------- sex=F tribe=MUNSEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	15	1582.93	40.6789989	1520.00	1655.00
hsh	15	1308.60	39.4620975	1250.00	1390.00
hmf	15	586.0666667	36.8965091	530.0000000	658.0000000
str	15	1666.27	61.9936249	1578.00	1765.00
hs	15	808.9333333	32.1502425	748.0000000	860.0000000
wsh	15	345.2000000	24.9376365	300.0000000	375.0000000
ll	15	774.0000000	31.4892272	720.0000000	814.0000000
al	15	722.5333333	28.2232596	670.0000000	770.0000000

---------- sex=F tribe=NAVAJO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	10	1581.90	37.8430971	1525.00	1652.00
hsh	10	1316.10	33.2580817	1266.00	1369.00
hmf	10	604.3000000	30.9732860	554.0000000	661.0000000
str	10	1634.70	28.8830977	1597.00	1680.00
hs	10	830.1000000	27.9063911	795.0000000	893.0000000
wsh	10	339.7000000	11.0960453	318.0000000	356.0000000
ll	10	751.8000000	30.2941138	713.0000000	793.0000000
al	10	711.8000000	23.6868459	672.0000000	758.0000000

---------- sex=F tribe=NEZ PERCE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	6	1571.33	65.6312933	1469.00	1669.00
hsh	6	1296.17	64.6851348	1210.00	1398.00
hmf	6	595.5000000	27.4280878	559.0000000	632.0000000
str	6	1596.33	77.8117386	1444.00	1658.00
hs	6	843.6666667	17.3166586	818.0000000	863.0000000
wsh	6	338.1666667	43.0832527	284.0000000	380.0000000
ll	6	727.6666667	56.1913398	651.0000000	820.0000000
al	6	700.6666667	56.4718219	631.0000000	771.0000000

---------- sex=F tribe=NISQUALLY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	8	1532.00	73.0244577	1360.00	1600.00
hsh	8	1279.00	52.7148664	1155.00	1320.00
hmf	8	576.6250000	28.3394601	533.0000000	615.0000000
str	8	1578.13	60.7416955	1437.00	1620.00
hs	8	819.1250000	66.5849350	668.0000000	877.0000000
wsh	8	353.0000000	38.7445849	294.0000000	402.0000000
ll	8	712.8750000	16.4528547	687.0000000	731.0000000
al	8	702.3750000	34.1548470	622.0000000	735.0000000

---------- sex=F tribe=NORTHERN HILL YOKUTS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1519.44	36.4386852	1470.00	1580.00
hsh	9	1251.67	38.2426464	1200.00	1315.00
hmf	9	578.8888889	26.0741464	540.0000000	615.0000000
str	9	1571.11	45.6739654	1500.00	1640.00
hs	9	808.3333333	23.7170825	780.0000000	850.0000000
wsh	9	367.7777778	62.2048587	320.0000000	530.0000000
ll	9	711.1111111	32.6704930	670.0000000	780.0000000
al	9	672.7777778	19.2209377	640.0000000	705.0000000

---------- sex=F tribe=NORTHERN PAIUTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	36	1555.56	50.5509330	1460.00	1675.00
hsh	36	1301.06	43.3747421	1215.00	1371.00
hmf	36	602.3333333	34.5096260	531.0000000	665.0000000
str	36	1594.42	57.9183539	1433.00	1690.00
hs	36	821.6944444	27.7703022	769.0000000	900.0000000
wsh	36	353.1388889	16.6753073	321.0000000	385.0000000
ll	36	733.8611111	32.7624810	660.0000000	810.0000000
al	36	698.7222222	30.3706730	615.0000000	750.0000000

---------- sex=F tribe=NORTHERN POMO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	13	1530.62	59.7739331	1447.00	1645.00
hsh	13	1278.38	49.7519488	1213.00	1385.00
hmf	13	596.3846154	32.0430400	541.0000000	646.0000000
str	13	1570.38	64.6909814	1500.00	1690.00
hs	13	806.6153846	45.1248979	712.0000000	873.0000000
wsh	13	358.6153846	30.6989100	303.0000000	404.0000000
ll	13	724.0000000	37.1416209	674.0000000	797.0000000
al	13	682.0000000	32.1740061	640.0000000	740.0000000

---------- sex=F tribe=OJIBWA(Gbay) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	19	1594.00	51.0990324	1484.00	1682.00
hsh	19	1314.89	53.3019645	1170.00	1388.00
hmf	19	581.4210526	44.1227024	499.0000000	661.0000000
str	19	1656.53	53.8468697	1556.00	1746.00
hs	19	831.0000000	39.2994204	781.0000000	898.0000000
wsh	19	348.8947368	23.1706105	315.0000000	400.0000000
ll	19	763.0000000	43.5609407	690.0000000	870.0000000
al	19	733.4736842	44.7615515	671.0000000	810.0000000

---------- sex=F tribe=OJIBWA(NWLSup) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	41	1566.76	70.0252742	1360.00	1683.00
hsh	41	1325.61	70.0188825	1119.00	1455.00
hmf	41	563.3658537	51.6820840	425.0000000	666.0000000
str	41	1617.17	58.5448129	1474.00	1755.00
hs	41	807.4146341	29.2446368	714.0000000	861.0000000
wsh	41	336.0000000	14.9966663	300.0000000	360.0000000
ll	41	759.3414634	56.8962256	622.0000000	889.0000000
al	41	762.2439024	44.9242588	647.0000000	855.0000000

---------- sex=F tribe=OKANAGAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	23	1573.87	60.7381147	1480.00	1729.00
hsh	23	1305.43	51.2239522	1216.00	1405.00
hmf	23	590.7391304	37.1755264	511.0000000	653.0000000
str	23	1625.96	60.6153883	1527.00	1757.00
hs	23	830.0869565	33.3874133	783.0000000	896.0000000
wsh	23	343.7826087	20.6088166	289.0000000	385.0000000
ll	23	743.7826087	47.6664133	679.0000000	845.0000000
al	23	714.6956522	38.8767689	656.0000000	785.0000000

---------- sex=F tribe=OMAHA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	24	1577.38	84.8844803	1268.00	1679.00
hsh	24	1299.33	77.4527439	1026.00	1413.00
hmf	24	599.0416667	44.4399734	446.0000000	668.0000000
str	24	1652.33	93.0370037	1333.00	1805.00
hs	24	812.5833333	43.2051896	678.0000000	867.0000000
wsh	24	353.0000000	19.5714966	300.0000000	384.0000000
ll	24	764.7916667	54.7571549	590.0000000	836.0000000
al	24	700.2916667	39.4665287	580.0000000	756.0000000

---------- sex=F tribe=ONEIDA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	44	1597.23	46.5911777	1501.00	1725.00
hsh	44	1313.89	40.9186464	1217.00	1430.00
hmf	44	606.3636364	27.9909378	557.0000000	682.0000000
str	44	1663.75	65.2345054	1520.00	1797.00
hs	44	841.8409091	29.3034986	780.0000000	930.0000000
wsh	44	344.6818182	20.4572984	300.0000000	396.0000000
ll	44	755.3863636	35.0330183	674.0000000	847.0000000
al	44	707.5227273	31.8502956	631.0000000	793.0000000

---------- sex=F tribe=OSAGE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	3	1588.67	55.3654525	1530.00	1640.00
hsh	3	1330.67	42.1584313	1284.00	1366.00
hmf	3	602.0000000	31.0483494	570.0000000	632.0000000
str	3	1677.00	46.5080638	1630.00	1723.00
hs	3	823.0000000	30.8058436	800.0000000	858.0000000
wsh	3	338.6666667	10.2632029	330.0000000	350.0000000
ll	3	765.6666667	41.0162569	719.0000000	796.0000000
al	3	728.6666667	12.8582010	714.0000000	738.0000000

---------- sex=F tribe=PAWNEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	6	1552.00	39.6938282	1515.00	1623.00
hsh	6	1278.33	33.7441353	1253.00	1345.00
hmf	6	596.3333333	23.3552278	566.0000000	625.0000000
str	6	1605.83	56.1263456	1550.00	1709.00
hs	6	821.1666667	42.6305837	785.0000000	903.0000000
wsh	6	340.0000000	16.4802913	327.0000000	372.0000000
ll	6	730.8333333	19.8938852	702.0000000	749.0000000
al	6	682.0000000	25.7449024	654.0000000	720.0000000

---------- sex=F tribe=PIEGAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1596.89	59.4757187	1478.00	1667.00
hsh	9	1335.33	54.4541091	1237.00	1413.00
hmf	9	612.7777778	35.3757607	553.0000000	648.0000000
str	9	1670.11	65.3862456	1596.00	1771.00
hs	9	811.0000000	43.4223445	713.0000000	864.0000000
wsh	9	346.6666667	11.0000000	330.0000000	364.0000000
ll	9	785.8888889	32.1770277	727.0000000	823.0000000
al	9	722.5555556	40.1126885	638.0000000	773.0000000

---------- sex=F tribe=PONCA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	10	1605.20	48.3409189	1535.00	1687.00
hsh	10	1333.30	57.2577991	1252.00	1433.00
hmf	10	618.4000000	26.6716662	576.0000000	653.0000000
str	10	1639.60	53.6950236	1570.00	1740.00
hs	10	827.5000000	28.0049599	792.0000000	881.0000000
wsh	10	349.7000000	14.1660784	330.0000000	378.0000000
ll	10	777.7000000	48.6393759	683.0000000	866.0000000
al	10	714.9000000	40.3387049	676.0000000	803.0000000

---------- sex=F tribe=POTAWATOMI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	4	1551.00	66.8480865	1491.00	1645.00
hsh	4	1286.50	71.1828631	1215.00	1380.00
hmf	4	583.7500000	40.9501730	535.0000000	621.0000000
str	4	1636.75	66.8499564	1572.00	1730.00
hs	4	831.7500000	30.2034766	800.0000000	860.0000000
wsh	4	358.5000000	28.8617394	336.0000000	398.0000000
ll	4	719.2500000	47.0203856	679.0000000	785.0000000
al	4	702.7500000	42.3428467	678.0000000	766.0000000

---------- sex=F tribe=PUEBLO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	1	1542.00	.	1542.00	1542.00
hsh	1	1271.00	.	1271.00	1271.00
hmf	1	572.0000000	.	572.0000000	572.0000000
str	1	1614.00	.	1614.00	1614.00
hs	1	827.0000000	.	827.0000000	827.0000000
wsh	1	323.0000000	.	323.0000000	323.0000000
ll	1	715.0000000	.	715.0000000	715.0000000
al	1	699.0000000	.	699.0000000	699.0000000

---------- sex=F tribe=PUYALLUP ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	7	1533.71	54.4907157	1454.00	1611.00
hsh	7	1258.71	52.3058769	1192.00	1332.00
hmf	7	585.0000000	35.0666033	534.0000000	628.0000000
str	7	1580.00	75.5182097	1475.00	1714.00
hs	7	835.1428571	39.3422105	787.0000000	877.0000000
wsh	7	350.7142857	15.5960923	328.0000000	372.0000000
ll	7	698.5714286	40.9465389	641.0000000	753.0000000
al	7	673.7142857	31.8941702	645.0000000	738.0000000

---------- sex=F tribe=QUEETS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	3	1494.33	28.3607710	1462.00	1515.00
hsh	3	1279.67	33.4713808	1242.00	1306.00
hmf	3	560.3333333	41.4286535	533.0000000	608.0000000
str	3	1554.67	20.5993527	1533.00	1574.00
hs	3	797.6666667	37.8725934	767.0000000	840.0000000
wsh	3	307.6666667	15.1767366	294.0000000	324.0000000
ll	3	696.6666667	64.8562513	622.0000000	739.0000000
al	3	719.3333333	47.4376784	683.0000000	773.0000000

---------- sex=F tribe=QUILLAYUTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	8	1523.63	42.4329303	1430.00	1559.00
hsh	8	1255.25	40.9799603	1170.00	1297.00
hmf	8	562.2500000	19.8404349	540.0000000	590.0000000
str	8	1580.00	47.0227908	1490.00	1628.00
hs	8	819.2500000	24.4934394	770.0000000	840.0000000
wsh	8	334.0000000	12.4211801	318.0000000	358.0000000
ll	8	704.3750000	23.7362742	660.0000000	738.0000000
al	8	693.0000000	38.1425896	630.0000000	757.0000000

---------- sex=F tribe=QUINAULT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1530.00	53.5046727	1455.00	1601.00
hsh	9	1283.22	39.4010716	1228.00	1351.00
hmf	9	591.8888889	37.0318932	528.0000000	640.0000000
str	9	1568.67	63.9140047	1483.00	1661.00
hs	9	815.6666667	67.7255491	700.0000000	921.0000000
wsh	9	321.3333333	24.0000000	299.0000000	368.0000000
ll	9	714.3333333	44.1899310	654.0000000	798.0000000
al	9	691.3333333	37.7591049	647.0000000	763.0000000

---------- sex=F tribe=REINDEER CHUKCHI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	24	1515.21	57.2947977	1444.00	1680.00
hsh	24	1243.75	58.6279723	1170.00	1380.00
hmf	24	588.1250000	41.2398209	509.0000000	671.0000000
str	24	1514.79	89.4849898	1370.00	1700.00
hs	24	792.2500000	30.3461909	740.0000000	887.0000000
wsh	24	337.2500000	14.6235367	300.0000000	366.0000000
ll	24	722.9583333	47.4941453	661.0000000	818.0000000
al	24	655.6250000	57.5271675	591.0000000	806.0000000

---------- sex=F tribe=REINDEER KORYAK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	6	1479.00	48.3942145	1410.00	1546.00
hsh	6	1210.67	50.4327936	1150.00	1276.00
hmf	6	557.1666667	24.8468643	512.0000000	576.0000000
str	6	1496.83	86.1032326	1402.00	1620.00
hs	6	781.5000000	29.9583044	746.0000000	832.0000000
wsh	6	328.3333333	27.7896863	298.0000000	360.0000000
ll	6	697.5000000	30.4745796	664.0000000	742.0000000
al	6	653.5000000	41.2831685	600.0000000	701.0000000

---------- sex=F tribe=SAN LUIS REY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	43	1577.88	55.7512371	1435.00	1675.00
hsh	43	1302.79	54.4319401	1120.00	1402.00
hmf	43	610.3953488	41.9478926	480.0000000	706.0000000
str	43	1580.02	63.5518118	1380.00	1684.00
hs	43	804.9302326	31.7132955	720.0000000	869.0000000
wsh	43	378.7441860	16.1968442	350.0000000	410.0000000
ll	43	772.9534884	36.0495383	694.0000000	832.0000000
al	43	692.3953488	34.8808445	585.0000000	760.0000000

---------- sex=F tribe=SAUK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	2	1528.00	5.6568542	1524.00	1532.00
hsh	2	1279.50	9.1923882	1273.00	1286.00
hmf	2	585.5000000	12.0208153	577.0000000	594.0000000
str	2	1564.00	19.7989899	1550.00	1578.00
hs	2	817.0000000	14.1421356	807.0000000	827.0000000
wsh	2	333.0000000	7.0710678	328.0000000	338.0000000
ll	2	711.0000000	19.7989899	697.0000000	725.0000000
al	2	694.0000000	2.8284271	692.0000000	696.0000000

---------- sex=F tribe=SENECA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	25	1581.68	54.8996964	1475.00	1670.00
hsh	25	1309.80	49.7217256	1225.00	1398.00
hmf	25	602.4000000	29.2944818	533.0000000	701.0000000
str	25	1638.36	71.3056099	1463.00	1742.00
hs	25	833.5600000	31.3276768	780.0000000	893.0000000
wsh	25	345.0800000	20.7121542	292.0000000	373.0000000
ll	25	748.1200000	43.4686860	679.0000000	823.0000000
al	25	707.4000000	37.6330971	632.0000000	775.0000000

---------- sex=F tribe=SHOSHONI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	3	1563.00	9.1651514	1553.00	1571.00
hsh	3	1275.00	11.3578167	1262.00	1283.00
hmf	3	594.6666667	15.5670592	580.0000000	611.0000000
str	3	1592.67	21.3853532	1574.00	1616.00
hs	3	813.3333333	20.5507502	800.0000000	837.0000000
wsh	3	346.0000000	4.0000000	342.0000000	350.0000000
ll	3	749.6666667	15.5026879	734.0000000	765.0000000
al	3	680.3333333	17.0977581	669.0000000	700.0000000

---------- sex=F tribe=SHUSWAP ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	91	1544.52	52.3750073	1380.00	1691.00
hsh	91	1272.56	47.6450321	1150.00	1424.00
hmf	91	576.0329670	37.8668576	477.0000000	691.0000000
str	91	1604.18	67.5464603	1400.00	1772.00
hs	91	812.3186813	30.5762723	725.0000000	877.0000000
wsh	91	339.7912088	20.1557913	291.0000000	382.0000000
ll	91	732.1978022	37.0831557	634.0000000	857.0000000
al	91	696.5274725	34.1234167	608.0000000	797.0000000

---------- sex=F tribe=SIOUX(SANTEE) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	19	1597.89	46.9892360	1485.00	1682.00
hsh	19	1317.37	47.3230159	1208.00	1400.00
hmf	19	601.8421053	27.5968258	534.0000000	641.0000000
str	19	1670.95	50.6298920	1557.00	1745.00
hs	19	811.5263158	33.0039870	749.0000000	865.0000000
wsh	19	345.6315789	13.7445364	313.0000000	372.0000000
ll	19	786.3684211	39.4055982	715.0000000	856.0000000
al	19	715.5263158	24.0239890	674.0000000	771.0000000

---------- sex=F tribe=SIOUX(TETON) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	64	1603.78	49.5139771	1468.00	1720.00
hsh	64	1329.77	45.4783193	1213.00	1453.00
hmf	64	607.7343750	34.4117192	520.0000000	692.0000000
str	64	1698.81	62.2794203	1543.00	1884.00
hs	64	819.7500000	30.6034545	745.0000000	876.0000000
wsh	64	364.3125000	17.9619306	320.0000000	403.0000000
ll	64	784.0312500	38.6231154	714.0000000	888.0000000
al	64	722.0312500	29.9825181	655.0000000	781.0000000

---------- sex=F tribe=SIOUX(YANKTON) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	44	1598.27	54.5844188	1493.00	1705.00
hsh	44	1312.59	48.2012825	1212.00	1401.00
hmf	44	608.5227273	32.6450172	529.0000000	680.0000000
str	44	1679.34	63.4760322	1543.00	1799.00
hs	44	819.8409091	37.0015356	758.0000000	903.0000000
wsh	44	356.2500000	23.5708975	298.0000000	396.0000000
ll	44	778.4318182	38.2460806	699.0000000	861.0000000
al	44	704.0681818	26.7984707	651.0000000	754.0000000

---------- sex=F tribe=SOUTHERN MIWOK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	7	1553.57	32.4954209	1495.00	1590.00
hsh	7	1282.86	30.9377255	1235.00	1325.00
hmf	7	590.7142857	26.2088680	560.0000000	640.0000000
str	7	1616.57	34.9612030	1560.00	1670.00
hs	7	815.0000000	17.5594229	790.0000000	845.0000000
wsh	7	362.8571429	10.7459849	350.0000000	380.0000000
ll	7	738.5714286	29.8208939	705.0000000	790.0000000
al	7	692.1428571	21.9577516	655.0000000	715.0000000

---------- sex=F tribe=STALO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	21	1530.52	45.4396512	1445.00	1610.00
hsh	21	1270.10	45.2337316	1193.00	1366.00
hmf	21	586.6190476	26.7048239	537.0000000	628.0000000
str	21	1591.76	44.0067094	1532.00	1680.00
hs	21	815.0000000	32.3759170	771.0000000	874.0000000
wsh	21	319.1904762	25.7907329	272.0000000	367.0000000
ll	21	715.5238095	31.8976787	654.0000000	783.0000000
al	21	683.4761905	30.5264132	626.0000000	750.0000000

---------- sex=F tribe=STOCKBRIDGE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	5	1592.60	48.1175644	1526.00	1653.00
hsh	5	1312.40	45.5609482	1246.00	1365.00
hmf	5	617.0000000	25.1097591	581.0000000	647.0000000
str	5	1642.40	58.8413120	1593.00	1718.00
hs	5	825.8000000	32.3836378	788.0000000	865.0000000
wsh	5	335.8000000	10.6395489	327.0000000	353.0000000
ll	5	766.8000000	36.6837839	736.0000000	812.0000000
al	5	695.4000000	29.1770458	665.0000000	733.0000000

---------- sex=F tribe=TAHLTAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	5	1623.00	55.4075807	1525.00	1660.00
hsh	5	1342.40	56.8005282	1250.00	1390.00
hmf	5	640.6000000	35.8441069	587.0000000	685.0000000
str	5	1636.00	74.0270221	1540.00	1720.00
hs	5	858.8000000	23.3066514	820.0000000	878.0000000
wsh	5	350.0000000	18.8281704	327.0000000	370.0000000
ll	5	764.2000000	34.7015850	705.0000000	790.0000000
al	5	701.8000000	24.7527776	663.0000000	730.0000000

---------- sex=F tribe=TAOS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	11	1519.55	44.0553371	1450.00	1583.00
hsh	11	1251.45	48.2811840	1186.00	1322.00
hmf	11	579.4545455	32.4634060	537.0000000	620.0000000
str	11	1584.36	61.3714473	1488.00	1681.00
hs	11	819.2727273	25.9348835	783.0000000	859.0000000
wsh	11	341.1818182	16.3206506	316.0000000	368.0000000
ll	11	700.2727273	28.1392641	661.0000000	748.0000000
al	11	672.0000000	25.2428208	644.0000000	714.0000000

---------- sex=F tribe=TENINO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	13	1524.62	75.9468438	1361.00	1618.00
hsh	13	1262.38	65.8160802	1138.00	1347.00
hmf	13	586.1538462	51.8810276	452.0000000	639.0000000
str	13	1551.54	74.0265891	1430.00	1652.00
hs	13	804.6923077	54.8215052	655.0000000	875.0000000
wsh	13	325.3846154	41.3270260	263.0000000	410.0000000
ll	13	719.9230769	42.0980236	658.0000000	802.0000000
al	13	676.2307692	38.0200689	623.0000000	730.0000000

---------- sex=F tribe=THOMPSON ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	134	1520.77	60.0140227	1305.00	1667.00
hsh	134	1260.52	51.7445601	1105.00	1393.00
hmf	134	587.1716418	33.1529892	496.0000000	684.0000000
str	134	1571.31	63.2939696	1290.00	1701.00
hs	134	800.0447761	38.8488232	680.0000000	895.0000000
wsh	134	317.8656716	25.8625026	252.0000000	371.0000000
ll	134	720.7238806	40.0898224	600.0000000	797.0000000
al	134	673.3507463	33.3052091	552.0000000	758.0000000

---------- sex=F tribe=TONKAWA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	18	1564.94	56.5284647	1470.00	1649.00
hsh	18	1307.28	48.7657131	1230.00	1392.00
hmf	18	588.6111111	37.7002713	529.0000000	660.0000000
str	18	1616.39	58.8429004	1506.00	1740.00
hs	18	809.2777778	37.3107863	743.0000000	869.0000000
wsh	18	339.5555556	23.5652342	289.0000000	386.0000000
ll	18	755.6666667	38.7419821	686.0000000	826.0000000
al	18	718.6666667	23.0625747	670.0000000	749.0000000

---------- sex=F tribe=TSIMSHIAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	40	1558.38	36.8125449	1488.00	1635.00
hsh	40	1281.50	38.7576295	1203.00	1350.00
hmf	40	592.6500000	29.4797192	547.0000000	662.0000000
str	40	1605.90	43.6123953	1498.00	1680.00
hs	40	839.5500000	26.0580712	790.0000000	900.0000000
wsh	40	350.7250000	16.1958961	318.0000000	388.0000000
ll	40	718.8250000	37.5389627	652.0000000	803.0000000
al	40	688.8500000	25.6240572	623.0000000	741.0000000

---------- sex=F tribe=TUNDRA-EVENK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	3	1471.00	31.1929479	1435.00	1490.00
hsh	3	1213.33	36.0185138	1172.00	1238.00
hmf	3	551.6666667	41.4045086	505.0000000	584.0000000
str	3	1520.67	31.5330514	1490.00	1553.00
hs	3	791.0000000	9.5393920	782.0000000	801.0000000
wsh	3	316.6666667	15.5349069	304.0000000	334.0000000
ll	3	680.0000000	24.2693222	653.0000000	700.0000000
al	3	661.6666667	13.7961347	646.0000000	672.0000000

---------- sex=F tribe=TUSCARORA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	22	1594.18	53.1105194	1470.00	1674.00
hsh	22	1321.36	46.2040458	1200.00	1390.00
hmf	22	596.3636364	37.7378747	490.0000000	651.0000000
str	22	1660.82	60.7035234	1520.00	1751.00
hs	22	829.3181818	34.9576429	743.0000000	883.0000000
wsh	22	346.0000000	20.6074420	303.0000000	379.0000000
ll	22	764.8636364	36.1627215	685.0000000	849.0000000
al	22	725.0000000	31.8852108	670.0000000	788.0000000

---------- sex=F tribe=TUTUTNI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	7	1541.43	56.5209611	1477.00	1636.00
hsh	7	1252.71	39.8234198	1194.00	1321.00
hmf	7	589.1428571	38.4986085	511.0000000	622.0000000
str	7	1543.71	90.6085248	1411.00	1703.00
hs	7	825.4285714	38.6430552	778.0000000	871.0000000
wsh	7	342.4285714	19.5691691	321.0000000	370.0000000
ll	7	716.0000000	34.6217658	672.0000000	765.0000000
al	7	663.5714286	33.7038927	623.0000000	713.0000000

---------- sex=F tribe=UMATILLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	5	1564.80	20.2780670	1538.00	1586.00
hsh	5	1305.60	18.0222085	1287.00	1331.00
hmf	5	616.4000000	10.5261579	604.0000000	630.0000000
str	5	1571.20	27.4809025	1532.00	1598.00
hs	5	857.8000000	33.5663522	820.0000000	901.0000000
wsh	5	303.8000000	5.4497706	299.0000000	311.0000000
ll	5	707.0000000	27.8118680	683.0000000	750.0000000
al	5	689.2000000	14.3596657	665.0000000	701.0000000

---------- sex=F tribe=UTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	20	1501.30	41.2822123	1404.00	1570.00
hsh	20	1245.30	34.2238759	1170.00	1304.00
hmf	20	576.3000000	26.3380853	533.0000000	634.0000000
str	20	1565.65	37.1883895	1514.00	1627.00
hs	20	795.8500000	31.6997011	736.0000000	845.0000000
wsh	20	341.6000000	16.7752951	309.0000000	380.0000000
ll	20	705.4500000	23.5606161	626.0000000	731.0000000
al	20	669.0000000	20.5221318	615.0000000	707.0000000

---------- sex=F tribe=WASCO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	4	1524.75	63.1842544	1440.00	1593.00
hsh	4	1248.00	37.3184494	1200.00	1288.00
hmf	4	593.7500000	38.6296518	567.0000000	650.0000000
str	4	1604.25	35.7059752	1554.00	1633.00
hs	4	810.2500000	31.0094072	770.0000000	842.0000000
wsh	4	349.5000000	13.5277493	333.0000000	362.0000000
ll	4	714.5000000	34.4722110	670.0000000	751.0000000
al	4	654.2500000	70.6747244	550.0000000	700.0000000

---------- sex=F tribe=WASHO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	6	1581.00	21.3072758	1556.00	1620.00
hsh	6	1318.00	23.4520788	1280.00	1345.00
hmf	6	622.8333333	18.1704889	595.0000000	650.0000000
str	6	1626.00	49.7995984	1566.00	1700.00
hs	6	824.8333333	21.8212435	784.0000000	840.0000000
wsh	6	363.3333333	12.1106014	350.0000000	380.0000000
ll	6	756.1666667	16.6182630	740.0000000	780.0000000
al	6	695.1666667	12.0899407	685.0000000	715.0000000

---------- sex=F tribe=WESTERN MONO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	11	1551.36	40.9933476	1485.00	1630.00
hsh	11	1291.91	32.7275253	1250.00	1355.00
hmf	11	596.3636364	23.6739212	560.0000000	640.0000000
str	11	1597.27	52.3623737	1520.00	1700.00
hs	11	807.3636364	32.3798478	741.0000000	850.0000000
wsh	11	353.1818182	13.8334246	320.0000000	370.0000000
ll	11	744.0000000	25.3771551	710.0000000	810.0000000
al	11	695.5454545	28.1295703	660.0000000	740.0000000

---------- sex=F tribe=WINNEBAGO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	31	1585.29	52.2374027	1502.00	1713.00
hsh	31	1309.29	47.1629753	1228.00	1427.00
hmf	31	608.8709677	29.9941571	557.0000000	672.0000000
str	31	1663.42	56.9050520	1572.00	1800.00
hs	31	816.4838710	30.9955599	750.0000000	864.0000000
wsh	31	352.9032258	15.8100281	325.0000000	390.0000000
ll	31	768.8064516	41.3782708	704.0000000	859.0000000
al	31	700.4193548	28.9525752	649.0000000	763.0000000

---------- sex=F tribe=YAKUT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	48	1494.71	53.7907523	1371.00	1642.00
hsh	48	1216.58	47.1086717	1104.00	1356.00
hmf	48	550.1250000	25.4546948	504.0000000	591.0000000
str	48	1559.17	73.5473023	1374.00	1790.00
hs	48	791.8958333	29.9334294	725.0000000	860.0000000
wsh	48	325.1666667	17.3944639	263.0000000	358.0000000
ll	48	702.8125000	38.9777112	623.0000000	790.0000000
al	48	666.4583333	33.2379931	592.0000000	775.0000000

---------- sex=F tribe=YOKUTS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	21	1545.86	59.9260258	1470.00	1701.00
hsh	21	1289.14	53.6323463	1195.00	1402.00
hmf	21	603.4285714	37.8279942	537.0000000	656.0000000
str	21	1547.62	54.7325097	1480.00	1666.00
hs	21	791.0952381	23.5412505	760.0000000	843.0000000
wsh	21	360.0952381	18.4089781	320.0000000	393.0000000
ll	21	754.7619048	45.3959302	685.0000000	858.0000000
al	21	685.7142857	33.3948242	630.0000000	752.0000000

---------- sex=F tribe=YUKAGHIR ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	19	1470.53	38.5275780	1382.00	1532.00
hsh	19	1196.53	37.5490323	1116.00	1262.00
hmf	19	534.6315789	25.0515258	497.0000000	576.0000000
str	19	1524.16	53.1468230	1417.00	1645.00
hs	19	779.0000000	34.4560912	735.0000000	850.0000000
wsh	19	322.1578947	18.6971868	284.0000000	357.0000000
ll	19	691.5263158	23.4553202	647.0000000	731.0000000
al	19	661.8947368	28.2624500	601.0000000	696.0000000

---------- sex=F tribe=YUKI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	33	1479.52	49.7324851	1385.00	1585.00
hsh	33	1229.39	38.5307827	1145.00	1300.00
hmf	33	573.2727273	25.6980942	495.0000000	607.0000000
str	33	1530.27	58.7198182	1410.00	1694.00
hs	33	783.4545455	28.9494073	713.0000000	838.0000000
wsh	33	363.2424242	38.0066033	291.0000000	443.0000000
ll	33	696.0606061	30.7905621	627.0000000	755.0000000
al	33	656.1212121	28.0944363	598.0000000	700.0000000

---------- sex=F tribe=YUROK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	16	1517.19	55.9156731	1390.00	1590.00
hsh	16	1212.50	147.7385077	685.0000000	1310.00
hmf	16	577.1875000	41.2701971	500.0000000	675.0000000
str	16	1572.63	53.5684920	1480.00	1685.00
hs	16	818.7500000	54.8786540	700.0000000	910.0000000
wsh	16	365.3125000	21.7154899	320.0000000	410.0000000
ll	16	698.4375000	25.8017280	650.0000000	750.0000000
al	16	635.3125000	141.9914170	130.0000000	730.0000000

---------- sex=F tribe=ZUNI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	10	1511.70	66.3510027	1424.00	1643.00
hsh	10	1238.80	47.5132730	1182.00	1318.00
hmf	10	556.0000000	17.0098011	532.0000000	585.0000000
str	10	1579.00	85.3124975	1459.00	1727.00
hs	10	821.2000000	38.1598975	772.0000000	908.0000000
wsh	10	340.5000000	22.2323588	298.0000000	384.0000000
ll	10	690.5000000	35.0784834	652.0000000	743.0000000
al	10	682.8000000	35.4488677	634.0000000	733.0000000

---------- sex=M tribe=ACHOMAWI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	19	1665.42	58.0567881	1555.00	1800.00
hsh	19	1367.74	54.6288915	1270.00	1490.00
hmf	19	624.1578947	31.5775292	550.0000000	695.0000000
str	19	1735.32	71.7488309	1609.00	1885.00
hs	19	896.4736842	30.5947861	842.0000000	960.0000000
wsh	19	400.5263158	19.3516247	370.0000000	460.0000000
ll	19	768.9473684	44.4902907	700.0000000	905.0000000
al	19	743.5789474	36.9508920	676.0000000	830.0000000

---------- sex=M tribe=AGUA CALIENTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	15	1685.60	32.2884322	1620.00	1730.00
hsh	15	1398.93	38.7804565	1323.00	1460.00
hmf	15	664.8000000	33.2613031	599.0000000	723.0000000
str	15	1697.80	57.3625064	1585.00	1804.00
hs	15	843.5333333	20.7978937	800.0000000	895.0000000
wsh	15	405.8666667	9.6943774	390.0000000	420.0000000
ll	15	842.0666667	24.5864849	807.0000000	895.0000000
al	15	734.1333333	30.9743365	675.0000000	780.0000000

---------- sex=M tribe=AIWAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	61	1621.43	47.8861354	1520.00	1730.00
hsh	61	1332.15	47.6514554	1242.00	1460.00
hmf	61	645.0819672	37.0914613	584.0000000	740.0000000
str	61	1626.33	60.7559932	1510.00	1830.00
hs	61	847.9672131	27.4766369	796.0000000	912.0000000
wsh	61	365.7868852	20.6010637	328.0000000	406.0000000
ll	61	773.4590164	40.0556171	685.0000000	860.0000000
al	61	687.0655738	33.3600904	613.0000000	759.0000000

---------- sex=M tribe=ALEUT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	16	1600.69	67.8515230	1480.00	1746.00
hsh	16	1316.69	50.7893936	1210.00	1425.00
hmf	16	598.0625000	25.7512945	552.0000000	642.0000000
str	16	1687.75	82.6288892	1540.00	1861.00
hs	16	887.3125000	33.7455553	833.0000000	967.0000000
wsh	16	360.4375000	14.1702446	333.0000000	384.0000000
ll	16	713.3750000	42.1281774	634.0000000	779.0000000
al	16	718.6250000	33.0734032	658.0000000	790.0000000

---------- sex=M tribe=APACHE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	112	1692.76	59.0497188	1541.00	1840.00
hsh	112	1412.49	57.7406434	1230.00	1529.00
hmf	112	656.9464286	38.6711335	551.0000000	746.0000000
str	112	1757.39	60.9288992	1603.00	1920.00
hs	112	884.9553571	30.5125549	806.0000000	962.0000000
wsh	112	378.7946429	17.0638116	317.0000000	415.0000000
ll	112	807.8035714	42.9747127	700.0000000	918.0000000
al	112	755.5446429	34.9949516	675.0000000	855.0000000

---------- sex=M tribe=ARAPAHO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	59	1737.22	67.6216829	1602.00	1940.00
hsh	59	1450.85	64.1546659	1335.00	1603.00
hmf	59	666.7966102	44.2332297	584.0000000	789.0000000
str	59	1796.75	66.8337085	1665.00	1938.00
hs	59	899.7457627	35.8308253	805.0000000	977.0000000
wsh	59	381.9491525	24.6768241	307.0000000	443.0000000
ll	59	837.4745763	48.0424941	747.0000000	978.0000000
al	59	784.0508475	32.5303168	705.0000000	864.0000000

---------- sex=M tribe=ASSINIBOIN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	26	1683.58	52.3734078	1580.00	1809.00
hsh	26	1405.77	55.7259779	1325.00	1534.00
hmf	26	645.0384615	37.0917573	579.0000000	741.0000000
str	26	1766.77	55.2400635	1661.00	1856.00
hs	26	865.3846154	33.8113317	800.0000000	916.0000000
wsh	26	361.3076923	17.2366336	329.0000000	385.0000000
ll	26	818.1923077	43.4014002	742.0000000	903.0000000
al	26	760.7307692	38.1895878	652.0000000	833.0000000

---------- sex=M tribe=ATSUGEWI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1658.89	70.6124005	1560.00	1780.00
hsh	9	1374.44	71.9133352	1305.00	1500.00
hmf	9	638.8888889	36.6382466	590.0000000	700.0000000
str	9	1728.89	78.8106028	1620.00	1880.00
hs	9	891.1111111	32.1886799	840.0000000	930.0000000
wsh	9	400.5555556	15.8989867	380.0000000	425.0000000
ll	9	767.7777778	41.1636301	720.0000000	850.0000000
al	9	735.5555556	37.4536751	700.0000000	800.0000000

---------- sex=M tribe=BANNOCK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	19	1651.84	55.1183204	1550.00	1750.00
hsh	19	1375.16	43.6682737	1300.00	1450.00
hmf	19	644.0526316	58.7607897	521.0000000	798.0000000
str	19	1695.37	58.2572938	1603.00	1800.00
hs	19	828.5789474	36.6277305	760.0000000	886.0000000
wsh	19	381.3157895	19.9695675	338.0000000	420.0000000
ll	19	823.2631579	53.3164995	725.0000000	910.0000000
al	19	731.1052632	53.9649009	582.0000000	792.0000000

---------- sex=M tribe=BELLA COOLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	21	1646.52	40.6885967	1587.00	1723.00
hsh	21	1338.95	36.8014622	1266.00	1411.00
hmf	21	592.7619048	27.3018402	543.0000000	636.0000000
str	21	1760.95	44.5707036	1647.00	1833.00
hs	21	892.5714286	22.1304574	851.0000000	936.0000000
wsh	21	380.0952381	16.4070252	325.0000000	400.0000000
ll	21	753.9523810	35.7847400	698.0000000	819.0000000
al	21	746.1904762	21.2805523	698.0000000	787.0000000

---------- sex=M tribe=BIG MEADOW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	8	1687.50	49.4974747	1640.00	1790.00
hsh	8	1398.75	52.4914959	1350.00	1510.00
hmf	8	628.1250000	29.7534512	575.0000000	670.0000000
str	8	1783.75	61.3974173	1710.00	1910.00
hs	8	905.6250000	30.1706456	870.0000000	950.0000000
wsh	8	393.7500000	25.4600527	350.0000000	415.0000000
ll	8	781.8750000	40.3500310	720.0000000	840.0000000
al	8	770.6250000	44.7562845	730.0000000	870.0000000

---------- sex=M tribe=BLOOD ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	12	1725.83	55.0269906	1611.00	1843.00
hsh	12	1446.33	51.8640414	1329.00	1540.00
hmf	12	645.0833333	37.8548864	574.0000000	693.0000000
str	12	1802.75	71.2423840	1620.00	1892.00
hs	12	844.5000000	41.6271328	753.0000000	913.0000000
wsh	12	371.6666667	18.4111297	341.0000000	396.0000000
ll	12	881.3333333	38.0055817	800.0000000	930.0000000
al	12	801.2500000	33.8422141	751.0000000	855.0000000

---------- sex=M tribe=CADDO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	19	1667.42	66.0162571	1552.00	1780.00
hsh	19	1382.26	58.8603263	1272.00	1489.00
hmf	19	618.1578947	38.8333522	522.0000000	668.0000000
str	19	1755.89	62.8117954	1623.00	1873.00
hs	19	859.3684211	31.8245372	782.0000000	914.0000000
wsh	19	383.6842105	25.7186759	328.0000000	432.0000000
ll	19	808.0526316	44.5102656	740.0000000	897.0000000
al	19	764.1052632	47.0506757	697.0000000	886.0000000

---------- sex=M tribe=CARRIER ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	24	1675.75	61.6993059	1535.00	1775.00
hsh	24	1394.58	58.8335283	1265.00	1477.00
hmf	24	648.6666667	40.0170254	565.0000000	760.0000000
str	24	1720.42	65.1579463	1600.00	1830.00
hs	24	849.4583333	41.8880279	750.0000000	931.0000000
wsh	24	374.1250000	24.9718320	332.0000000	430.0000000
ll	24	826.2916667	47.7406755	740.0000000	927.0000000
al	24	745.9166667	42.6277279	655.0000000	810.0000000

---------- sex=M tribe=CATAWBA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	10	1698.90	50.2183012	1593.00	1771.00
hsh	10	1397.50	44.2197794	1311.00	1464.00
hmf	10	623.6000000	31.1241243	551.0000000	656.0000000
str	10	1774.50	49.0379672	1692.00	1871.00
hs	10	855.4000000	27.5447111	807.0000000	903.0000000
wsh	10	373.5000000	13.8824429	349.0000000	399.0000000
ll	10	843.5000000	28.4419487	786.0000000	886.0000000
al	10	773.9000000	26.8967160	738.0000000	814.0000000

---------- sex=M tribe=CHEROKEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	253	1694.15	58.8729999	1532.00	1842.00
hsh	253	1406.16	52.6488199	1265.00	1546.00
hmf	253	642.4822134	37.7152642	555.0000000	743.0000000
str	253	1754.76	70.7089320	1548.00	1946.00
hs	253	864.2292490	32.8860891	785.0000000	963.0000000
wsh	253	383.6758893	20.4994602	312.0000000	440.0000000
ll	253	829.9169960	41.9944846	703.0000000	933.0000000
al	253	763.6798419	35.1948695	687.0000000	873.0000000

---------- sex=M tribe=CHEYENNE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	29	1757.76	56.3957035	1652.00	1855.00
hsh	29	1460.55	59.2763421	1368.00	1585.00
hmf	29	674.2758621	39.4542199	596.0000000	756.0000000
str	29	1824.10	61.7005122	1674.00	1918.00
hs	29	897.7241379	25.2585156	856.0000000	939.0000000
wsh	29	375.1379310	29.3339444	305.0000000	434.0000000
ll	29	860.0344828	49.9624736	773.0000000	946.0000000
al	29	786.2758621	34.3510205	717.0000000	854.0000000

---------- sex=M tribe=CHICKASAW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	96	1686.98	46.6135239	1590.00	1788.00
hsh	96	1380.98	45.1768406	1278.00	1490.00
hmf	96	637.1250000	31.0579255	561.0000000	716.0000000
str	96	1755.98	61.8485381	1584.00	1887.00
hs	96	875.9687500	32.1906993	781.0000000	957.0000000
wsh	96	382.5937500	15.9357778	345.0000000	416.0000000
ll	96	811.0104167	35.8471888	712.0000000	899.0000000
al	96	743.8541667	30.5717376	671.0000000	826.0000000

---------- sex=M tribe=CHILCOTIN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	30	1643.57	67.6903107	1500.00	1820.00
hsh	30	1351.27	61.2940529	1200.00	1505.00
hmf	30	618.3000000	42.3785486	530.0000000	730.0000000
str	30	1717.80	79.6714806	1550.00	1848.00
hs	30	863.9666667	35.7322257	803.0000000	949.0000000
wsh	30	364.8333333	17.9848276	323.0000000	406.0000000
ll	30	779.6000000	48.5901934	670.0000000	876.0000000
al	30	732.9666667	38.0729638	660.0000000	812.0000000

---------- sex=M tribe=CHIPPEWA(MN) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	130	1722.72	62.6928053	1480.00	1849.00
hsh	130	1420.63	57.0226581	1192.00	1545.00
hmf	130	646.9461538	37.8700986	527.0000000	725.0000000
str	130	1795.26	72.7457667	1486.00	1938.00
hs	130	883.0153846	40.2002709	748.0000000	995.0000000
wsh	130	392.2000000	20.3280842	320.0000000	446.0000000
ll	130	839.7076923	39.9131705	726.0000000	922.0000000
al	130	773.6846154	41.1352533	596.0000000	950.0000000

---------- sex=M tribe=CHIPPEWA(WI) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	145	1707.57	56.0860962	1576.00	1881.00
hsh	145	1405.18	52.4858009	1295.00	1544.00
hmf	145	633.3586207	35.0661430	532.0000000	715.0000000
str	145	1808.32	67.6392292	1660.00	1990.00
hs	145	882.3655172	37.9765669	732.0000000	970.0000000
wsh	145	390.9310345	18.4668078	340.0000000	439.0000000
ll	145	825.2000000	38.4466802	721.0000000	954.0000000
al	145	771.8206897	32.9202886	683.0000000	861.0000000

---------- sex=M tribe=CHOCTAW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	325	1705.71	50.1960733	1595.00	1875.00
hsh	325	1402.32	47.8078419	1266.00	1528.00
hmf	325	640.4307692	32.7896256	544.0000000	741.0000000
str	325	1759.40	55.5761628	1627.00	1932.00
hs	325	843.1353846	32.8466340	748.0000000	940.0000000
wsh	325	388.3784615	12.4253883	352.0000000	426.0000000
ll	325	862.5723077	43.0230182	763.0000000	986.0000000
al	325	761.8923077	32.6200173	680.0000000	883.0000000

---------- sex=M tribe=CHUVANTSY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	35	1589.20	63.3281835	1420.00	1713.00
hsh	35	1288.63	56.1217614	1154.00	1390.00
hmf	35	591.6000000	36.3902055	510.0000000	670.0000000
str	35	1612.71	63.9496914	1480.00	1760.00
hs	35	829.1428571	27.9812362	780.0000000	883.0000000
wsh	35	360.9714286	19.9653902	320.0000000	400.0000000
ll	35	760.0571429	48.9663407	634.0000000	850.0000000
al	35	697.0285714	36.2592671	637.0000000	774.0000000

---------- sex=M tribe=CLALLAM ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	10	1671.90	79.1572977	1561.00	1822.00
hsh	10	1388.60	63.3635016	1310.00	1516.00
hmf	10	601.9000000	41.1891302	523.0000000	661.0000000
str	10	1776.30	82.4460093	1702.00	1997.00
hs	10	894.0000000	43.5507367	834.0000000	967.0000000
wsh	10	349.4000000	42.0084648	243.0000000	388.0000000
ll	10	777.9000000	37.8519044	727.0000000	855.0000000
al	10	786.7000000	36.5180321	743.0000000	881.0000000

---------- sex=M tribe=CMIWOK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1671.11	75.2403556	1570.00	1800.00
hsh	9	1373.56	75.0668221	1282.00	1520.00
hmf	9	643.0000000	46.2304013	592.0000000	720.0000000
str	9	1711.67	88.0340843	1590.00	1870.00
hs	9	865.5555556	44.2609057	810.0000000	970.0000000
wsh	9	396.6666667	25.4950976	340.0000000	420.0000000
ll	9	805.5555556	46.1955385	760.0000000	880.0000000
al	9	730.5555556	41.5665464	680.0000000	800.0000000

---------- sex=M tribe=COAHUILLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	37	1686.73	58.2712282	1577.00	1835.00
hsh	37	1400.00	44.5676764	1320.00	1515.00
hmf	37	640.1891892	36.2850121	532.0000000	740.0000000
str	37	1734.43	89.1641870	1533.00	1932.00
hs	37	869.2162162	36.8021249	804.0000000	940.0000000
wsh	37	398.0000000	22.5104914	340.0000000	450.0000000
ll	37	817.5135135	42.5053079	710.0000000	920.0000000
al	37	759.8108108	32.1151036	675.0000000	817.0000000

---------- sex=M tribe=COEUR D'ALENE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	23	1689.30	38.6622141	1604.00	1761.00
hsh	23	1414.35	34.2697968	1336.00	1496.00
hmf	23	632.9130435	27.1342002	577.0000000	677.0000000
str	23	1760.87	56.7805219	1601.00	1841.00
hs	23	884.9130435	31.4424627	826.0000000	962.0000000
wsh	23	363.5217391	35.9909958	245.0000000	413.0000000
ll	23	804.3913043	43.5093920	727.0000000	920.0000000
al	23	781.4347826	35.9239425	707.0000000	843.0000000

---------- sex=M tribe=COMANCHE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	75	1674.99	60.0048406	1552.00	1796.00
hsh	75	1410.32	56.6323277	1295.00	1519.00
hmf	75	636.7866667	37.9691530	543.0000000	727.0000000
str	75	1753.87	67.4904064	1585.00	1943.00
hs	75	870.2933333	34.8067147	779.0000000	940.0000000
wsh	75	384.5200000	17.4614324	344.0000000	416.0000000
ll	75	804.6933333	41.0803344	705.0000000	904.0000000
al	75	773.5333333	40.5360478	666.0000000	852.0000000

---------- sex=M tribe=CONCOW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	27	1633.96	52.5375188	1490.00	1740.00
hsh	27	1345.30	53.1252619	1210.00	1456.00
hmf	27	616.9629630	34.8253682	510.0000000	679.0000000
str	27	1709.19	58.2369411	1596.00	1803.00
hs	27	861.1481481	34.7061330	790.0000000	920.0000000
wsh	27	375.3333333	21.7768402	332.0000000	420.0000000
ll	27	772.8148148	43.4299055	680.0000000	894.0000000
al	27	728.3333333	31.4911465	660.0000000	784.0000000

---------- sex=M tribe=CREEK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	74	1737.36	61.2852246	1612.00	1842.00
hsh	74	1448.74	58.6709096	1329.00	1557.00
hmf	74	679.3378378	39.6164063	596.0000000	781.0000000
str	74	1773.66	69.6990157	1607.00	1900.00
hs	74	859.6351351	44.2541150	752.0000000	952.0000000
wsh	74	390.4324324	17.0487465	341.0000000	435.0000000
ll	74	877.7297297	63.8620725	751.0000000	1032.00
al	74	769.4054054	39.6110953	684.0000000	861.0000000

---------- sex=M tribe=CROW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	223	1730.57	66.9092032	1523.00	1950.00
hsh	223	1460.39	63.4034365	1282.00	1680.00
hmf	223	652.5964126	38.5339254	565.0000000	800.0000000
str	223	1813.57	75.3165251	1606.00	2019.00
hs	223	898.6188341	33.9419617	776.0000000	997.0000000
wsh	223	395.2197309	27.3146690	332.0000000	463.0000000
ll	223	831.9461883	47.0869119	714.0000000	973.0000000
al	223	807.7937220	40.6635565	688.0000000	917.0000000

---------- sex=M tribe=EASTERN MONO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	5	1670.00	41.0791918	1630.00	1735.00
hsh	5	1377.00	37.5166630	1345.00	1435.00
hmf	5	607.0000000	16.0468065	595.0000000	635.0000000
str	5	1784.00	58.9915248	1710.00	1850.00
hs	5	874.0000000	26.0768096	840.0000000	910.0000000
wsh	5	381.0000000	22.4722051	345.0000000	400.0000000
ll	5	796.0000000	34.5325933	750.0000000	835.0000000
al	5	770.0000000	23.1840462	745.0000000	800.0000000

---------- sex=M tribe=ESKIMO(EC) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	23	1566.09	43.8343089	1497.00	1673.00
hsh	23	1278.87	42.1127322	1216.00	1391.00
hmf	23	576.9565217	44.0593384	487.0000000	691.0000000
str	23	1608.48	53.0633152	1497.00	1694.00
hs	23	832.0869565	32.3418010	773.0000000	905.0000000
wsh	23	362.1304348	17.7822801	331.0000000	399.0000000
ll	23	734.0000000	34.3974101	678.0000000	799.0000000
al	23	701.9130435	32.3572572	641.0000000	788.0000000

---------- sex=M tribe=ESKIMO(WC) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	26	1675.50	53.4275210	1577.00	1795.00
hsh	26	1389.38	55.4098020	1268.00	1515.00
hmf	26	651.4615385	39.3753535	567.0000000	747.0000000
str	26	1714.50	57.6577835	1575.00	1830.00
hs	26	882.5384615	34.9367781	817.0000000	937.0000000
wsh	26	379.1923077	23.2413756	320.0000000	412.0000000
ll	26	792.9615385	43.5820888	690.0000000	863.0000000
al	26	737.9230769	26.2052256	700.0000000	805.0000000

---------- sex=M tribe=EVEN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	19	1557.89	42.6209322	1441.00	1630.00
hsh	19	1275.74	52.1555815	1150.00	1375.00
hmf	19	573.3157895	28.0437211	530.0000000	633.0000000
str	19	1619.63	53.8425797	1490.00	1693.00
hs	19	828.3157895	23.6433045	778.0000000	872.0000000
wsh	19	359.5263158	14.6832044	320.0000000	383.0000000
ll	19	729.5789474	29.7084271	663.0000000	770.0000000
al	19	702.4210526	36.5472537	612.0000000	756.0000000

---------- sex=M tribe=EVENK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	64	1564.69	61.9333679	1402.00	1715.00
hsh	64	1284.45	55.8915985	1140.00	1425.00
hmf	64	586.3125000	36.4638873	490.0000000	665.0000000
str	64	1621.52	65.2163657	1450.00	1785.00
hs	64	823.8437500	31.1398376	751.0000000	891.0000000
wsh	64	354.8281250	18.6773394	308.0000000	397.0000000
ll	64	740.8437500	43.0788199	651.0000000	870.0000000
al	64	698.1406250	38.4979353	599.0000000	787.0000000

---------- sex=M tribe=FLATHEAD ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	14	1688.07	53.8208771	1604.00	1764.00
hsh	14	1424.86	57.3851457	1328.00	1498.00
hmf	14	658.9285714	40.2023043	601.0000000	740.0000000
str	14	1729.21	62.5757124	1633.00	1874.00
hs	14	868.8571429	25.7856762	836.0000000	918.0000000
wsh	14	391.8571429	21.4972526	360.0000000	442.0000000
ll	14	819.2142857	48.1538857	745.0000000	919.0000000
al	14	765.9285714	39.7539825	710.0000000	844.0000000

---------- sex=M tribe=HAIDA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	47	1682.13	72.0424443	1470.00	1839.00
hsh	47	1390.91	68.3844089	1210.00	1521.00
hmf	47	633.9574468	47.5000949	450.0000000	726.0000000
str	47	1747.00	58.9620364	1615.00	1867.00
hs	47	882.5744681	36.2309888	799.0000000	965.0000000
wsh	47	393.6595745	22.5294750	330.0000000	438.0000000
ll	47	799.5531915	57.3770173	658.0000000	929.0000000
al	47	756.9574468	37.9873878	677.0000000	845.0000000

---------- sex=M tribe=HOOPA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	52	1654.13	60.5526926	1460.00	1767.00
hsh	52	1374.40	58.1462860	1228.00	1490.00
hmf	52	629.5769231	48.0658642	537.0000000	790.0000000
str	52	1695.13	64.1771534	1551.00	1853.00
hs	52	852.8846154	46.3518741	745.0000000	970.0000000
wsh	52	362.7884615	39.6387296	297.0000000	460.0000000
ll	52	801.2500000	46.3185369	698.0000000	916.0000000
al	52	744.8269231	48.4273141	591.0000000	850.0000000

---------- sex=M tribe=ITELMAN(KH) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	72	1601.72	56.1908775	1440.00	1712.00
hsh	72	1309.83	47.5918682	1171.00	1415.00
hmf	72	586.0833333	28.7929716	520.0000000	643.0000000
str	72	1689.76	69.1078954	1520.00	1825.00
hs	72	858.9305556	33.9516335	750.0000000	910.0000000
wsh	72	369.9305556	19.0109875	323.0000000	405.0000000
ll	72	742.7916667	36.3422454	680.0000000	825.0000000
al	72	723.7500000	35.3735598	650.0000000	805.0000000

---------- sex=M tribe=ITELMAN(SE) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	53	1590.94	56.6427452	1462.00	1735.00
hsh	53	1303.74	51.1476561	1190.00	1450.00
hmf	53	587.2830189	29.4104752	500.0000000	650.0000000
str	53	1677.40	71.2496531	1480.00	1815.00
hs	53	857.0754717	32.8550716	775.0000000	917.0000000
wsh	53	367.9811321	19.1767995	316.0000000	404.0000000
ll	53	733.8679245	39.6475034	660.0000000	830.0000000
al	53	716.4528302	39.4371779	615.0000000	810.0000000

---------- sex=M tribe=KALAPUYA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1643.22	46.9594979	1571.00	1710.00
hsh	9	1362.44	44.0201974	1296.00	1417.00
hmf	9	621.2222222	31.1880497	582.0000000	660.0000000
str	9	1691.78	44.0448004	1620.00	1757.00
hs	9	863.8888889	43.0710008	812.0000000	936.0000000
wsh	9	390.1111111	15.2269863	366.0000000	412.0000000
ll	9	779.3333333	29.4151322	742.0000000	845.0000000
al	9	741.2222222	24.5498359	711.0000000	786.0000000

---------- sex=M tribe=KIOWA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	78	1699.71	57.9767327	1478.00	1846.00
hsh	78	1426.71	53.6065777	1248.00	1553.00
hmf	78	639.4358974	31.0159531	562.0000000	710.0000000
str	78	1787.23	68.4025372	1486.00	1943.00
hs	78	892.8846154	31.4196484	804.0000000	954.0000000
wsh	78	379.8333333	19.5975195	328.0000000	425.0000000
ll	78	806.8205128	41.6855089	674.0000000	933.0000000
al	78	787.2692308	37.5391304	655.0000000	864.0000000

---------- sex=M tribe=KLAMATH ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	75	1677.37	64.4814604	1440.00	1808.00
hsh	75	1379.99	61.3288639	1185.00	1500.00
hmf	75	628.8400000	42.7848293	470.0000000	742.0000000
str	75	1742.08	70.0954484	1587.00	1935.00
hs	75	880.4800000	44.6718849	750.0000000	998.0000000
wsh	75	383.6666667	42.0698690	309.0000000	486.0000000
ll	75	796.8933333	42.2232078	684.0000000	889.0000000
al	75	751.1466667	34.8575066	656.0000000	830.0000000

---------- sex=M tribe=KORYAK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	191	1595.61	53.9162767	1370.00	1725.00
hsh	191	1308.97	49.4293152	1105.00	1449.00
hmf	191	602.3193717	33.2731533	503.0000000	681.0000000
str	191	1620.67	76.9625411	1290.00	1810.00
hs	191	835.3560209	36.7364576	711.0000000	940.0000000
wsh	191	363.0366492	21.0431566	290.0000000	421.0000000
ll	191	760.2565445	34.4580927	647.0000000	863.0000000
al	191	706.6544503	35.5684066	573.0000000	800.0000000

---------- sex=M tribe=KUTENAI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	49	1686.16	57.7838454	1555.00	1846.00
hsh	49	1422.39	58.5963652	1270.00	1575.00
hmf	49	645.3061224	45.5902055	543.0000000	733.0000000
str	49	1749.94	58.6047524	1599.00	1882.00
hs	49	887.0000000	37.8989886	805.0000000	985.0000000
wsh	49	353.2244898	35.7166309	287.0000000	425.0000000
ll	49	799.1632653	49.7562169	705.0000000	946.0000000
al	49	777.0816327	45.2303533	698.0000000	877.0000000

---------- sex=M tribe=KWAKIUTL ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	52	1626.21	60.4425952	1478.00	1750.00
hsh	52	1325.19	55.0611206	1197.00	1450.00
hmf	52	603.9807692	31.4552221	545.0000000	658.0000000
str	52	1706.37	74.4812199	1505.00	1840.00
hs	52	882.9807692	42.2974947	769.0000000	968.0000000
wsh	52	374.9230769	20.0556541	321.0000000	412.0000000
ll	52	743.2307692	41.3505414	649.0000000	860.0000000
al	52	721.2115385	38.0651333	627.0000000	800.0000000

---------- sex=M tribe=LILLOOET ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	81	1606.96	72.6161904	1419.00	1774.00
hsh	81	1316.21	63.8127566	1150.00	1462.00
hmf	81	594.1481481	41.9508972	500.0000000	703.0000000
str	81	1694.44	75.8813218	1498.00	1922.00
hs	81	842.0123457	41.6504783	752.0000000	940.0000000
wsh	81	376.3827160	22.2056118	320.0000000	415.0000000
ll	81	764.9506173	46.4921771	643.0000000	903.0000000
al	81	722.0617284	35.0935698	640.0000000	815.0000000

---------- sex=M tribe=MAKAH ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	45	1642.09	63.6516879	1456.00	1747.00
hsh	45	1356.40	54.6411433	1218.00	1451.00
hmf	45	595.8000000	37.6180566	510.0000000	660.0000000
str	45	1740.24	65.5078606	1594.00	1868.00
hs	45	878.6000000	34.1130474	800.0000000	937.0000000
wsh	45	373.3111111	25.9657311	314.0000000	420.0000000
ll	45	763.4888889	39.0865137	656.0000000	863.0000000
al	45	760.6000000	36.0229725	663.0000000	833.0000000

---------- sex=M tribe=MALECITE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	43	1687.37	53.4478042	1585.00	1820.00
hsh	43	1393.65	53.7847933	1265.00	1523.00
hmf	43	630.9069767	38.3031852	536.0000000	716.0000000
str	43	1772.14	70.4345631	1610.00	1932.00
hs	43	864.0697674	35.4020415	784.0000000	950.0000000
wsh	43	384.2558140	26.5510228	330.0000000	430.0000000
ll	43	823.3023256	33.4838517	754.0000000	894.0000000
al	43	762.7441860	39.0744668	682.0000000	870.0000000

---------- sex=M tribe=MARITIME CHUKCHI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	45	1616.04	67.5973895	1490.00	1780.00
hsh	45	1318.24	62.6473374	1184.00	1465.00
hmf	45	636.6444444	38.2385785	555.0000000	725.0000000
str	45	1622.31	66.9249316	1450.00	1770.00
hs	45	842.6222222	37.8083017	772.0000000	950.0000000
wsh	45	361.9555556	17.0786357	331.0000000	395.0000000
ll	45	773.4222222	44.0498111	695.0000000	876.0000000
al	45	681.6000000	36.2970071	600.0000000	775.0000000

---------- sex=M tribe=MENOMINI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	96	1693.10	56.0767292	1586.00	1844.00
hsh	96	1390.09	56.5957183	1276.00	1526.00
hmf	96	631.5208333	34.7823244	540.0000000	712.0000000
str	96	1784.91	74.8355500	1630.00	2000.00
hs	96	882.3020833	33.6543169	813.0000000	980.0000000
wsh	96	378.0729167	17.2829364	335.0000000	420.0000000
ll	96	810.8020833	38.8510299	724.0000000	911.0000000
al	96	758.5729167	38.0680125	679.0000000	889.0000000

---------- sex=M tribe=MICMAC ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	97	1715.65	54.5003901	1558.00	1830.00
hsh	97	1421.68	52.0579698	1276.00	1525.00
hmf	97	649.6597938	42.1383848	523.0000000	777.0000000
str	97	1800.79	66.2951007	1614.00	1976.00
hs	97	885.7216495	39.7740342	743.0000000	957.0000000
wsh	97	376.9587629	21.2798406	328.0000000	422.0000000
ll	97	829.9278351	43.5125096	723.0000000	917.0000000
al	97	772.0206186	32.0939309	696.0000000	843.0000000

---------- sex=M tribe=MISSISSAGUA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	53	1721.36	60.1316166	1612.00	1830.00
hsh	53	1418.53	58.3400521	1303.00	1542.00
hmf	53	637.6226415	37.0977018	553.0000000	716.0000000
str	53	1830.62	70.1446929	1670.00	1984.00
hs	53	887.4150943	43.0694582	786.0000000	977.0000000
wsh	53	395.5471698	23.0297183	342.0000000	450.0000000
ll	53	833.9433962	48.3844441	709.0000000	1000.00
al	53	780.9056604	32.2575359	722.0000000	849.0000000

---------- sex=M tribe=MODOC ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	8	1649.38	54.6702779	1580.00	1750.00
hsh	8	1361.25	55.1459104	1285.00	1460.00
hmf	8	618.7500000	42.2365786	565.0000000	700.0000000
str	8	1717.50	38.7298335	1670.00	1780.00
hs	8	881.2500000	31.9318471	840.0000000	930.0000000
wsh	8	399.3750000	21.9475837	365.0000000	440.0000000
ll	8	768.1250000	30.5821493	735.0000000	820.0000000
al	8	742.5000000	25.6347978	715.0000000	790.0000000

---------- sex=M tribe=MOHAWK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	21	1739.57	69.9975510	1607.00	1893.00
hsh	21	1438.00	66.9925369	1323.00	1572.00
hmf	21	645.6666667	47.2528659	571.0000000	730.0000000
str	21	1834.10	67.7546344	1721.00	2001.00
hs	21	899.0476190	39.6528387	786.0000000	960.0000000
wsh	21	396.9523810	20.7448215	363.0000000	427.0000000
ll	21	840.5238095	43.8253569	752.0000000	949.0000000
al	21	792.3333333	35.4490244	708.0000000	845.0000000

---------- sex=M tribe=MONTAGNAIS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	19	1649.95	74.4375008	1512.00	1752.00
hsh	19	1370.74	60.7872813	1273.00	1495.00
hmf	19	629.4736842	36.2650251	562.0000000	688.0000000
str	19	1733.95	71.4084291	1590.00	1845.00
hs	19	850.2631579	40.6951295	773.0000000	924.0000000
wsh	19	358.0526316	25.4459638	310.0000000	396.0000000
ll	19	799.6842105	55.9891385	664.0000000	867.0000000
al	19	741.2631579	41.9190253	661.0000000	857.0000000

---------- sex=M tribe=MUNSEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	55	1717.64	47.4393818	1620.00	1861.00
hsh	55	1416.38	47.4772815	1330.00	1550.00
hmf	55	631.8727273	35.5934110	560.0000000	720.0000000
str	55	1823.87	62.2221392	1705.00	1977.00
hs	55	882.3454545	26.9314756	782.0000000	936.0000000
wsh	55	392.0363636	21.2053135	350.0000000	435.0000000
ll	55	835.2909091	38.7492761	747.0000000	946.0000000
al	55	784.5090909	29.0668914	714.0000000	848.0000000

---------- sex=M tribe=NANAIMO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1680.56	66.3628494	1600.00	1791.00
hsh	9	1388.33	61.5609454	1317.00	1486.00
hmf	9	627.5555556	40.9820421	570.0000000	705.0000000
str	9	1724.89	64.1686147	1636.00	1811.00
hs	9	891.3333333	16.4012195	871.0000000	917.0000000
wsh	9	405.8888889	19.5220673	375.0000000	436.0000000
ll	9	789.2222222	53.2136678	728.0000000	882.0000000
al	9	760.7777778	34.8129925	712.0000000	801.0000000

---------- sex=M tribe=NAVAJO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	61	1692.21	55.6534260	1570.00	1833.00
hsh	61	1410.89	50.3392154	1301.00	1551.00
hmf	61	655.5573770	29.8314848	594.0000000	748.0000000
str	61	1744.48	65.2879791	1617.00	1910.00
hs	61	897.8688525	27.7137002	840.0000000	952.0000000
wsh	61	366.2131148	19.2181466	305.0000000	401.0000000
ll	61	794.3442623	42.1765674	704.0000000	908.0000000
al	61	755.3278689	31.8306568	688.0000000	829.0000000

---------- sex=M tribe=NEZ PERCE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	14	1710.07	54.6266549	1592.00	1775.00
hsh	14	1421.79	53.5453490	1318.00	1498.00
hmf	14	650.4285714	35.0378132	608.0000000	722.0000000
str	14	1766.07	73.7109368	1575.00	1850.00
hs	14	902.3571429	42.0944125	813.0000000	957.0000000
wsh	14	374.0000000	49.9106895	210.0000000	420.0000000
ll	14	807.7142857	40.6607514	735.0000000	870.0000000
al	14	771.3571429	37.1806549	707.0000000	841.0000000

---------- sex=M tribe=NISQUALLY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	7	1624.14	60.2561990	1562.00	1725.00
hsh	7	1330.14	56.7756655	1263.00	1403.00
hmf	7	581.4285714	41.4723086	516.0000000	651.0000000
str	7	1725.14	75.9548738	1627.00	1812.00
hs	7	877.4285714	19.4581358	856.0000000	909.0000000
wsh	7	391.1428571	23.5968117	375.0000000	440.0000000
ll	7	746.7142857	47.1087900	695.0000000	825.0000000
al	7	748.7142857	33.0540683	701.0000000	805.0000000

---------- sex=M tribe=NIVKHI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	18	1611.56	70.0648626	1452.00	1767.00
hsh	18	1321.78	65.3997262	1200.00	1454.00
hmf	18	581.2222222	40.6412650	514.0000000	674.0000000
str	18	1701.00	76.9400072	1541.00	1841.00
hs	18	839.8333333	58.7089030	732.0000000	951.0000000
wsh	18	346.8888889	20.0672073	309.0000000	378.0000000
ll	18	771.7222222	33.7339165	717.0000000	822.0000000
al	18	740.5555556	36.7154755	682.0000000	805.0000000

---------- sex=M tribe=NORTHERN HILL YOKUTS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	5	1646.00	44.0738017	1605.00	1710.00
hsh	5	1354.00	46.5564174	1320.00	1435.00
hmf	5	614.0000000	15.5724115	600.0000000	640.0000000
str	5	1726.00	40.3732585	1670.00	1770.00
hs	5	869.0000000	24.0831892	840.0000000	895.0000000
wsh	5	380.0000000	15.8113883	360.0000000	400.0000000
ll	5	777.0000000	28.8530761	735.0000000	815.0000000
al	5	740.0000000	32.2102468	715.0000000	795.0000000

---------- sex=M tribe=NORTHERN PAIUTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	87	1679.52	57.4385135	1514.00	1849.00
hsh	87	1401.64	52.8380538	1238.00	1540.00
hmf	87	642.1954023	36.2173154	553.0000000	712.0000000
str	87	1739.75	58.2906148	1570.00	1887.00
hs	87	875.5977011	33.1902408	783.0000000	964.0000000
wsh	87	386.9885057	15.6565569	338.0000000	420.0000000
ll	87	803.9195402	42.9104580	700.0000000	924.0000000
al	87	759.4482759	34.1759329	685.0000000	842.0000000

---------- sex=M tribe=NORTHERN POMO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	13	1635.46	72.0527762	1535.00	1800.00
hsh	13	1357.46	56.4883696	1290.00	1500.00
hmf	13	609.4615385	41.7664446	542.0000000	720.0000000
str	13	1741.23	65.2216143	1620.00	1845.00
hs	13	842.0769231	45.7100673	770.0000000	920.0000000
wsh	13	399.1538462	30.8756812	360.0000000	455.0000000
ll	13	793.3846154	40.9339681	720.0000000	880.0000000
al	13	748.0000000	27.2182537	680.0000000	785.0000000

---------- sex=M tribe=OJIBWA(Gbay) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	49	1722.55	59.8352116	1620.00	1861.00
hsh	49	1429.90	51.6640772	1314.00	1530.00
hmf	49	629.6734694	34.8427346	552.0000000	716.0000000
str	49	1809.47	75.7897591	1644.00	2000.00
hs	49	879.7551020	44.9678267	778.0000000	998.0000000
wsh	49	387.5510204	23.3907578	340.0000000	446.0000000
ll	49	842.7959184	39.2221130	758.0000000	935.0000000
al	49	800.2244898	38.4703703	713.0000000	886.0000000

---------- sex=M tribe=OJIBWA(NWLSup) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	96	1706.56	68.9890628	1520.00	1860.00
hsh	96	1448.32	67.9711231	1290.00	1580.00
hmf	96	624.5208333	45.2057237	526.0000000	732.0000000
str	96	1765.17	74.2256399	1599.00	1932.00
hs	96	859.8958333	40.8917645	771.0000000	974.0000000
wsh	96	374.1875000	20.5847734	310.0000000	425.0000000
ll	96	846.6666667	51.0136549	728.0000000	944.0000000
al	96	823.8020833	50.5337031	710.0000000	951.0000000

---------- sex=M tribe=OKANAGAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	33	1676.45	54.3214339	1524.00	1764.00
hsh	33	1393.79	44.7728696	1284.00	1464.00
hmf	33	639.1212121	44.9372880	517.0000000	713.0000000
str	33	1734.27	58.0033796	1572.00	1847.00
hs	33	868.9696970	42.7306132	765.0000000	945.0000000
wsh	33	363.9393939	21.2998524	309.0000000	415.0000000
ll	33	807.4848485	37.9087071	733.0000000	890.0000000
al	33	754.6666667	26.8289334	699.0000000	808.0000000

---------- sex=M tribe=OMAHA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	30	1718.27	55.2704531	1602.00	1837.00
hsh	30	1425.97	56.8188187	1328.00	1569.00
hmf	30	661.1000000	44.8440593	562.0000000	755.0000000
str	30	1792.77	62.9782028	1690.00	1936.00
hs	30	882.1666667	36.1434721	811.0000000	939.0000000
wsh	30	395.3666667	24.0924703	351.0000000	444.0000000
ll	30	836.1000000	32.3774613	779.0000000	904.0000000
al	30	764.8666667	24.1500101	713.0000000	814.0000000

---------- sex=M tribe=ONEIDA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	61	1717.46	52.2473520	1610.00	1835.00
hsh	61	1417.75	52.5454266	1310.00	1545.00
hmf	61	640.8032787	28.3406773	587.0000000	705.0000000
str	61	1823.23	77.3411045	1586.00	2000.00
hs	61	903.0163934	33.3873688	783.0000000	963.0000000
wsh	61	389.8032787	21.7591511	315.0000000	435.0000000
ll	61	814.4426230	42.3719737	749.0000000	925.0000000
al	61	776.9508197	43.5860934	680.0000000	872.0000000

---------- sex=M tribe=OSAGE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	15	1702.20	44.7727596	1611.00	1789.00
hsh	15	1419.93	54.0601076	1311.00	1533.00
hmf	15	647.8666667	45.2025073	573.0000000	722.0000000
str	15	1788.53	42.4884298	1730.00	1876.00
hs	15	879.2000000	42.6400214	800.0000000	938.0000000
wsh	15	387.4000000	24.8043775	331.0000000	444.0000000
ll	15	823.0000000	42.2171258	756.0000000	895.0000000
al	15	772.0666667	33.5633020	710.0000000	835.0000000

---------- sex=M tribe=PAWNEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	45	1705.18	49.9751251	1612.00	1834.00
hsh	45	1413.49	41.9884303	1319.00	1526.00
hmf	45	648.2888889	31.5563149	590.0000000	720.0000000
str	45	1781.02	50.9458219	1688.00	1897.00
hs	45	892.9333333	31.4298642	832.0000000	965.0000000
wsh	45	383.2000000	15.4986803	347.0000000	410.0000000
ll	45	812.2444444	28.9271464	774.0000000	886.0000000
al	45	765.2000000	28.9612594	697.0000000	819.0000000

---------- sex=M tribe=PIEGAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	47	1722.02	51.0083068	1640.00	1864.00
hsh	47	1444.94	47.6588439	1336.00	1551.00
hmf	47	653.9574468	33.3264208	570.0000000	729.0000000
str	47	1815.38	59.4666707	1700.00	1929.00
hs	47	890.6382979	35.0288239	804.0000000	958.0000000
wsh	47	376.6382979	22.6441523	303.0000000	414.0000000
ll	47	831.3829787	40.5009679	741.0000000	942.0000000
al	47	790.9787234	34.1406868	721.0000000	880.0000000

---------- sex=M tribe=PONCA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	10	1739.40	65.7895635	1620.00	1844.00
hsh	10	1448.60	69.3352564	1310.00	1559.00
hmf	10	676.1000000	50.3597061	580.0000000	752.0000000
str	10	1794.90	72.9618622	1703.00	1900.00
hs	10	921.3000000	37.9328354	859.0000000	980.0000000
wsh	10	393.6000000	18.8514662	370.0000000	422.0000000
ll	10	818.1000000	43.4292528	754.0000000	887.0000000
al	10	772.5000000	29.6395007	730.0000000	830.0000000

---------- sex=M tribe=POTAWATOMI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	8	1714.75	41.0113225	1674.00	1795.00
hsh	8	1414.63	44.5515352	1368.00	1495.00
hmf	8	641.0000000	28.8394571	600.0000000	680.0000000
str	8	1782.38	61.2953913	1696.00	1886.00
hs	8	888.2500000	38.7878847	830.0000000	940.0000000
wsh	8	379.5000000	13.7217242	364.0000000	406.0000000
ll	8	826.5000000	48.1426452	770.0000000	902.0000000
al	8	773.6250000	26.4193517	737.0000000	815.0000000

---------- sex=M tribe=PUEBLO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	18	1640.00	47.2141554	1533.00	1709.00
hsh	18	1342.28	40.4719301	1255.00	1402.00
hmf	18	608.5555556	31.5375075	538.0000000	668.0000000
str	18	1740.94	36.8821210	1694.00	1809.00
hs	18	862.2222222	29.2304345	810.0000000	916.0000000
wsh	18	375.6666667	26.3260104	327.0000000	414.0000000
ll	18	777.7777778	27.7415712	696.0000000	817.0000000
al	18	733.7222222	25.4738749	693.0000000	805.0000000

---------- sex=M tribe=PUYALLUP ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	21	1640.00	49.5408922	1570.00	1734.00
hsh	21	1350.29	44.4782451	1277.00	1411.00
hmf	21	602.0000000	38.9024421	528.0000000	682.0000000
str	21	1736.86	53.5651806	1638.00	1868.00
hs	21	875.2380952	26.8549898	834.0000000	914.0000000
wsh	21	388.8571429	25.3323621	320.0000000	423.0000000
ll	21	764.7619048	42.2751756	679.0000000	831.0000000
al	21	748.2857143	30.7443375	679.0000000	820.0000000

---------- sex=M tribe=QUEETS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	10	1646.80	50.0728358	1553.00	1716.00
hsh	10	1352.20	48.1659169	1280.00	1432.00
hmf	10	591.5000000	49.2527495	532.0000000	703.0000000
str	10	1738.00	30.5104718	1700.00	1792.00
hs	10	871.5000000	40.3216236	814.0000000	941.0000000
wsh	10	351.7000000	28.9215414	309.0000000	400.0000000
ll	10	775.3000000	30.7970056	737.0000000	840.0000000
al	10	760.7000000	32.1076315	720.0000000	801.0000000

---------- sex=M tribe=QUILLAYUTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	23	1620.00	58.6979944	1480.00	1710.00
hsh	23	1323.91	53.8296244	1200.00	1400.00
hmf	23	585.2173913	25.3824501	520.0000000	620.0000000
str	23	1724.35	70.5063561	1590.00	1850.00
hs	23	876.5217391	35.6254117	790.0000000	930.0000000
wsh	23	384.1304348	17.7515796	350.0000000	430.0000000
ll	23	743.4782609	34.5896327	660.0000000	790.0000000
al	23	738.6956522	40.7101001	670.0000000	810.0000000

---------- sex=M tribe=QUINAULT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	16	1622.00	62.7109772	1508.00	1725.00
hsh	16	1337.81	52.7196595	1243.00	1420.00
hmf	16	585.8125000	47.3190853	493.0000000	665.0000000
str	16	1709.94	80.6824795	1517.00	1818.00
hs	16	875.9375000	40.1471772	785.0000000	942.0000000
wsh	16	367.5000000	30.6028321	304.0000000	410.0000000
ll	16	746.0625000	38.5598561	679.0000000	805.0000000
al	16	752.0000000	35.3647659	672.0000000	798.0000000

---------- sex=M tribe=REINDEER CHUKCHI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	95	1614.54	59.8531555	1454.00	1770.00
hsh	95	1314.76	55.3600816	1153.00	1453.00
hmf	95	625.2105263	38.2249486	548.0000000	716.0000000
str	95	1637.19	73.8922872	1370.00	1820.00
hs	95	835.2526316	32.4420821	760.0000000	911.0000000
wsh	95	375.9684211	17.8298415	330.0000000	417.0000000
ll	95	779.2842105	45.3299167	677.0000000	890.0000000
al	95	689.5473684	35.0916031	563.0000000	775.0000000

---------- sex=M tribe=REINDEER EVENK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	11	1574.64	69.1668602	1440.00	1680.00
hsh	11	1263.91	63.9397444	1150.00	1350.00
hmf	11	598.0909091	39.2057510	532.0000000	650.0000000
str	11	1551.27	87.8283450	1380.00	1680.00
hs	11	824.5454545	29.5579554	760.0000000	860.0000000
wsh	11	367.3636364	13.9733513	340.0000000	383.0000000
ll	11	750.0909091	45.5904695	680.0000000	838.0000000
al	11	665.8181818	35.0622822	618.0000000	736.0000000

---------- sex=M tribe=REINDEER KORYAK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	24	1593.83	41.4274291	1522.00	1662.00
hsh	24	1295.75	44.9997585	1225.00	1418.00
hmf	24	608.6666667	32.6358920	530.0000000	662.0000000
str	24	1577.29	60.5937859	1450.00	1680.00
hs	24	823.8750000	22.9409687	770.0000000	860.0000000
wsh	24	364.9166667	21.2089330	317.0000000	410.0000000
ll	24	769.9583333	32.4834127	722.0000000	837.0000000
al	24	687.0833333	35.5881229	616.0000000	788.0000000

---------- sex=M tribe=SAN LUIS REY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	67	1700.73	63.5759107	1540.00	1830.00
hsh	67	1411.04	57.2089294	1260.00	1540.00
hmf	67	653.2388060	40.3928022	527.0000000	741.0000000
str	67	1733.82	81.5159262	1550.00	1900.00
hs	67	859.9253731	40.7335442	780.0000000	960.0000000
wsh	67	413.3432836	19.9442801	370.0000000	470.0000000
ll	67	840.8059701	44.2904459	758.0000000	937.0000000
al	67	757.8059701	39.0265018	680.0000000	850.0000000

---------- sex=M tribe=SARCEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	12	1685.83	79.7414382	1516.00	1811.00
hsh	12	1404.92	83.1903167	1266.00	1562.00
hmf	12	641.3333333	44.2479241	565.0000000	702.0000000
str	12	1749.00	89.4742218	1574.00	1896.00
hs	12	837.0833333	33.5056531	766.0000000	885.0000000
wsh	12	380.4166667	13.2422075	360.0000000	403.0000000
ll	12	848.7500000	51.6898531	750.0000000	931.0000000
al	12	763.5833333	53.4644458	691.0000000	876.0000000

---------- sex=M tribe=SAUK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	21	1739.14	55.4691678	1653.00	1875.00
hsh	21	1455.14	55.8491591	1368.00	1568.00
hmf	21	677.7142857	33.0637912	612.0000000	731.0000000
str	21	1765.10	51.4722301	1697.00	1888.00
hs	21	894.0952381	26.9367867	858.0000000	946.0000000
wsh	21	372.5238095	17.5716221	336.0000000	400.0000000
ll	21	845.0476190	47.8909973	761.0000000	941.0000000
al	21	777.4285714	49.4899701	711.0000000	914.0000000

---------- sex=M tribe=SENECA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	34	1733.85	56.0163030	1612.00	1828.00
hsh	34	1441.74	57.2629812	1324.00	1530.00
hmf	34	646.6470588	34.9908060	575.0000000	733.0000000
str	34	1828.18	84.2059059	1689.00	2000.00
hs	34	906.5882353	30.9056410	843.0000000	961.0000000
wsh	34	390.5588235	26.7606577	346.0000000	450.0000000
ll	34	827.2647059	39.0627381	734.0000000	892.0000000
al	34	795.0882353	40.6644567	727.0000000	865.0000000

---------- sex=M tribe=SERRANO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	27	1713.07	50.3372671	1580.00	1820.00
hsh	27	1417.89	33.6398726	1350.00	1500.00
hmf	27	652.6296296	30.8496954	585.0000000	713.0000000
str	27	1776.07	53.5924262	1650.00	1861.00
hs	27	859.8518519	31.1172766	795.0000000	940.0000000
wsh	27	409.9629630	19.3061996	372.0000000	490.0000000
ll	27	853.2222222	39.1224245	765.0000000	945.0000000
al	27	765.2592593	28.5947717	717.0000000	845.0000000

---------- sex=M tribe=SHAWNEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1710.67	54.4127742	1626.00	1807.00
hsh	9	1414.33	53.7191772	1338.00	1506.00
hmf	9	660.3333333	53.3479147	554.0000000	716.0000000
str	9	1768.67	52.1248501	1696.00	1859.00
hs	9	886.8888889	31.2427769	841.0000000	934.0000000
wsh	9	374.5555556	27.7313501	339.0000000	430.0000000
ll	9	823.7777778	53.7163331	749.0000000	904.0000000
al	9	754.0000000	24.3207730	723.0000000	790.0000000

---------- sex=M tribe=SHOSHONI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	32	1681.53	66.1761990	1564.00	1812.00
hsh	32	1394.88	59.4310389	1281.00	1514.00
hmf	32	637.9687500	37.9987134	568.0000000	699.0000000
str	32	1746.34	71.5034894	1627.00	1895.00
hs	32	878.0625000	41.5163687	800.0000000	971.0000000
wsh	32	381.0937500	15.9097442	343.0000000	419.0000000
ll	32	803.4687500	44.9974798	719.0000000	868.0000000
al	32	756.9062500	39.0800332	674.0000000	822.0000000

---------- sex=M tribe=SHUSWAP ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	138	1655.14	54.1311668	1512.00	1787.00
hsh	138	1364.22	51.5488597	1185.00	1500.00
hmf	138	617.9347826	35.4749231	493.0000000	719.0000000
str	138	1731.60	67.7007736	1558.00	1919.00
hs	138	866.6956522	33.7151244	767.0000000	947.0000000
wsh	138	369.1304348	21.2152080	315.0000000	421.0000000
ll	138	788.4492754	36.9505632	712.0000000	860.0000000
al	138	746.2898551	34.0225779	662.0000000	843.0000000

---------- sex=M tribe=SIOUX(SANTEE) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	91	1735.80	58.9753658	1591.00	1883.00
hsh	91	1430.84	54.2910395	1290.00	1550.00
hmf	91	656.9560440	32.1150405	577.0000000	743.0000000
str	91	1826.73	70.6018674	1662.00	2017.00
hs	91	883.6043956	36.2273313	806.0000000	958.0000000
wsh	91	387.4505495	18.5898800	340.0000000	426.0000000
ll	91	852.1978022	41.4386346	747.0000000	951.0000000
al	91	773.8791209	34.8000112	687.0000000	863.0000000

---------- sex=M tribe=SIOUX(TETON) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	167	1719.98	49.9965001	1565.00	1862.00
hsh	167	1425.69	46.5362800	1295.00	1540.00
hmf	167	658.4670659	30.7449250	590.0000000	746.0000000
str	167	1811.05	61.7296142	1616.00	1950.00
hs	167	883.0000000	31.7603982	800.0000000	960.0000000
wsh	167	388.6706587	17.2195053	349.0000000	436.0000000
ll	167	836.9760479	40.4853018	746.0000000	939.0000000
al	167	767.2215569	33.0124842	665.0000000	843.0000000

---------- sex=M tribe=SIOUX(YANKTON) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	102	1714.77	64.4659565	1527.00	1890.00
hsh	102	1415.94	58.0804876	1242.00	1581.00
hmf	102	650.7058824	38.1442256	556.0000000	748.0000000
str	102	1806.50	73.8854814	1573.00	2013.00
hs	102	871.7843137	37.4236192	768.0000000	965.0000000
wsh	102	390.2941176	20.2970945	313.0000000	435.0000000
ll	102	842.9901961	46.8582220	704.0000000	954.0000000
al	102	765.2352941	34.4487498	653.0000000	858.0000000

---------- sex=M tribe=SOUTHERN MIWOK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	8	1652.50	59.2211352	1540.00	1735.00
hsh	8	1370.63	48.9487706	1280.00	1455.00
hmf	8	631.2500000	17.2688820	605.0000000	650.0000000
str	8	1717.50	88.8015444	1560.00	1850.00
hs	8	867.5000000	32.0713490	810.0000000	900.0000000
wsh	8	386.2500000	16.8501802	360.0000000	410.0000000
ll	8	785.0000000	52.2357294	670.0000000	855.0000000
al	8	739.3750000	37.1711774	675.0000000	810.0000000

---------- sex=M tribe=STALO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	53	1634.57	60.7749662	1471.00	1750.00
hsh	53	1353.94	48.8822821	1231.00	1450.00
hmf	53	601.3773585	37.5992156	497.0000000	678.0000000
str	53	1743.81	57.2914467	1601.00	1850.00
hs	53	865.4150943	44.3033398	768.0000000	939.0000000
wsh	53	359.5283019	26.6808803	300.0000000	430.0000000
ll	53	769.1509434	39.1159009	646.0000000	841.0000000
al	53	752.5660377	33.0707339	677.0000000	842.0000000

---------- sex=M tribe=STOCKBRIDGE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	16	1724.38	57.1604467	1630.00	1842.00
hsh	16	1416.31	57.2010708	1336.00	1531.00
hmf	16	639.0000000	40.5232444	552.0000000	696.0000000
str	16	1832.56	55.1470383	1742.00	1933.00
hs	16	894.5625000	35.3062199	833.0000000	955.0000000
wsh	16	379.6875000	16.9537361	340.0000000	413.0000000
ll	16	829.8125000	33.2750532	769.0000000	887.0000000
al	16	777.3125000	38.0152930	693.0000000	835.0000000

---------- sex=M tribe=TAHLTAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	18	1705.78	34.7690795	1643.00	1760.00
hsh	18	1413.78	30.5220375	1355.00	1450.00
hmf	18	649.9444444	20.4923866	607.0000000	683.0000000
str	18	1767.39	51.1608063	1665.00	1850.00
hs	18	903.1111111	27.7210663	842.0000000	955.0000000
wsh	18	374.5000000	19.2758612	320.0000000	397.0000000
ll	18	802.6666667	32.1832986	742.0000000	878.0000000
al	18	763.8333333	22.5160074	708.0000000	805.0000000

---------- sex=M tribe=TAOS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	21	1661.33	73.5522490	1505.00	1808.00
hsh	21	1372.43	58.3434413	1248.00	1466.00
hmf	21	646.6190476	30.0157895	574.0000000	700.0000000
str	21	1704.62	87.2865833	1549.00	1857.00
hs	21	877.6666667	33.3336667	805.0000000	940.0000000
wsh	21	352.8095238	17.1598923	316.0000000	383.0000000
ll	21	783.6666667	46.5299187	700.0000000	872.0000000
al	21	725.8095238	42.1397900	635.0000000	796.0000000

---------- sex=M tribe=TENINO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	24	1672.38	65.4076265	1544.00	1802.00
hsh	24	1384.46	69.3039802	1260.00	1526.00
hmf	24	636.8333333	38.5516781	544.0000000	707.0000000
str	24	1728.50	78.6323310	1636.00	1876.00
hs	24	870.5000000	38.3689186	804.0000000	944.0000000
wsh	24	382.3750000	29.9126446	274.0000000	414.0000000
ll	24	801.8750000	43.8904887	732.0000000	882.0000000
al	24	747.6250000	38.5439472	701.0000000	831.0000000

---------- sex=M tribe=THOMPSON ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	117	1615.18	61.6442261	1477.00	1726.00
hsh	117	1339.60	54.4073176	1205.00	1437.00
hmf	117	609.7008547	32.6285957	526.0000000	684.0000000
str	117	1699.34	69.0363675	1510.00	1883.00
hs	117	844.0683761	36.2348010	755.0000000	933.0000000
wsh	117	357.7863248	24.8751465	291.0000000	410.0000000
ll	117	771.1111111	41.9500478	661.0000000	869.0000000
al	117	729.8974359	33.7417639	641.0000000	813.0000000

---------- sex=M tribe=TONKAWA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	13	1697.92	58.8181683	1596.00	1790.00
hsh	13	1418.62	52.0889279	1340.00	1500.00
hmf	13	649.3846154	33.0719883	593.0000000	702.0000000
str	13	1750.00	51.2623969	1651.00	1846.00
hs	13	884.5384615	32.9712384	848.0000000	945.0000000
wsh	13	379.0000000	15.4218460	351.0000000	400.0000000
ll	13	813.3846154	47.2044109	748.0000000	882.0000000
al	13	769.2307692	26.4201749	727.0000000	814.0000000

---------- sex=M tribe=TSIMSHIAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	66	1671.35	53.7651567	1570.00	1792.00
hsh	66	1373.98	54.6399382	1280.00	1506.00
hmf	66	620.7727273	34.1141953	552.0000000	693.0000000
str	66	1758.55	64.2758914	1628.00	1882.00
hs	66	886.8030303	31.0316066	795.0000000	954.0000000
wsh	66	390.4545455	25.5416293	326.0000000	467.0000000
ll	66	784.5454545	42.3891067	702.0000000	878.0000000
al	66	753.2121212	34.7321687	646.0000000	821.0000000

---------- sex=M tribe=TUNDRA-EVENK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	21	1541.71	62.0670145	1468.00	1652.00
hsh	21	1257.29	49.9541218	1200.00	1350.00
hmf	21	563.9047619	30.5432558	508.0000000	630.0000000
str	21	1608.48	79.3527687	1501.00	1830.00
hs	21	815.4761905	29.7751894	752.0000000	868.0000000
wsh	21	353.5714286	21.5651836	318.0000000	398.0000000
ll	21	726.2380952	44.2638733	678.0000000	820.0000000
al	21	693.3809524	34.1811003	640.0000000	762.0000000

---------- sex=M tribe=TUSCARORA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	28	1711.00	51.8187725	1556.00	1805.00
hsh	28	1421.43	43.6564268	1330.00	1520.00
hmf	28	630.5000000	37.4932093	570.0000000	710.0000000
str	28	1816.79	72.5719858	1662.00	1966.00
hs	28	890.0000000	30.4205097	829.0000000	964.0000000
wsh	28	380.7142857	20.9511904	345.0000000	420.0000000
ll	28	821.0000000	36.0627026	702.0000000	872.0000000
al	28	790.9285714	41.1086443	700.0000000	863.0000000

---------- sex=M tribe=TUTUTNI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	14	1646.86	52.5062006	1533.00	1711.00
hsh	14	1346.50	54.8168278	1238.00	1426.00
hmf	14	599.5000000	35.9310237	532.0000000	636.0000000
str	14	1721.14	54.4735040	1609.00	1816.00
hs	14	888.4285714	28.9873030	844.0000000	943.0000000
wsh	14	372.9285714	24.7587258	328.0000000	421.0000000
ll	14	758.4285714	37.2222313	689.0000000	818.0000000
al	14	747.0000000	36.0448439	683.0000000	814.0000000

---------- sex=M tribe=UMATILLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1682.11	53.7690535	1614.00	1785.00
hsh	9	1391.22	56.6607840	1298.00	1481.00
hmf	9	662.4444444	37.5969118	622.0000000	744.0000000
str	9	1718.33	68.5145970	1594.00	1816.00
hs	9	880.8888889	30.5918471	841.0000000	943.0000000
wsh	9	343.7777778	19.7280117	317.0000000	371.0000000
ll	9	801.2222222	26.8178009	770.0000000	842.0000000
al	9	728.7777778	29.7059665	676.0000000	771.0000000

---------- sex=M tribe=UTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	69	1652.51	50.5032390	1527.00	1785.00
hsh	69	1372.75	46.6089507	1265.00	1472.00
hmf	69	635.2753623	34.9048640	554.0000000	731.0000000
str	69	1721.80	56.1787011	1605.00	1866.00
hs	69	862.4057971	33.6352926	757.0000000	948.0000000
wsh	69	385.6521739	20.3634809	318.0000000	422.0000000
ll	69	790.1014493	30.9853594	723.0000000	882.0000000
al	69	737.4782609	31.6044527	656.0000000	805.0000000

---------- sex=M tribe=WASCO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	13	1678.15	60.3322000	1584.00	1758.00
hsh	13	1386.00	49.7543968	1306.00	1458.00
hmf	13	642.3076923	25.6884689	596.0000000	672.0000000
str	13	1739.62	53.3737427	1650.00	1820.00
hs	13	873.6923077	37.8822399	816.0000000	933.0000000
wsh	13	384.2307692	31.9951919	290.0000000	416.0000000
ll	13	804.4615385	35.8157679	733.0000000	852.0000000
al	13	743.6923077	30.1230383	700.0000000	794.0000000

---------- sex=M tribe=WASHO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	7	1699.29	112.0799035	1510.00	1855.00
hsh	7	1407.86	102.2601724	1250.00	1560.00
hmf	7	647.1428571	77.9880943	510.0000000	765.0000000
str	7	1760.00	78.3156008	1630.00	1850.00
hs	7	874.2857143	70.6180201	720.0000000	925.0000000
wsh	7	392.1428571	10.7459849	375.0000000	400.0000000
ll	7	825.0000000	61.9139187	735.0000000	930.0000000
al	7	760.7142857	36.2202259	705.0000000	800.0000000

---------- sex=M tribe=WESTERN MONO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	9	1638.33	49.5605690	1550.00	1695.00
hsh	9	1351.11	46.5549257	1270.00	1400.00
hmf	9	619.4444444	33.2080981	580.0000000	665.0000000
str	9	1706.78	51.7778374	1620.00	1760.00
hs	9	866.6666667	41.5331193	790.0000000	920.0000000
wsh	9	374.4444444	29.2023591	320.0000000	410.0000000
ll	9	771.6666667	18.2002747	750.0000000	805.0000000
al	9	731.6666667	28.7228132	690.0000000	770.0000000

---------- sex=M tribe=WINNEBAGO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	60	1724.18	65.5287469	1591.00	1872.00
hsh	60	1422.17	59.1943557	1293.00	1550.00
hmf	60	654.2500000	37.4440260	565.0000000	755.0000000
str	60	1825.80	79.8164844	1653.00	2032.00
hs	60	887.3500000	35.9791960	805.0000000	960.0000000
wsh	60	400.0000000	16.7332005	363.0000000	434.0000000
ll	60	836.8333333	46.0608171	733.0000000	934.0000000
al	60	767.9166667	36.6482555	676.0000000	867.0000000

---------- sex=M tribe=YAKUT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	3	1638.33	60.0694043	1580.00	1700.00
hsh	3	1334.33	52.0032050	1282.00	1386.00
hmf	3	606.0000000	10.3923048	600.0000000	618.0000000
str	3	1737.67	81.5250473	1655.00	1818.00
hs	3	884.6666667	35.2325607	852.0000000	922.0000000
wsh	3	373.6666667	22.1885857	349.0000000	392.0000000
ll	3	753.6666667	25.0266525	728.0000000	778.0000000
al	3	728.3333333	43.3858656	682.0000000	768.0000000

---------- sex=M tribe=YOKUTS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	19	1698.89	69.9594285	1555.00	1782.00
hsh	19	1424.00	72.7102316	1270.00	1530.00
hmf	19	668.8421053	43.5829518	578.0000000	730.0000000
str	19	1731.89	87.1740881	1581.00	1880.00
hs	19	857.9473684	39.8448013	794.0000000	927.0000000
wsh	19	394.8947368	16.8486555	359.0000000	439.0000000
ll	19	840.9473684	56.5080856	733.0000000	910.0000000
al	19	755.1578947	41.7309679	670.0000000	820.0000000

---------- sex=M tribe=YUKAGHIR ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	32	1571.66	42.1821009	1478.00	1665.00
hsh	32	1278.28	39.7518386	1197.00	1372.00
hmf	32	572.5000000	29.2861302	492.0000000	641.0000000
str	32	1645.38	63.1004064	1520.00	1774.00
hs	32	825.9687500	26.1872714	780.0000000	880.0000000
wsh	32	360.0625000	16.8999666	317.0000000	392.0000000
ll	32	745.6875000	32.1873923	688.0000000	813.0000000
al	32	705.7812500	30.2705375	638.0000000	757.0000000

---------- sex=M tribe=YUKI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	33	1598.85	73.9028590	1480.00	1768.00
hsh	33	1330.12	66.5844190	1190.00	1487.00
hmf	33	600.9393939	42.9446878	520.0000000	683.0000000
str	33	1684.33	78.8050072	1556.00	1870.00
hs	33	838.7878788	37.7506271	787.0000000	910.0000000
wsh	33	379.2121212	29.1855675	331.0000000	478.0000000
ll	33	760.0606061	42.8827904	690.0000000	883.0000000
al	33	729.1818182	37.5336970	635.0000000	808.0000000

---------- sex=M tribe=YUROK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	20	1594.25	77.1068125	1490.00	1765.00
hsh	20	1316.10	66.1250012	1220.00	1455.00
hmf	20	593.9000000	73.5662251	510.0000000	815.0000000
str	20	1706.50	76.8816589	1590.00	1890.00
hs	20	843.7500000	39.9629763	795.0000000	920.0000000
wsh	20	407.5000000	24.5217412	350.0000000	440.0000000
ll	20	750.5000000	48.9333596	670.0000000	855.0000000
al	20	722.2000000	44.3141892	620.0000000	800.0000000

---------- sex=M tribe=ZUNI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
st	69	1616.28	49.3441945	1493.00	1748.00
hsh	69	1333.72	46.5699613	1207.00	1443.00
hmf	69	616.9565217	28.7419732	547.0000000	668.0000000
str	69	1675.52	57.0965665	1558.00	1827.00
hs	69	859.4202899	24.0730541	809.0000000	913.0000000
wsh	69	357.1884058	17.1578102	320.0000000	399.0000000
ll	69	756.8550725	34.0480955	656.0000000	862.0000000
al	69	716.7681159	25.4599714	652.0000000	785.0000000

APPENDIX B

Descriptive Statistics-Head Data

---------- sex=F tribe=ACHOMAWI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	15	179.4000000	4.9396356	169.0000000	185.0000000
bh	15	151.6666667	4.2706083	143.0000000	157.0000000
lfn	15	117.4666667	6.2320218	106.0000000	129.0000000
bf	15	139.6666667	3.4778209	133.0000000	146.0000000
ln	15	47.6000000	3.9964270	41.0000000	55.0000000
bn	15	36.2000000	2.2740775	32.0000000	40.0000000

---------- sex=F tribe=AGUA CALIENTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	19	177.0000000	8.6345559	159.0000000	187.0000000
bh	19	154.8421053	4.7171455	145.0000000	163.0000000
lfn	19	114.1578947	4.9019628	105.0000000	124.0000000
bf	19	139.8947368	4.9091155	132.0000000	150.0000000
ln	19	47.0000000	3.1091264	40.0000000	53.0000000
bn	19	40.8421053	2.2916069	37.0000000	46.0000000

---------- sex=F tribe=AIWAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	76	184.1973684	5.5618216	172.0000000	197.0000000
bh	76	146.6447368	4.3656353	135.0000000	156.0000000
lfn	76	121.8026316	4.7385504	114.0000000	136.0000000
bf	76	139.2894737	4.6153824	126.0000000	148.0000000
ln	76	50.8815789	4.1051743	42.0000000	62.0000000
bn	76	33.9605263	2.2056944	29.0000000	38.0000000

---------- sex=F tribe=ALEUT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	18	179.9444444	4.9523877	168.0000000	187.0000000
bh	18	154.6111111	5.9718840	146.0000000	164.0000000
lfn	18	123.0555556	6.8981858	113.0000000	136.0000000
bf	18	143.5555556	5.1589126	133.0000000	151.0000000
ln	18	51.6111111	3.7906835	43.0000000	56.0000000
bn	18	34.0000000	3.1622777	28.0000000	38.0000000

---------- sex=F tribe=APACHE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	37	176.6756757	6.6627241	164.0000000	191.0000000
bh	37	153.6486486	4.5167356	145.0000000	163.0000000
lfn	37	110.1081081	5.9897310	96.0000000	121.0000000
bf	37	140.4324324	5.5454713	128.0000000	150.0000000
ln	37	47.2432432	3.6393330	41.0000000	55.0000000
bn	37	36.4054054	2.9103213	31.0000000	45.0000000

---------- sex=F tribe=ARAPAHO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	9	187.5555556	5.8972687	180.0000000	197.0000000
bh	9	148.4444444	4.9777282	142.0000000	156.0000000
lfn	9	115.5555556	7.8916271	109.0000000	134.0000000
bf	9	140.1111111	6.8272330	132.0000000	153.0000000
ln	9	50.1111111	3.4075081	45.0000000	57.0000000
bn	9	37.3333333	3.1224990	31.0000000	40.0000000

---------- sex=F tribe=ASSINIBOIN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	5	189.8000000	5.7619441	181.0000000	195.0000000
bh	5	149.0000000	6.1644140	143.0000000	158.0000000
lfn	5	114.6000000	6.1481705	108.0000000	122.0000000
bf	5	143.0000000	6.2849025	135.0000000	152.0000000
ln	5	54.0000000	3.2403703	51.0000000	58.0000000
bn	5	33.4000000	0.8944272	32.0000000	34.0000000

---------- sex=F tribe=ATSUGEWI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	8	180.1250000	2.8504386	177.0000000	186.0000000
bh	8	157.1250000	8.0965160	146.0000000	167.0000000
lfn	8	119.2500000	5.3385391	110.0000000	127.0000000
bf	8	144.3750000	5.0124844	135.0000000	149.0000000
ln	8	50.8750000	4.5178219	44.0000000	59.0000000
bn	8	37.1250000	2.5877458	33.0000000	40.0000000

---------- sex=F tribe=BANNOCK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	30	188.2666667	6.9179095	170.0000000	203.0000000
bh	30	149.0000000	6.0571986	137.0000000	167.0000000
lfn	30	111.4000000	7.4537655	103.0000000	144.0000000
bf	30	144.0333333	9.8417945	134.0000000	193.0000000
ln	30	41.8666667	3.7850280	33.0000000	48.0000000
bn	30	38.3333333	2.1549195	33.0000000	42.0000000

---------- sex=F tribe=BELLA COOLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	6	177.0000000	4.8166378	169.0000000	182.0000000
bh	6	156.0000000	4.1472883	151.0000000	163.0000000
lfn	6	121.6666667	2.8047579	118.0000000	125.0000000
bf	6	146.8333333	5.6361926	139.0000000	156.0000000
ln	6	54.0000000	3.2249031	50.0000000	58.0000000
bn	6	34.6666667	2.5819889	32.0000000	39.0000000

---------- sex=F tribe=BIG MEADOW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	3	184.3333333	5.5075705	178.0000000	188.0000000
bh	3	157.0000000	6.0827625	150.0000000	161.0000000
lfn	3	119.0000000	1.0000000	118.0000000	120.0000000
bf	3	143.0000000	6.0000000	137.0000000	149.0000000
ln	3	48.6666667	2.3094011	46.0000000	50.0000000
bn	3	35.6666667	1.5275252	34.0000000	37.0000000

---------- sex=F tribe=BLOOD ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	4	186.2500000	4.9916597	182.0000000	193.0000000
bh	4	151.5000000	1.2909944	150.0000000	153.0000000
lfn	4	118.5000000	4.2031734	113.0000000	123.0000000
bf	4	140.0000000	3.5590261	135.0000000	143.0000000
ln	4	53.2500000	4.9916597	48.0000000	58.0000000
bn	4	38.7500000	1.5000000	37.0000000	40.0000000

---------- sex=F tribe=CADDO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	10	176.9000000	5.3218627	169.0000000	184.0000000
bh	10	149.7000000	5.6969778	137.0000000	156.0000000
lfn	10	115.0000000	2.8674418	110.0000000	119.0000000
bf	10	133.9000000	8.6724340	119.0000000	146.0000000
ln	10	49.7000000	3.5605867	46.0000000	56.0000000
bn	10	36.0000000	2.3570226	31.0000000	38.0000000

---------- sex=F tribe=CARRIER ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	10	177.6000000	6.9633964	167.0000000	186.0000000
bh	10	152.4000000	5.6999025	144.0000000	165.0000000
lfn	10	119.9000000	5.8013408	114.0000000	135.0000000
bf	10	137.3000000	7.1655038	127.0000000	149.0000000
ln	10	52.2000000	3.3266600	48.0000000	59.0000000
bn	10	35.5000000	2.8771128	32.0000000	40.0000000

---------- sex=F tribe=CATAWBA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	7	181.5714286	8.5412166	171.0000000	196.0000000
bh	7	145.5714286	4.9617585	141.0000000	154.0000000
lfn	7	107.8571429	6.1759904	99.0000000	114.0000000
bf	7	129.1428571	7.3581830	119.0000000	142.0000000
ln	7	45.7142857	3.2513733	41.0000000	51.0000000
bn	7	34.7142857	2.4299716	31.0000000	38.0000000

---------- sex=F tribe=CHEROKEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	143	181.1118881	5.5817925	166.0000000	194.0000000
bh	143	144.9020979	5.4634698	133.0000000	160.0000000
lfn	143	112.2097902	5.3455960	96.0000000	127.0000000
bf	143	135.7062937	4.5468332	126.0000000	150.0000000
ln	143	47.8671329	3.3086267	40.0000000	55.0000000
bn	143	35.9510490	3.2421708	28.0000000	47.0000000

---------- sex=F tribe=CHEYENNE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	3	185.6666667	1.5275252	184.0000000	187.0000000
bh	3	152.3333333	3.5118846	149.0000000	156.0000000
lfn	3	121.3333333	3.2145503	119.0000000	125.0000000
bf	3	142.0000000	8.6602540	132.0000000	147.0000000
ln	3	56.0000000	1.0000000	55.0000000	57.0000000
bn	3	38.3333333	0.5773503	38.0000000	39.0000000

---------- sex=F tribe=CHICKASAW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	35	180.8571429	4.7905720	172.0000000	193.0000000
bh	35	146.8000000	5.6713936	136.0000000	161.0000000
lfn	35	106.9714286	7.2577979	92.0000000	122.0000000
bf	35	134.2571429	5.1354756	125.0000000	147.0000000
ln	35	44.4000000	2.8512123	40.0000000	51.0000000
bn	35	34.5428571	2.8215855	30.0000000	44.0000000

---------- sex=F tribe=CHILCOTIN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	28	178.8571429	6.8351720	169.0000000	200.0000000
bh	28	154.6428571	5.7038927	145.0000000	163.0000000
lfn	28	115.3928571	6.7841825	102.0000000	131.0000000
bf	28	140.4642857	4.8111148	130.0000000	150.0000000
ln	28	48.8571429	5.0750974	39.0000000	58.0000000
bn	28	36.7500000	2.3668232	30.0000000	41.0000000

---------- sex=F tribe=CHIPPEWA(MN) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	76	186.8026316	5.7388030	172.0000000	198.0000000
bh	76	150.4342105	4.8643890	139.0000000	163.0000000
lfn	76	115.7105263	5.8076175	99.0000000	128.0000000
bf	76	137.3421053	6.1720934	121.0000000	154.0000000
ln	76	50.7894737	3.4149311	45.0000000	62.0000000
bn	76	36.3947368	3.3349820	29.0000000	46.0000000

---------- sex=F tribe=CHIPPEWA(WI) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	59	185.3728814	6.7310354	170.0000000	199.0000000
bh	59	153.2881356	5.6325741	141.0000000	168.0000000
lfn	59	112.7288136	5.1220635	100.0000000	123.0000000
bf	59	139.5423729	5.8407665	126.0000000	152.0000000
ln	59	47.8813559	3.9787572	41.0000000	61.0000000
bn	59	36.4237288	3.4997704	29.0000000	44.0000000

---------- sex=F tribe=CHOCTAW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	74	178.8513514	5.0712254	167.0000000	190.0000000
bh	74	144.4594595	6.3401076	130.0000000	162.0000000
lfn	74	111.7567568	4.5233362	102.0000000	124.0000000
bf	74	134.2567568	6.0614678	122.0000000	154.0000000
ln	74	49.6351351	3.3457162	43.0000000	57.0000000
bn	74	36.3513514	2.8305207	29.0000000	46.0000000

---------- sex=F tribe=CHUVANTSY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	7	184.5714286	5.4728768	177.0000000	193.0000000
bh	7	144.4285714	2.4397502	141.0000000	148.0000000
lfn	7	123.4285714	4.9952358	115.0000000	131.0000000
bf	7	138.4285714	3.5989416	131.0000000	142.0000000
ln	7	52.2857143	3.1997024	48.0000000	58.0000000
bn	7	31.0000000	2.2360680	28.0000000	34.0000000

---------- sex=F tribe=CLALLAM ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	12	171.9166667	6.6668561	159.0000000	187.0000000
bh	12	161.7500000	9.4207218	147.0000000	182.0000000
lfn	12	114.7500000	4.1587804	110.0000000	121.0000000
bf	12	145.4166667	5.8225008	135.0000000	156.0000000
ln	12	48.0000000	2.3354968	45.0000000	53.0000000
bn	12	36.0833333	4.6015478	30.0000000	44.0000000

---------- sex=F tribe=CMIWOK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	6	176.0000000	4.5607017	170.0000000	181.0000000
bh	6	155.8333333	5.3447794	149.0000000	163.0000000
lfn	6	117.0000000	3.7416574	112.0000000	122.0000000
bf	6	143.0000000	4.0000000	136.0000000	147.0000000
ln	6	51.3333333	4.1311822	45.0000000	56.0000000
bn	6	41.3333333	2.5819889	39.0000000	45.0000000

---------- sex=F tribe=COAHUILLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	19	188.3157895	5.8409724	175.0000000	197.0000000
bh	19	160.8421053	7.4031762	146.0000000	171.0000000
lfn	19	112.7368421	8.1706936	91.0000000	122.0000000
bf	19	146.9473684	5.8449759	135.0000000	157.0000000
ln	19	47.2105263	3.9662317	41.0000000	55.0000000
bn	19	40.5789474	3.9765394	33.0000000	50.0000000

---------- sex=F tribe=COEUR D'ALENE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	12	190.5833333	6.8551021	178.0000000	204.0000000
bh	12	152.4166667	4.1000739	145.0000000	160.0000000
lfn	12	115.7500000	6.3119655	105.0000000	130.0000000
bf	12	142.9166667	6.0671745	133.0000000	152.0000000
ln	12	45.5000000	4.9635032	35.0000000	53.0000000
bn	12	39.6666667	3.0251471	35.0000000	44.0000000

---------- sex=F tribe=COMANCHE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	33	178.0909091	6.8846007	163.0000000	189.0000000
bh	33	149.0303030	4.2755471	140.0000000	161.0000000
lfn	33	117.9090909	4.4184530	109.0000000	129.0000000
bf	33	133.6969697	5.5027541	124.0000000	146.0000000
ln	33	53.1212121	3.7396321	45.0000000	61.0000000
bn	33	37.8787879	2.8367849	33.0000000	45.0000000

---------- sex=F tribe=CONCOW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	11	187.4545455	4.2276148	177.0000000	192.0000000
bh	11	146.5454545	5.0072674	137.0000000	153.0000000
lfn	11	111.0909091	5.4305533	103.0000000	120.0000000
bf	11	134.7272727	3.4954516	130.0000000	140.0000000
ln	11	45.2727273	3.4667249	41.0000000	52.0000000
bn	11	38.2727273	2.1489955	34.0000000	41.0000000

---------- sex=F tribe=CREEK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	6	183.8333333	10.1077528	169.0000000	195.0000000
bh	6	145.8333333	2.8577380	143.0000000	151.0000000
lfn	6	116.6666667	10.7641380	108.0000000	138.0000000
bf	6	137.6666667	8.6178110	124.0000000	148.0000000
ln	6	49.0000000	2.2803509	47.0000000	52.0000000
bn	6	35.6666667	2.5819889	33.0000000	40.0000000

---------- sex=F tribe=CROW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	122	187.4590164	5.7426166	174.0000000	202.0000000
bh	122	153.6147541	5.8823826	142.0000000	170.0000000
lfn	122	119.1639344	5.8766391	106.0000000	134.0000000
bf	122	138.3852459	7.8334383	115.0000000	156.0000000
ln	122	53.5819672	4.4253966	42.0000000	67.0000000
bn	122	37.6311475	3.2858344	27.0000000	48.0000000

---------- sex=F tribe=EASTERN MONO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	9	177.7777778	3.9299420	170.0000000	182.0000000
bh	9	153.0000000	3.9686270	145.0000000	158.0000000
lfn	9	120.2222222	3.5629264	116.0000000	126.0000000
bf	9	143.1111111	4.2557151	137.0000000	150.0000000
ln	9	52.8888889	2.4209732	49.0000000	57.0000000
bn	9	40.6666667	3.4278273	36.0000000	45.0000000

---------- sex=F tribe=ESKIMO(EC) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	14	186.2857143	6.7302826	172.0000000	194.0000000
bh	14	146.6428571	6.3561859	135.0000000	160.0000000
lfn	14	112.1428571	5.1568795	99.0000000	117.0000000
bf	14	135.5000000	6.9031765	124.0000000	144.0000000
ln	14	47.9285714	2.4326082	43.0000000	52.0000000
bn	14	34.3571429	2.5901334	30.0000000	39.0000000

---------- sex=F tribe=ESKIMO(WC) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	11	184.7272727	5.7808461	176.0000000	196.0000000
bh	11	142.0000000	6.0663004	135.0000000	155.0000000
lfn	11	120.3636364	4.2490641	113.0000000	126.0000000
bf	11	141.9090909	6.4258003	134.0000000	155.0000000
ln	11	52.9090909	3.4771985	47.0000000	59.0000000
bn	11	33.2727273	2.3702704	29.0000000	37.0000000

---------- sex=F tribe=EVEN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	17	186.2352941	5.0190812	178.0000000	197.0000000
bh	17	150.0000000	3.6400549	142.0000000	157.0000000
lfn	17	116.4705882	4.2883220	106.0000000	124.0000000
bf	17	139.4705882	4.5016337	132.0000000	148.0000000
ln	17	47.4117647	2.8952293	42.0000000	53.0000000
bn	17	31.5882353	2.1522902	27.0000000	36.0000000

---------- sex=F tribe=EVENK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	70	186.3142857	4.6828174	172.0000000	200.0000000
bh	70	147.9428571	3.7643858	142.0000000	158.0000000
lfn	70	114.0142857	5.9939410	100.0000000	130.0000000
bf	70	138.0000000	3.6035409	131.0000000	148.0000000
ln	70	47.7428571	4.4255048	39.0000000	57.0000000
bn	70	31.9142857	1.9467018	28.0000000	37.0000000

---------- sex=F tribe=FLATHEAD ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	4	190.0000000	4.6904158	183.0000000	193.0000000
bh	4	158.5000000	6.0277138	153.0000000	167.0000000
lfn	4	110.7500000	0.9574271	110.0000000	112.0000000
bf	4	136.5000000	4.3588989	134.0000000	143.0000000
ln	4	45.7500000	2.5000000	43.0000000	49.0000000
bn	4	43.2500000	4.1129876	38.0000000	48.0000000

---------- sex=F tribe=HAIDA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	10	188.2000000	6.5962953	176.0000000	196.0000000
bh	10	155.4000000	5.0376361	147.0000000	162.0000000
lfn	10	114.5000000	5.4822947	105.0000000	124.0000000
bf	10	145.6000000	4.8350572	139.0000000	152.0000000
ln	10	46.9000000	3.3482997	40.0000000	52.0000000
bn	10	35.9000000	2.0248457	32.0000000	39.0000000

---------- sex=F tribe=HOOPA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	32	180.6250000	6.9316944	163.0000000	194.0000000
bh	32	148.7812500	4.5061562	137.0000000	160.0000000
lfn	32	114.2812500	4.9463859	103.0000000	129.0000000
bf	32	135.9687500	6.6210046	123.0000000	151.0000000
ln	32	47.2500000	4.5008960	40.0000000	61.0000000
bn	32	36.9062500	2.5318535	32.0000000	43.0000000

---------- sex=F tribe=ITELMAN(KH) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	82	184.5853659	5.7347785	168.0000000	197.0000000
bh	82	143.8658537	5.0595520	130.0000000	157.0000000
lfn	82	113.6951220	7.2651528	100.0000000	132.0000000
bf	82	136.7926829	3.9650878	129.0000000	151.0000000
ln	82	44.7926829	3.9526138	38.0000000	55.0000000
bn	82	33.3414634	2.0977325	30.0000000	40.0000000

---------- sex=F tribe=ITELMAN(SE) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	53	182.7735849	5.4088301	172.0000000	194.0000000
bh	53	143.9056604	5.8548604	134.0000000	160.0000000
lfn	53	112.2452830	6.4893571	100.0000000	132.0000000
bf	53	136.4339623	4.6347742	125.0000000	148.0000000
ln	53	45.6603774	4.0853556	37.0000000	55.0000000
bn	53	33.3207547	2.5778165	28.0000000	39.0000000

---------- sex=F tribe=KALAPUYA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	4	173.7500000	11.2952792	163.0000000	189.0000000
bh	4	152.5000000	6.1913919	144.0000000	158.0000000
lfn	4	120.0000000	5.7154761	115.0000000	128.0000000
bf	4	131.2500000	3.3040379	128.0000000	135.0000000
ln	4	50.2500000	4.1129876	45.0000000	54.0000000
bn	4	35.2500000	1.2583057	34.0000000	37.0000000

---------- sex=F tribe=KIOWA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	36	182.0833333	5.0504597	172.0000000	192.0000000
bh	36	147.8055556	5.5282105	133.0000000	164.0000000
lfn	36	116.2500000	4.8484165	107.0000000	129.0000000
bf	36	138.4166667	6.3846915	122.0000000	150.0000000
ln	36	49.8055556	3.3959593	43.0000000	57.0000000
bn	36	36.1944444	2.3030346	31.0000000	41.0000000

---------- sex=F tribe=KLAMATH ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	67	176.5522388	6.7493739	162.0000000	191.0000000
bh	67	156.8805970	6.9402698	141.0000000	169.0000000
lfn	67	116.3283582	5.6685952	100.0000000	130.0000000
bf	67	141.3731343	5.5971741	129.0000000	151.0000000
ln	67	48.2238806	3.8329548	41.0000000	58.0000000
bn	67	37.3134328	3.4868105	30.0000000	45.0000000

---------- sex=F tribe=KLICKITAT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	12	180.5833333	8.8467594	170.0000000	203.0000000
bh	12	148.1666667	6.1026571	140.0000000	158.0000000
lfn	12	120.5000000	7.8797785	110.0000000	133.0000000
bf	12	130.9166667	9.7277329	114.0000000	145.0000000
ln	12	52.2500000	4.9012985	44.0000000	63.0000000
bn	12	37.5833333	4.1878251	32.0000000	45.0000000

---------- sex=F tribe=KORYAK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	145	183.9310345	5.5623426	169.0000000	200.0000000
bh	145	146.5103448	4.2819343	136.0000000	160.0000000
lfn	145	117.2137931	6.4465605	100.0000000	132.0000000
bf	145	139.3103448	4.2483939	128.0000000	151.0000000
ln	145	49.9517241	4.3895884	39.0000000	61.0000000
bn	145	33.8965517	2.8643502	27.0000000	42.0000000

---------- sex=F tribe=KUTENAI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	3	185.6666667	7.2341781	181.0000000	194.0000000
bh	3	151.3333333	3.5118846	148.0000000	155.0000000
lfn	3	108.3333333	2.8867513	105.0000000	110.0000000
bf	3	135.3333333	4.5092498	131.0000000	140.0000000
ln	3	52.6666667	8.5049005	44.0000000	61.0000000
bn	3	38.3333333	3.5118846	35.0000000	42.0000000

---------- sex=F tribe=KWAKIUTL ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	51	185.9803922	8.9899726	161.0000000	206.0000000
bh	51	150.8431373	7.3331373	134.0000000	171.0000000
lfn	51	121.0980392	6.8709676	106.0000000	138.0000000
bf	51	143.9803922	4.7137679	133.0000000	156.0000000
ln	51	51.7058824	5.0923241	40.0000000	66.0000000
bn	51	35.6078431	2.5066187	30.0000000	42.0000000

---------- sex=F tribe=LILLOOET ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	73	178.4520548	6.5150277	160.0000000	194.0000000
bh	73	153.2054795	5.0082124	144.0000000	166.0000000
lfn	73	111.7123288	5.9593052	95.0000000	126.0000000
bf	73	140.5753425	4.8359700	130.0000000	151.0000000
ln	73	47.6438356	4.0255085	39.0000000	58.0000000
bn	73	36.1369863	2.9454064	30.0000000	44.0000000

---------- sex=F tribe=MAKAH ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	31	177.0645161	8.5007274	153.0000000	195.0000000
bh	31	158.4838710	8.0285780	144.0000000	177.0000000
lfn	31	116.7096774	6.4611328	101.0000000	127.0000000
bf	31	146.6774194	5.7699630	135.0000000	158.0000000
ln	31	48.4193548	4.4629900	41.0000000	58.0000000
bn	31	35.7096774	3.3881514	31.0000000	46.0000000

---------- sex=F tribe=MALECITE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	12	185.0833333	6.6395281	177.0000000	199.0000000
bh	12	149.4166667	4.3995523	145.0000000	160.0000000
lfn	12	113.0000000	7.5438114	97.0000000	124.0000000
bf	12	133.9166667	5.9000514	125.0000000	142.0000000
ln	12	47.1666667	3.7132033	42.0000000	55.0000000
bn	12	34.7500000	2.7675063	30.0000000	40.0000000

---------- sex=F tribe=MARITIME CHUKCHI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	24	182.4583333	5.1158676	171.0000000	196.0000000
bh	24	148.6250000	3.4992235	140.0000000	155.0000000
lfn	24	121.3333333	7.2511868	103.0000000	135.0000000
bf	24	139.2500000	3.7212667	133.0000000	149.0000000
ln	24	49.2083333	3.7761168	41.0000000	58.0000000
bn	24	34.4166667	2.2634461	30.0000000	40.0000000

---------- sex=F tribe=MENOMINI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	23	185.8695652	6.6626800	172.0000000	199.0000000
bh	23	148.5217391	4.7181426	138.0000000	159.0000000
lfn	23	112.5217391	8.6910067	96.0000000	125.0000000
bf	23	138.2608696	6.1733842	125.0000000	153.0000000
ln	23	46.9130435	3.1029757	41.0000000	53.0000000
bn	23	36.2608696	3.2643723	30.0000000	42.0000000

---------- sex=F tribe=MICMAC ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	71	184.8309859	5.2643977	175.0000000	198.0000000
bh	71	146.7887324	4.4269160	132.0000000	157.0000000
lfn	71	113.5633803	7.2184929	98.0000000	127.0000000
bf	71	135.9577465	5.9026305	120.0000000	155.0000000
ln	71	48.8309859	3.9892209	40.0000000	60.0000000
bn	71	35.7183099	3.0621332	29.0000000	43.0000000

---------- sex=F tribe=MISSISSAGUA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	35	185.1142857	6.0282249	172.0000000	198.0000000
bh	35	151.4857143	5.7310887	142.0000000	167.0000000
lfn	35	113.3714286	5.1397283	100.0000000	123.0000000
bf	35	138.8857143	5.6034203	125.0000000	150.0000000
ln	35	50.7428571	3.5920079	45.0000000	59.0000000
bn	35	35.2857143	2.9262647	30.0000000	42.0000000

---------- sex=F tribe=MODOC ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	9	177.5555556	4.3333333	169.0000000	184.0000000
bh	9	156.6666667	5.7227616	150.0000000	166.0000000
lfn	9	109.5555556	6.6729137	99.0000000	120.0000000
bf	9	142.3333333	7.1063352	133.0000000	153.0000000
ln	9	47.5555556	2.4551533	45.0000000	51.0000000
bn	9	36.0000000	2.2360680	32.0000000	39.0000000

---------- sex=F tribe=MOHAWK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	14	186.7142857	4.1403934	178.0000000	193.0000000
bh	14	150.0714286	4.8590009	141.0000000	157.0000000
lfn	14	110.8571429	5.6820519	99.0000000	119.0000000
bf	14	134.5714286	6.2844654	122.0000000	145.0000000
ln	14	47.0000000	3.7210420	41.0000000	53.0000000
bn	14	35.0000000	2.6890090	30.0000000	39.0000000

---------- sex=F tribe=MONTAGNAIS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	26	188.3461538	5.3735821	177.0000000	198.0000000
bh	26	154.3461538	4.8821496	147.0000000	166.0000000
lfn	26	110.7307692	4.8789974	100.0000000	119.0000000
bf	26	135.9230769	5.2300905	128.0000000	150.0000000
ln	26	47.8076923	3.9599922	40.0000000	54.0000000
bn	26	36.4230769	3.1006203	32.0000000	43.0000000

---------- sex=F tribe=MUNSEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	16	188.1250000	5.5000000	180.0000000	199.0000000
bh	16	150.7500000	6.8653720	138.0000000	165.0000000
lfn	16	112.6875000	6.7103775	100.0000000	123.0000000
bf	16	139.6250000	6.1522354	130.0000000	147.0000000
ln	16	48.4375000	2.7317577	45.0000000	53.0000000
bn	16	36.8750000	2.4460853	34.0000000	41.0000000

---------- sex=F tribe=NAVAJO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	11	177.9090909	5.4121076	167.0000000	185.0000000
bh	11	148.4545455	4.9671649	141.0000000	159.0000000
lfn	11	108.3636364	6.2493636	92.0000000	116.0000000
bf	11	136.4545455	3.3275708	130.0000000	141.0000000
ln	11	46.6363636	2.4605986	42.0000000	49.0000000
bn	11	36.8181818	2.9939333	32.0000000	41.0000000

---------- sex=F tribe=NEZ PERCE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	6	178.0000000	16.7570881	145.0000000	190.0000000
bh	6	153.5000000	4.5055521	149.0000000	160.0000000
lfn	6	114.0000000	6.5115282	108.0000000	123.0000000
bf	6	136.3333333	7.7114633	125.0000000	142.0000000
ln	6	47.8333333	3.8686776	42.0000000	53.0000000
bn	6	37.5000000	3.6193922	31.0000000	42.0000000

---------- sex=F tribe=NISQUALLY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	8	184.7500000	13.1665160	167.0000000	212.0000000
bh	8	160.7500000	8.1547532	152.0000000	176.0000000
lfn	8	118.0000000	4.7809144	111.0000000	126.0000000
bf	8	144.0000000	7.5023806	131.0000000	153.0000000
ln	8	49.2500000	4.5903626	44.0000000	57.0000000
bn	8	35.8750000	1.4577380	34.0000000	38.0000000

---------- sex=F tribe=NORTHERN HILL YOKUTS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	9	181.1111111	6.3530395	172.0000000	189.0000000
bh	9	147.5555556	6.5021364	140.0000000	162.0000000
lfn	9	121.6666667	5.5901699	112.0000000	132.0000000
bf	9	138.3333333	5.2678269	131.0000000	145.0000000
ln	9	50.2222222	4.2654946	44.0000000	59.0000000
bn	9	40.4444444	2.6509956	37.0000000	44.0000000

---------- sex=F tribe=NORTHERN PAIUTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	38	182.6052632	6.0159224	172.0000000	193.0000000
bh	38	150.6052632	5.0699937	142.0000000	163.0000000
lfn	38	114.4210526	5.9394766	104.0000000	128.0000000
bf	38	139.0263158	4.9291567	128.0000000	149.0000000
ln	38	47.1842105	3.5171799	41.0000000	55.0000000
bn	38	37.4210526	2.9831199	31.0000000	44.0000000

---------- sex=F tribe=NORTHERN POMO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	14	180.7857143	7.6679008	169.0000000	197.0000000
bh	14	146.0714286	5.8106571	136.0000000	158.0000000
lfn	14	107.7857143	6.2533508	98.0000000	121.0000000
bf	14	136.7857143	3.4458129	133.0000000	143.0000000
ln	14	43.3571429	2.9770182	39.0000000	48.0000000
bn	14	38.8571429	2.8245393	34.0000000	44.0000000

---------- sex=F tribe=OJIBWA(Gbay) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	19	186.6315789	5.3146603	177.0000000	196.0000000
bh	19	152.8421053	3.9477583	145.0000000	163.0000000
lfn	19	114.4210526	7.5668560	97.0000000	132.0000000
bf	19	140.7894737	3.5524475	135.0000000	147.0000000
ln	19	49.1578947	4.8906164	40.0000000	61.0000000
bn	19	36.1578947	2.7741497	31.0000000	40.0000000

---------- sex=F tribe=OJIBWA(NWLSup) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	44	186.2727273	5.8721401	166.0000000	198.0000000
bh	44	150.7727273	5.0892666	139.0000000	161.0000000
lfn	44	114.4545455	8.0071321	92.0000000	138.0000000
bf	44	137.7500000	6.4343735	127.0000000	150.0000000
ln	44	47.2954545	4.0207575	40.0000000	56.0000000
bn	44	34.2954545	3.0237782	30.0000000	42.0000000

---------- sex=F tribe=OKANAGAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	22	190.1818182	6.2612669	174.0000000	204.0000000
bh	22	154.2272727	6.1947122	142.0000000	165.0000000
lfn	22	113.8636364	4.5596100	106.0000000	125.0000000
bf	22	141.9545455	7.2537496	130.0000000	157.0000000
ln	22	46.9545455	3.5385937	40.0000000	54.0000000
bn	22	36.7272727	3.4251426	31.0000000	44.0000000

---------- sex=F tribe=OMAHA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	24	183.3750000	5.8667264	171.0000000	196.0000000
bh	24	148.5000000	5.7331985	138.0000000	158.0000000
lfn	24	111.0000000	6.6201274	97.0000000	122.0000000
bf	24	139.1666667	7.3346507	120.0000000	154.0000000
ln	24	48.9583333	2.8204096	42.0000000	54.0000000
bn	24	36.0000000	2.7819293	29.0000000	41.0000000

---------- sex=F tribe=ONEIDA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	46	185.4782609	5.2693627	174.0000000	196.0000000
bh	46	149.1304348	3.8678659	140.0000000	157.0000000
lfn	46	115.3478261	4.9044986	103.0000000	124.0000000
bf	46	136.8043478	4.6980827	126.0000000	147.0000000
ln	46	48.6304348	2.9766401	42.0000000	55.0000000
bn	46	34.4130435	2.2566060	28.0000000	40.0000000

---------- sex=F tribe=OSAGE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	3	187.0000000	4.0000000	183.0000000	191.0000000
bh	3	157.3333333	4.0414519	153.0000000	161.0000000
lfn	3	115.3333333	9.8657657	104.0000000	122.0000000
bf	3	144.3333333	1.5275252	143.0000000	146.0000000
ln	3	49.0000000	6.0827625	42.0000000	53.0000000
bn	3	38.0000000	3.4641016	34.0000000	40.0000000

---------- sex=F tribe=PAWNEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	8	183.2500000	4.3011626	176.0000000	189.0000000
bh	8	147.6250000	3.6228442	143.0000000	154.0000000
lfn	8	114.1250000	6.5778307	108.0000000	126.0000000
bf	8	137.3750000	4.4380659	133.0000000	147.0000000
ln	8	51.0000000	4.0355563	46.0000000	58.0000000
bn	8	36.7500000	2.1876275	33.0000000	39.0000000

---------- sex=F tribe=PIEGAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	9	186.7777778	7.0138751	176.0000000	195.0000000
bh	9	148.8888889	4.5399462	142.0000000	156.0000000
lfn	9	114.3333333	7.4498322	101.0000000	122.0000000
bf	9	139.6666667	6.1032778	128.0000000	147.0000000
ln	9	51.7777778	4.2360883	47.0000000	60.0000000
bn	9	41.3333333	5.5901699	34.0000000	54.0000000

---------- sex=F tribe=PONCA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	13	182.9230769	4.4433759	173.0000000	189.0000000
bh	13	150.7692308	4.4376016	143.0000000	158.0000000
lfn	13	118.9230769	6.1435812	108.0000000	128.0000000
bf	13	140.9230769	6.3700018	131.0000000	150.0000000
ln	13	52.8461538	3.8911471	46.0000000	59.0000000
bn	13	36.7692308	2.6505926	33.0000000	41.0000000

---------- sex=F tribe=POTAWATOMI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	4	177.0000000	9.5916630	168.0000000	190.0000000
bh	4	155.7500000	5.2519838	151.0000000	163.0000000
lfn	4	111.5000000	3.8729833	108.0000000	117.0000000
bf	4	144.5000000	9.2556289	137.0000000	158.0000000
ln	4	47.5000000	4.2031734	43.0000000	52.0000000
bn	4	38.0000000	5.3541261	32.0000000	45.0000000

---------- sex=F tribe=PUEBLO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	1	168.0000000	.	168.0000000	168.0000000
bh	1	140.0000000	.	140.0000000	140.0000000
lfn	1	113.0000000	.	113.0000000	113.0000000
bf	1	133.0000000	.	133.0000000	133.0000000
ln	1	44.0000000	.	44.0000000	44.0000000
bn	1	34.0000000	.	34.0000000	34.0000000

---------- sex=F tribe=PUYALLUP ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	7	182.5714286	3.8668309	178.0000000	188.0000000
bh	7	158.2857143	6.9931940	150.0000000	172.0000000
lfn	7	117.7142857	4.7157285	111.0000000	126.0000000
bf	7	146.0000000	3.3665016	141.0000000	151.0000000
ln	7	47.8571429	1.8644545	45.0000000	50.0000000
bn	7	35.2857143	1.9760470	32.0000000	38.0000000

---------- sex=F tribe=QUEETS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	5	175.4000000	5.6833089	171.0000000	185.0000000
bh	5	163.6000000	3.2093613	158.0000000	166.0000000
lfn	5	114.6000000	4.5055521	108.0000000	120.0000000
bf	5	150.2000000	5.7183914	143.0000000	157.0000000
ln	5	47.8000000	2.2803509	45.0000000	50.0000000
bn	5	36.4000000	2.3021729	34.0000000	40.0000000

---------- sex=F tribe=QUILLAYUTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	10	171.7000000	5.7936747	162.0000000	180.0000000
bh	10	162.0000000	7.5277265	154.0000000	176.0000000
lfn	10	114.1000000	7.3401483	104.0000000	127.0000000
bf	10	147.9000000	6.3674520	140.0000000	160.0000000
ln	10	45.2000000	4.7562824	41.0000000	57.0000000
bn	10	36.4000000	2.3190036	33.0000000	40.0000000

---------- sex=F tribe=QUINAULT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	10	179.9000000	7.5784783	167.0000000	197.0000000
bh	10	166.0000000	8.7177979	155.0000000	179.0000000
lfn	10	115.6000000	4.9710272	106.0000000	122.0000000
bf	10	149.6000000	6.1137368	141.0000000	158.0000000
ln	10	46.4000000	3.0983867	42.0000000	51.0000000
bn	10	37.8000000	3.3928028	33.0000000	43.0000000

---------- sex=F tribe=REINDEER CHUKCHI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	25	181.5200000	5.0009999	173.0000000	190.0000000
bh	25	149.4800000	3.7982452	143.0000000	159.0000000
lfn	25	118.7600000	6.2067168	108.0000000	134.0000000
bf	25	138.4800000	3.9064050	129.0000000	148.0000000
ln	25	48.2000000	4.8904669	40.0000000	59.0000000
bn	25	35.3600000	2.6280538	30.0000000	42.0000000

---------- sex=F tribe=REINDEER KORYAK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	6	186.8333333	9.0866202	178.0000000	202.0000000
bh	6	149.1666667	4.4907312	142.0000000	154.0000000
lfn	6	116.0000000	5.5497748	109.0000000	122.0000000
bf	6	141.0000000	5.4772256	135.0000000	148.0000000
ln	6	47.6666667	3.5023801	44.0000000	52.0000000
bn	6	34.8333333	3.4302575	30.0000000	40.0000000

---------- sex=F tribe=SAN LUIS REY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	45	182.0000000	9.7117548	161.0000000	202.0000000
bh	45	158.6888889	5.5751976	145.0000000	167.0000000
lfn	45	114.8000000	6.3267111	104.0000000	127.0000000
bf	45	142.7333333	5.1495807	130.0000000	155.0000000
ln	45	46.9333333	3.3466401	40.0000000	52.0000000
bn	45	39.4666667	3.5393888	31.0000000	47.0000000

---------- sex=F tribe=SAUK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	2	187.0000000	8.4852814	181.0000000	193.0000000
bh	2	151.0000000	12.7279221	142.0000000	160.0000000
lfn	2	112.5000000	2.1213203	111.0000000	114.0000000
bf	2	142.5000000	4.9497475	139.0000000	146.0000000
ln	2	48.0000000	7.0710678	43.0000000	53.0000000
bn	2	36.5000000	0.7071068	36.0000000	37.0000000

---------- sex=F tribe=SENECA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	27	187.8148148	9.1358846	169.0000000	210.0000000
bh	27	148.6666667	5.1065569	139.0000000	160.0000000
lfn	27	112.6666667	5.7109881	103.0000000	123.0000000
bf	27	137.5185185	6.2226038	126.0000000	150.0000000
ln	27	47.8148148	3.5522153	40.0000000	55.0000000
bn	27	36.0370370	3.2872888	30.0000000	43.0000000

---------- sex=F tribe=SHAWNEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	2	182.0000000	7.0710678	177.0000000	187.0000000
bh	2	149.5000000	4.9497475	146.0000000	153.0000000
lfn	2	110.5000000	0.7071068	110.0000000	111.0000000
bf	2	135.5000000	2.1213203	134.0000000	137.0000000
ln	2	46.5000000	3.5355339	44.0000000	49.0000000
bn	2	36.0000000	2.8284271	34.0000000	38.0000000

---------- sex=F tribe=SHOSHONI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	3	184.6666667	4.7258156	181.0000000	190.0000000
bh	3	146.0000000	4.5825757	141.0000000	150.0000000
lfn	3	111.3333333	2.5166115	109.0000000	114.0000000
bf	3	138.3333333	2.5166115	136.0000000	141.0000000
ln	3	51.6666667	3.0550505	49.0000000	55.0000000
bn	3	40.6666667	4.0414519	36.0000000	43.0000000

---------- sex=F tribe=SHUSWAP ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	99	182.8181818	7.5786537	166.0000000	202.0000000
bh	99	153.6464646	5.2708539	142.0000000	172.0000000
lfn	99	112.9494949	5.2999302	95.0000000	125.0000000
bf	99	138.9696970	6.5285160	120.0000000	153.0000000
ln	99	46.8383838	3.8218146	38.0000000	58.0000000
bn	99	36.7474747	2.7343000	30.0000000	45.0000000

---------- sex=F tribe=SIOUX(SANTEE) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	19	185.8947368	5.1412789	180.0000000	201.0000000
bh	19	149.8421053	5.2309247	141.0000000	161.0000000
lfn	19	115.2105263	4.6854260	108.0000000	126.0000000
bf	19	138.8947368	5.3113582	130.0000000	150.0000000
ln	19	53.4736842	3.5018792	49.0000000	59.0000000
bn	19	36.1578947	2.7540507	32.0000000	41.0000000

---------- sex=F tribe=SIOUX(TETON) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	65	187.4923077	4.9025602	179.0000000	196.0000000
bh	65	151.6923077	4.2863267	143.0000000	162.0000000
lfn	65	119.0153846	5.8269104	106.0000000	130.0000000
bf	65	143.9076923	3.6773083	135.0000000	153.0000000
ln	65	55.7538462	3.5312479	47.0000000	62.0000000
bn	65	37.4769231	2.8012703	32.0000000	47.0000000

---------- sex=F tribe=SIOUX(YANKTON) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	43	186.6279070	4.6803706	177.0000000	195.0000000
bh	43	151.4651163	4.4579989	142.0000000	162.0000000
lfn	43	115.1627907	6.7855948	101.0000000	127.0000000
bf	43	142.8372093	5.8020121	131.0000000	153.0000000
ln	43	54.5348837	3.8006819	48.0000000	65.0000000
bn	43	37.8372093	3.2872787	32.0000000	47.0000000

---------- sex=F tribe=SOUTHERN MIWOK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	7	182.1428571	6.1489449	171.0000000	188.0000000
bh	7	161.5714286	4.8255274	156.0000000	167.0000000
lfn	7	123.1428571	5.2734736	117.0000000	128.0000000
bf	7	149.5714286	5.9960304	142.0000000	159.0000000
ln	7	52.2857143	2.9277002	47.0000000	55.0000000
bn	7	39.7142857	2.6903708	36.0000000	44.0000000

---------- sex=F tribe=STALO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	21	182.2857143	7.8431043	160.0000000	192.0000000
bh	21	157.9047619	9.1700859	146.0000000	180.0000000
lfn	21	112.1428571	11.6631287	99.0000000	146.0000000
bf	21	142.4761905	9.2931106	115.0000000	157.0000000
ln	21	44.5714286	4.4896707	37.0000000	54.0000000
bn	21	36.5714286	3.0752468	30.0000000	42.0000000

---------- sex=F tribe=STOCKBRIDGE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	4	184.7500000	3.7749172	182.0000000	190.0000000
bh	4	148.5000000	3.6968455	144.0000000	153.0000000
lfn	4	117.0000000	5.4772256	109.0000000	121.0000000
bf	4	135.0000000	1.6329932	133.0000000	137.0000000
ln	4	48.0000000	1.1547005	47.0000000	49.0000000
bn	4	37.7500000	4.2720019	32.0000000	41.0000000

---------- sex=F tribe=TAHLTAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	5	188.0000000	5.8736701	183.0000000	198.0000000
bh	5	153.6000000	5.4129474	145.0000000	160.0000000
lfn	5	120.0000000	3.0822070	117.0000000	124.0000000
bf	5	144.8000000	5.5856960	138.0000000	153.0000000
ln	5	53.2000000	4.1472883	49.0000000	60.0000000
bn	5	34.0000000	1.4142136	33.0000000	36.0000000

---------- sex=F tribe=TAOS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	11	181.2727273	4.1974018	174.0000000	187.0000000
bh	11	140.3636364	3.8541595	135.0000000	147.0000000
lfn	11	110.7272727	4.4292417	104.0000000	117.0000000
bf	11	132.5454545	3.7246110	127.0000000	139.0000000
ln	11	45.3636364	2.8730725	40.0000000	51.0000000
bn	11	33.5454545	2.5441555	31.0000000	39.0000000

---------- sex=F tribe=TENINO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	22	178.0000000	4.8989795	170.0000000	185.0000000
bh	22	155.9090909	5.6980288	140.0000000	168.0000000
lfn	22	114.7272727	7.2056976	100.0000000	127.0000000
bf	22	139.1818182	11.9269058	114.0000000	158.0000000
ln	22	47.4545455	4.7980876	36.0000000	55.0000000
bn	22	36.8181818	2.9702712	32.0000000	42.0000000

---------- sex=F tribe=THOMPSON ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	147	181.8027211	6.1070804	166.0000000	197.0000000
bh	147	150.4353741	4.9726210	140.0000000	163.0000000
lfn	147	109.8027211	5.7393612	93.0000000	122.0000000
bf	147	138.1768707	5.2872303	122.0000000	150.0000000
ln	147	45.4761905	4.5500765	33.0000000	58.0000000
bn	147	36.0340136	2.9269999	30.0000000	45.0000000

---------- sex=F tribe=TONKAWA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	19	174.1578947	3.3872827	168.0000000	181.0000000
bh	19	153.1578947	4.1400907	147.0000000	162.0000000
lfn	19	114.7894737	5.2023387	106.0000000	126.0000000
bf	19	138.9473684	5.1367271	131.0000000	148.0000000
ln	19	54.2105263	3.7650284	46.0000000	61.0000000
bn	19	39.6842105	4.0145933	33.0000000	47.0000000

---------- sex=F tribe=TSIMSHIAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	42	188.3095238	5.1156770	178.0000000	199.0000000
bh	42	155.9047619	5.5295637	143.0000000	167.0000000
lfn	42	115.3809524	4.2767231	105.0000000	125.0000000
bf	42	145.0000000	4.7318330	135.0000000	152.0000000
ln	42	46.1428571	4.0398710	37.0000000	59.0000000
bn	42	36.8571429	2.7987055	32.0000000	46.0000000

---------- sex=F tribe=TUNDRA-EVENK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	3	188.6666667	3.0550505	186.0000000	192.0000000
bh	3	154.0000000	5.0000000	149.0000000	159.0000000
lfn	3	116.0000000	6.5574385	110.0000000	123.0000000
bf	3	139.3333333	0.5773503	139.0000000	140.0000000
ln	3	48.6666667	4.7258156	45.0000000	54.0000000
bn	3	31.3333333	2.3094011	30.0000000	34.0000000

---------- sex=F tribe=TUSCARORA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	24	186.0000000	4.8722819	176.0000000	198.0000000
bh	24	147.7500000	5.2440442	139.0000000	158.0000000
lfn	24	112.2916667	7.1473873	100.0000000	124.0000000
bf	24	136.7500000	5.5501665	125.0000000	150.0000000
ln	24	45.8333333	2.6484888	40.0000000	52.0000000
bn	24	35.3333333	3.1714304	30.0000000	40.0000000

---------- sex=F tribe=TUTUTNI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	7	182.2857143	9.9618319	168.0000000	199.0000000
bh	7	150.0000000	3.6514837	145.0000000	157.0000000
lfn	7	112.8571429	5.5805786	103.0000000	120.0000000
bf	7	132.8571429	8.4740500	124.0000000	146.0000000
ln	7	50.0000000	1.5275252	48.0000000	52.0000000
bn	7	32.1428571	4.3369948	24.0000000	37.0000000

---------- sex=F tribe=UMATILLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	5	182.2000000	3.9623226	177.0000000	188.0000000
bh	5	156.2000000	6.7970582	152.0000000	168.0000000
lfn	5	115.8000000	2.5884358	113.0000000	119.0000000
bf	5	145.6000000	3.6469165	141.0000000	151.0000000
ln	5	57.0000000	3.5355339	53.0000000	62.0000000
bn	5	42.2000000	3.2710854	38.0000000	46.0000000

---------- sex=F tribe=UTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	21	185.0000000	7.4565408	173.0000000	199.0000000
bh	21	146.7142857	5.5690471	137.0000000	156.0000000
lfn	21	108.6666667	4.5971005	101.0000000	122.0000000
bf	21	136.4285714	5.4550108	127.0000000	144.0000000
ln	21	46.4761905	3.4441116	38.0000000	54.0000000
bn	21	40.2857143	3.2115862	35.0000000	47.0000000

---------- sex=F tribe=WASCO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	5	177.4000000	6.6181568	168.0000000	186.0000000
bh	5	159.8000000	13.0843418	145.0000000	178.0000000
lfn	5	113.4000000	5.1768716	107.0000000	119.0000000
bf	5	142.8000000	4.0865633	140.0000000	150.0000000
ln	5	47.8000000	4.2661458	44.0000000	55.0000000
bn	5	37.4000000	4.7222876	34.0000000	45.0000000

---------- sex=F tribe=WASHO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	6	181.6666667	2.4221203	179.0000000	185.0000000
bh	6	152.1666667	2.1369761	150.0000000	155.0000000
lfn	6	119.0000000	3.6878178	114.0000000	122.0000000
bf	6	144.1666667	3.7103459	139.0000000	147.0000000
ln	6	51.1666667	4.1673333	45.0000000	57.0000000
bn	6	39.5000000	2.5884358	37.0000000	44.0000000

---------- sex=F tribe=WESTERN MONO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	13	187.8461538	4.6519916	182.0000000	198.0000000
bh	13	143.8461538	2.5115120	140.0000000	149.0000000
lfn	13	114.1538462	4.7757400	105.0000000	121.0000000
bf	13	139.7692308	3.0042705	135.0000000	145.0000000
ln	13	50.1538462	4.6340435	41.0000000	58.0000000
bn	13	39.4615385	2.8465003	35.0000000	45.0000000

---------- sex=F tribe=WINNEBAGO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	32	180.8437500	7.6119998	160.0000000	196.0000000
bh	32	153.5000000	6.1118605	135.0000000	164.0000000
lfn	32	111.3125000	6.7223148	100.0000000	126.0000000
bf	32	141.8125000	4.6589318	133.0000000	151.0000000
ln	32	48.5312500	3.4076231	41.0000000	54.0000000
bn	32	36.9687500	3.6762917	31.0000000	45.0000000

---------- sex=F tribe=YAKUT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	35	183.4571429	6.6657282	170.0000000	200.0000000
bh	35	150.8857143	5.4057237	141.0000000	163.0000000
lfn	35	118.3714286	5.9264398	108.0000000	133.0000000
bf	35	141.1714286	4.8657610	133.0000000	156.0000000
ln	35	50.1428571	3.5739487	43.0000000	57.0000000
bn	35	32.6571429	2.0283702	29.0000000	38.0000000

---------- sex=F tribe=YOKUTS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	21	181.2380952	14.6352477	151.0000000	203.0000000
bh	21	159.2857143	5.9172870	151.0000000	172.0000000
lfn	21	112.1428571	4.3506978	106.0000000	123.0000000
bf	21	141.5238095	5.9213094	130.0000000	150.0000000
ln	21	44.7142857	3.2271172	40.0000000	54.0000000
bn	21	38.6666667	2.9552214	33.0000000	45.0000000

---------- sex=F tribe=YUKAGHIR ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	20	183.7000000	5.8137767	171.0000000	193.0000000
bh	20	147.5000000	3.9536792	139.0000000	156.0000000
lfn	20	116.8000000	6.7011389	105.0000000	134.0000000
bf	20	136.9500000	4.3343791	128.0000000	145.0000000
ln	20	47.6000000	4.1851869	40.0000000	55.0000000
bn	20	32.1000000	2.4899799	27.0000000	36.0000000

---------- sex=F tribe=YUKI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	37	185.7567568	5.8090227	175.0000000	197.0000000
bh	37	143.9189189	4.9011245	136.0000000	158.0000000
lfn	37	106.8648649	6.1786468	91.0000000	120.0000000
bf	37	137.9459459	3.9011818	130.0000000	145.0000000
ln	37	43.7567568	3.2180516	37.0000000	51.0000000
bn	37	38.5945946	2.3858316	33.0000000	44.0000000

---------- sex=F tribe=YUROK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	16	183.9375000	6.3714860	174.0000000	203.0000000
bh	16	151.5625000	3.9491560	145.0000000	157.0000000
lfn	16	117.3750000	18.2313832	102.0000000	183.0000000
bf	16	137.6250000	8.8534362	109.0000000	148.0000000
ln	16	43.7500000	9.3345237	13.0000000	55.0000000
bn	16	39.8125000	3.5255023	35.0000000	45.0000000

---------- sex=F tribe=ZUNI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	11	173.5454545	8.8358773	158.0000000	185.0000000
bh	11	145.1818182	7.4406745	136.0000000	160.0000000
lfn	11	107.5454545	7.7377469	96.0000000	118.0000000
bf	11	134.2727273	5.8667011	127.0000000	148.0000000
ln	11	43.5454545	3.6431754	40.0000000	51.0000000
bn	11	33.7272727	2.8316394	30.0000000	37.0000000

---------- sex=M tribe=ACHOMAWI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	22	188.7727273	6.7395903	176.0000000	205.0000000
bh	22	159.7272727	6.8603888	142.0000000	172.0000000
lfn	22	126.7727273	5.6140285	117.0000000	136.0000000
bf	22	149.6818182	4.9702579	141.0000000	161.0000000
ln	22	52.4090909	4.5529592	46.0000000	66.0000000
bn	22	41.2727273	2.7976490	35.0000000	46.0000000

---------- sex=M tribe=AGUA CALIENTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	15	186.8666667	7.4629242	176.0000000	200.0000000
bh	15	156.1333333	6.5232186	147.0000000	167.0000000
lfn	15	120.2666667	5.9697651	111.0000000	129.0000000
bf	15	145.5333333	6.6854497	132.0000000	153.0000000
ln	15	51.2000000	3.6878178	46.0000000	60.0000000
bn	15	42.8666667	2.6149752	38.0000000	46.0000000

---------- sex=M tribe=AIWAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	62	189.0483871	6.6835433	170.0000000	203.0000000
bh	62	152.8225806	5.0749277	139.0000000	165.0000000
lfn	62	130.7903226	6.9991501	118.0000000	150.0000000
bf	62	147.5161290	5.2627423	135.0000000	157.0000000
ln	62	54.5967742	3.6595246	47.0000000	62.0000000
bn	62	36.5806452	3.0704749	30.0000000	45.0000000

---------- sex=M tribe=ALEUT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	23	187.6521739	6.7461012	176.0000000	198.0000000
bh	23	158.8260870	5.4991915	149.0000000	170.0000000
lfn	23	126.2173913	6.9016238	115.0000000	141.0000000
bf	23	148.1739130	4.9877320	140.0000000	157.0000000
ln	23	55.7391304	6.9949163	45.0000000	75.0000000
bn	23	36.2608696	5.5450010	23.0000000	46.0000000

---------- sex=M tribe=APACHE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	114	181.4122807	6.2906187	170.0000000	198.0000000
bh	114	161.2543860	5.8185109	146.0000000	175.0000000
lfn	114	116.3684211	6.7131665	101.0000000	136.0000000
bf	114	149.4912281	5.1666829	135.0000000	167.0000000
ln	114	50.0263158	3.7757037	42.0000000	64.0000000
bn	114	39.0438596	2.5360772	33.0000000	46.0000000

---------- sex=M tribe=ARAPAHO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	62	194.5000000	5.8020629	184.0000000	208.0000000
bh	62	153.6290323	5.0513231	143.0000000	165.0000000
lfn	62	123.5483871	4.8338880	112.0000000	138.0000000
bf	62	149.7580645	5.6297963	134.0000000	164.0000000
ln	62	55.1129032	3.9384812	47.0000000	70.0000000
bn	62	41.3870968	3.6048912	33.0000000	48.0000000

---------- sex=M tribe=ASSINIBOIN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	26	196.5384615	7.9761182	184.0000000	218.0000000
bh	26	154.2692308	4.9441496	145.0000000	168.0000000
lfn	26	122.0769231	5.7752789	111.0000000	134.0000000
bf	26	144.5769231	4.5093066	139.0000000	156.0000000
ln	26	58.3076923	3.3913918	50.0000000	65.0000000
bn	26	40.5384615	4.0716657	32.0000000	47.0000000

---------- sex=M tribe=ATSUGEWI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	9	190.2222222	5.0935689	180.0000000	199.0000000
bh	9	158.4444444	4.7987267	151.0000000	167.0000000
lfn	9	127.5555556	5.5926539	117.0000000	135.0000000
bf	9	147.6666667	4.1231056	141.0000000	154.0000000
ln	9	52.7777778	2.8625940	50.0000000	59.0000000
bn	9	40.0000000	1.7320508	37.0000000	43.0000000

---------- sex=M tribe=BANNOCK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	24	192.0833333	8.0806622	175.0000000	205.0000000
bh	24	151.2083333	4.6154671	142.0000000	159.0000000
lfn	24	118.9166667	6.2825962	106.0000000	131.0000000
bf	24	148.7916667	4.8720959	140.0000000	156.0000000
ln	24	47.5000000	4.8722819	39.0000000	56.0000000
bn	24	43.6666667	4.6594147	32.0000000	51.0000000

---------- sex=M tribe=BELLA COOLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	22	191.7272727	5.4961616	180.0000000	201.0000000
bh	22	159.0454545	5.1775824	150.0000000	168.0000000
lfn	22	127.5909091	5.9972938	114.0000000	140.0000000
bf	22	151.7727273	4.6077762	141.0000000	158.0000000
ln	22	56.7727273	3.5177349	51.0000000	64.0000000
bn	22	37.5909091	2.0623401	34.0000000	41.0000000

---------- sex=M tribe=BIG MEADOW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	8	193.6250000	3.7392704	190.0000000	201.0000000
bh	8	158.3750000	3.2043497	153.0000000	164.0000000
lfn	8	123.8750000	4.7339956	118.0000000	131.0000000
bf	8	149.8750000	2.5877458	146.0000000	153.0000000
ln	8	48.6250000	3.1139089	44.0000000	53.0000000
bn	8	40.5000000	2.7774603	38.0000000	46.0000000

---------- sex=M tribe=BLOOD ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	12	194.0833333	6.2005620	186.0000000	210.0000000
bh	12	154.4166667	6.5845319	144.0000000	168.0000000
lfn	12	124.2500000	4.0028399	115.0000000	130.0000000
bf	12	146.4166667	7.6212422	130.0000000	160.0000000
ln	12	55.1666667	2.9180733	49.0000000	59.0000000
bn	12	38.8333333	3.0993645	34.0000000	44.0000000

---------- sex=M tribe=CADDO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	20	184.6000000	6.7387333	175.0000000	197.0000000
bh	20	153.2500000	5.2100611	143.0000000	161.0000000
lfn	20	126.3000000	5.5828685	114.0000000	138.0000000
bf	20	139.1000000	7.8866977	125.0000000	149.0000000
ln	20	57.1000000	3.6404164	51.0000000	64.0000000
bn	20	40.6000000	3.1854934	33.0000000	46.0000000

---------- sex=M tribe=CARRIER ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	25	184.4400000	9.2063384	165.0000000	202.0000000
bh	25	153.1600000	7.0396496	140.0000000	167.0000000
lfn	25	128.6000000	7.2399355	117.0000000	142.0000000
bf	25	145.0000000	8.5926325	122.0000000	158.0000000
ln	25	54.9200000	3.4389921	47.0000000	60.0000000
bn	25	37.7200000	2.6064024	34.0000000	44.0000000

---------- sex=M tribe=CATAWBA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	10	187.1000000	8.0339557	173.0000000	199.0000000
bh	10	150.6000000	2.8362730	147.0000000	155.0000000
lfn	10	114.4000000	6.0589695	108.0000000	126.0000000
bf	10	138.4000000	4.1952354	131.0000000	145.0000000
ln	10	50.2000000	3.1198291	45.0000000	55.0000000
bn	10	38.6000000	3.2386554	35.0000000	46.0000000

---------- sex=M tribe=CHEROKEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	260	190.5307692	6.1326249	177.0000000	207.0000000
bh	260	150.6692308	5.7346585	136.0000000	170.0000000
lfn	260	118.9615385	5.7049783	102.0000000	139.0000000
bf	260	143.6500000	5.2066004	131.0000000	166.0000000
ln	260	52.6923077	3.2581259	43.0000000	61.0000000
bn	260	39.5230769	3.2376057	31.0000000	51.0000000

---------- sex=M tribe=CHEYENNE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	32	192.5312500	7.0801147	182.0000000	212.0000000
bh	32	154.4375000	4.8655305	146.0000000	165.0000000
lfn	32	125.8750000	3.2503102	120.0000000	134.0000000
bf	32	149.0312500	7.5197991	135.0000000	164.0000000
ln	32	57.9687500	3.1570134	51.0000000	64.0000000
bn	32	40.2812500	3.5852239	35.0000000	48.0000000

---------- sex=M tribe=CHICKASAW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	99	186.8080808	5.8443707	173.0000000	201.0000000
bh	99	148.9797980	5.1289093	139.0000000	161.0000000
lfn	99	113.9393939	5.6094275	102.0000000	126.0000000
bf	99	141.6262626	5.6144599	130.0000000	158.0000000
ln	99	47.6363636	2.9083081	40.0000000	54.0000000
bn	99	36.0606061	2.9925696	30.0000000	45.0000000

---------- sex=M tribe=CHILCOTIN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	34	185.6470588	4.6376741	175.0000000	195.0000000
bh	34	158.2941176	5.9162304	145.0000000	173.0000000
lfn	34	124.2647059	6.2148835	109.0000000	134.0000000
bf	34	146.0294118	6.6945717	125.0000000	154.0000000
ln	34	53.0294118	2.9386174	47.0000000	59.0000000
bn	34	39.8235294	2.1386854	35.0000000	44.0000000

---------- sex=M tribe=CHIPPEWA(MN) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	131	195.2137405	6.4783754	178.0000000	210.0000000
bh	131	155.2366412	4.7875352	144.0000000	167.0000000
lfn	131	123.4122137	6.0381737	110.0000000	138.0000000
bf	131	143.8473282	6.2221358	130.0000000	161.0000000
ln	131	55.0076336	3.8199802	43.0000000	65.0000000
bn	131	39.7251908	3.3513566	30.0000000	50.0000000

---------- sex=M tribe=CHIPPEWA(WI) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	145	192.6758621	6.3375893	174.0000000	218.0000000
bh	145	156.5655172	5.5375157	144.0000000	169.0000000
lfn	145	123.1931034	5.9585333	111.0000000	138.0000000
bf	145	146.7931034	5.9006786	131.0000000	165.0000000
ln	145	52.4482759	3.7154539	41.0000000	64.0000000
bn	145	40.1172414	3.4268212	32.0000000	51.0000000

---------- sex=M tribe=CHOCTAW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	327	186.2446483	5.8489232	171.0000000	209.0000000
bh	327	151.0978593	5.5536614	136.0000000	166.0000000
lfn	327	120.4250765	4.7546923	105.0000000	136.0000000
bf	327	144.4709480	4.8699259	127.0000000	161.0000000
ln	327	52.2048930	2.7387652	43.0000000	63.0000000
bn	327	40.0397554	2.4081171	32.0000000	46.0000000

---------- sex=M tribe=CHUVANTSY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	35	191.7714286	5.1568670	184.0000000	204.0000000
bh	35	152.6857143	5.4382709	142.0000000	166.0000000
lfn	35	134.4000000	6.6871255	123.0000000	156.0000000
bf	35	146.4285714	5.8222985	137.0000000	162.0000000
ln	35	58.2285714	2.8500332	54.0000000	67.0000000
bn	35	36.1142857	2.8979854	32.0000000	43.0000000

---------- sex=M tribe=CLALLAM ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	10	185.3000000	9.7530622	167.0000000	196.0000000
bh	10	167.2000000	9.1748448	152.0000000	188.0000000
lfn	10	125.3000000	9.5574288	108.0000000	137.0000000
bf	10	156.9000000	5.6852636	150.0000000	167.0000000
ln	10	50.8000000	5.0066622	45.0000000	60.0000000
bn	10	41.6000000	3.5339622	38.0000000	49.0000000

---------- sex=M tribe=CMIWOK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	9	183.4444444	4.6127842	175.0000000	192.0000000
bh	9	162.2222222	6.3595947	151.0000000	172.0000000
lfn	9	128.7777778	7.4292964	115.0000000	137.0000000
bf	9	151.7777778	6.6290606	140.0000000	160.0000000
ln	9	56.0000000	3.5355339	51.0000000	60.0000000
bn	9	44.5555556	1.4240006	42.0000000	46.0000000

---------- sex=M tribe=COAHUILLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	41	191.2926829	8.0226053	177.0000000	208.0000000
bh	41	160.4390244	6.8119336	148.0000000	181.0000000
lfn	41	119.5121951	7.1137963	102.0000000	134.0000000
bf	41	154.6097561	6.2883943	142.0000000	172.0000000
ln	41	49.1463415	3.7387229	42.0000000	55.0000000
bn	41	44.5609756	3.1228895	39.0000000	52.0000000

---------- sex=M tribe=COEUR D'ALENE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	25	195.6400000	6.9754331	186.0000000	212.0000000
bh	25	158.7600000	5.2621288	147.0000000	168.0000000
lfn	25	122.8400000	7.7388630	100.0000000	137.0000000
bf	25	153.6000000	6.6206747	144.0000000	169.0000000
ln	25	50.6800000	4.4508426	42.0000000	58.0000000
bn	25	42.4800000	2.9737743	38.0000000	48.0000000

---------- sex=M tribe=COMANCHE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	82	186.9268293	5.5993397	176.0000000	200.0000000
bh	82	155.1463415	6.2184948	138.0000000	171.0000000
lfn	82	128.6219512	6.2393420	114.0000000	146.0000000
bf	82	143.9268293	8.3692271	127.0000000	163.0000000
ln	82	58.2682927	4.4667462	47.0000000	69.0000000
bn	82	40.1097561	3.1269679	33.0000000	47.0000000

---------- sex=M tribe=CONCOW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	30	194.5666667	6.0838017	182.0000000	206.0000000
bh	30	153.8333333	6.0462775	143.0000000	167.0000000
lfn	30	120.3000000	5.8140733	110.0000000	133.0000000
bf	30	145.9333333	5.8482732	136.0000000	157.0000000
ln	30	49.9333333	2.2273122	45.0000000	55.0000000
bn	30	42.9333333	3.4733799	36.0000000	53.0000000

---------- sex=M tribe=CREEK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	82	192.3536585	6.9838826	175.0000000	208.0000000
bh	82	150.0609756	6.4066855	134.0000000	168.0000000
lfn	82	119.9878049	5.7359467	105.0000000	135.0000000
bf	82	144.4512195	6.0454093	129.0000000	160.0000000
ln	82	54.2195122	4.4583792	43.0000000	68.0000000
bn	82	40.3536585	2.9621978	34.0000000	50.0000000

---------- sex=M tribe=CROW ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	299	195.9732441	6.7326177	176.0000000	218.0000000
bh	299	158.5418060	5.8137269	145.0000000	175.0000000
lfn	299	130.7692308	7.1819771	112.0000000	153.0000000
bf	299	149.1772575	7.8329037	129.0000000	170.0000000
ln	299	60.7892977	4.8138941	48.0000000	76.0000000
bn	299	40.9230769	3.3754099	31.0000000	50.0000000

---------- sex=M tribe=EASTERN MONO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	5	191.0000000	5.3851648	183.0000000	198.0000000
bh	5	155.8000000	2.6832816	154.0000000	160.0000000
lfn	5	128.2000000	4.3817805	124.0000000	135.0000000
bf	5	150.2000000	3.1144823	147.0000000	155.0000000
ln	5	55.8000000	2.1679483	53.0000000	59.0000000
bn	5	42.6000000	4.8785244	37.0000000	50.0000000

---------- sex=M tribe=ESKIMO(EC) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	25	192.4000000	6.4355782	179.0000000	207.0000000
bh	25	152.8000000	7.0356236	138.0000000	168.0000000
lfn	25	120.8400000	5.2016023	110.0000000	131.0000000
bf	25	145.2800000	6.0036100	134.0000000	156.0000000
ln	25	51.6800000	3.8699699	44.0000000	59.0000000
bn	25	38.6800000	2.6727015	34.0000000	44.0000000

---------- sex=M tribe=ESKIMO(WC) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	29	192.1724138	6.1937121	182.0000000	203.0000000
bh	29	149.4827586	6.7433602	135.0000000	165.0000000
lfn	29	128.3448276	7.7564529	115.0000000	143.0000000
bf	29	150.7586207	6.3620256	137.0000000	164.0000000
ln	29	56.2068966	3.5191244	49.0000000	63.0000000
bn	29	38.2413793	2.6813532	31.0000000	42.0000000

---------- sex=M tribe=EVEN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	19	191.5789474	6.0673607	176.0000000	201.0000000
bh	19	155.1052632	5.2376281	148.0000000	169.0000000
lfn	19	125.7894737	7.8356659	114.0000000	140.0000000
bf	19	145.3157895	4.4603517	137.0000000	152.0000000
ln	19	52.2631579	4.4825849	45.0000000	61.0000000
bn	19	35.7894737	3.5990577	28.0000000	41.0000000

---------- sex=M tribe=EVENK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	64	193.7656250	5.5025021	182.0000000	205.0000000
bh	64	152.7812500	4.7223506	139.0000000	165.0000000
lfn	64	123.8437500	6.4837250	106.0000000	135.0000000
bf	64	146.1562500	4.1220227	135.0000000	155.0000000
ln	64	51.0312500	4.1094886	40.0000000	62.0000000
bn	64	35.2500000	3.2317866	28.0000000	45.0000000

---------- sex=M tribe=FLATHEAD ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	14	197.4285714	4.0518616	192.0000000	207.0000000
bh	14	160.9285714	5.8764757	154.0000000	172.0000000
lfn	14	119.0714286	5.3127464	112.0000000	131.0000000
bf	14	141.4285714	5.6256868	134.0000000	155.0000000
ln	14	51.9285714	4.2510503	43.0000000	60.0000000
bn	14	43.6428571	2.5602627	39.0000000	47.0000000

---------- sex=M tribe=HAIDA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	46	197.9347826	6.4373983	187.0000000	215.0000000
bh	46	162.5869565	5.0533865	149.0000000	173.0000000
lfn	46	123.7826087	7.2691526	109.0000000	138.0000000
bf	46	153.9782609	6.9457873	132.0000000	164.0000000
ln	46	52.3913043	3.7504267	46.0000000	61.0000000
bn	46	39.8478261	2.2702657	36.0000000	47.0000000

---------- sex=M tribe=HOOPA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	65	184.3846154	8.7512362	160.0000000	200.0000000
bh	65	154.2000000	6.0290961	142.0000000	168.0000000
lfn	65	124.9846154	6.4505143	109.0000000	139.0000000
bf	65	139.8923077	7.6365140	120.0000000	153.0000000
ln	65	52.1538462	3.5321327	45.0000000	62.0000000
bn	65	40.4000000	3.2005859	31.0000000	48.0000000

---------- sex=M tribe=ITELMAN(KH) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	78	190.1153846	6.4404984	173.0000000	205.0000000
bh	78	149.0256410	5.6291781	137.0000000	162.0000000
lfn	78	121.5128205	7.8900621	100.0000000	144.0000000
bf	78	144.1538462	6.2793765	125.0000000	158.0000000
ln	78	49.2564103	3.8323161	40.0000000	58.0000000
bn	78	35.6410256	2.7538609	30.0000000	43.0000000

---------- sex=M tribe=ITELMAN(SE) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	58	188.0000000	4.9947341	179.0000000	203.0000000
bh	58	147.9137931	5.6204029	138.0000000	160.0000000
lfn	58	119.7241379	6.8538454	102.0000000	139.0000000
bf	58	142.6206897	4.9694773	130.0000000	154.0000000
ln	58	49.0862069	4.2520768	40.0000000	60.0000000
bn	58	34.8448276	2.4694749	30.0000000	40.0000000

---------- sex=M tribe=KALAPUYA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	9	182.8888889	8.6522316	171.0000000	200.0000000
bh	9	158.6666667	6.7082039	150.0000000	170.0000000
lfn	9	119.5555556	7.6992063	115.0000000	139.0000000
bf	9	137.1111111	6.4893074	130.0000000	150.0000000
ln	9	52.8888889	3.5862391	46.0000000	58.0000000
bn	9	43.2222222	3.6666667	39.0000000	51.0000000

---------- sex=M tribe=KIOWA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	101	190.6930693	6.3478226	172.0000000	205.0000000
bh	101	154.1683168	6.1677699	135.0000000	169.0000000
lfn	101	124.7623762	6.3830220	108.0000000	139.0000000
bf	101	147.2277228	7.0311894	132.0000000	164.0000000
ln	101	55.9207921	3.5374657	43.0000000	64.0000000
bn	101	39.4752475	3.1355831	33.0000000	48.0000000

---------- sex=M tribe=KLAMATH ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	97	182.0412371	6.6971971	170.0000000	197.0000000
bh	97	160.4226804	6.7759302	147.0000000	177.0000000
lfn	97	123.8041237	7.7441365	100.0000000	148.0000000
bf	97	145.2061856	8.3789644	120.0000000	160.0000000
ln	97	53.7938144	4.1279993	43.0000000	64.0000000
bn	97	40.0515464	4.1517344	27.0000000	52.0000000

---------- sex=M tribe=KLICKITAT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	18	185.4444444	8.6854999	171.0000000	200.0000000
bh	18	156.1666667	7.8609235	133.0000000	168.0000000
lfn	18	126.0000000	4.6652659	121.0000000	133.0000000
bf	18	140.4444444	10.4500055	127.0000000	156.0000000
ln	18	58.2777778	5.1655597	51.0000000	68.0000000
bn	18	38.6111111	4.3269183	29.0000000	47.0000000

---------- sex=M tribe=KORYAK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	193	190.0673575	5.2974662	177.0000000	204.0000000
bh	193	151.4663212	4.5723530	137.0000000	166.0000000
lfn	193	124.3367876	6.6954232	108.0000000	144.0000000
bf	193	146.0259067	4.9617655	132.0000000	160.0000000
ln	193	53.3523316	4.9749589	40.0000000	70.0000000
bn	193	36.7979275	2.9271708	30.0000000	45.0000000

---------- sex=M tribe=KUTENAI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	52	195.3461538	5.9107234	181.0000000	208.0000000
bh	52	156.5000000	7.6401930	141.0000000	176.0000000
lfn	52	123.5961538	7.4234911	110.0000000	143.0000000
bf	52	142.2500000	5.8001859	132.0000000	151.0000000
ln	52	58.0000000	5.0176160	43.0000000	65.0000000
bn	52	42.0384615	3.2657554	35.0000000	52.0000000

---------- sex=M tribe=KWAKIUTL ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	60	194.0500000	8.2388600	179.0000000	216.0000000
bh	60	157.9500000	6.0741882	143.0000000	171.0000000
lfn	60	128.4166667	6.6160864	114.0000000	143.0000000
bf	60	150.2833333	5.2757574	139.0000000	162.0000000
ln	60	55.0500000	3.9463564	45.0000000	69.0000000
bn	60	39.3666667	2.7430446	33.0000000	46.0000000

---------- sex=M tribe=LILLOOET ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	89	185.4831461	6.2452024	166.0000000	198.0000000
bh	89	160.4494382	6.2993709	143.0000000	175.0000000
lfn	89	118.5505618	6.2359136	104.0000000	133.0000000
bf	89	149.0112360	5.0777912	138.0000000	162.0000000
ln	89	52.1123596	3.3758440	42.0000000	59.0000000
bn	89	39.6516854	3.0003830	32.0000000	46.0000000

---------- sex=M tribe=MAKAH ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	44	187.6363636	7.7702202	168.0000000	205.0000000
bh	44	160.5909091	6.3146864	149.0000000	181.0000000
lfn	44	125.0000000	5.3743577	117.0000000	140.0000000
bf	44	156.1818182	7.8303902	141.0000000	172.0000000
ln	44	52.0000000	4.2535895	44.0000000	65.0000000
bn	44	40.4090909	3.0751682	33.0000000	46.0000000

---------- sex=M tribe=MALECITE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	42	192.5000000	5.9928820	179.0000000	206.0000000
bh	42	152.4761905	4.6968495	144.0000000	164.0000000
lfn	42	122.2142857	7.1892050	111.0000000	141.0000000
bf	42	142.6190476	6.5330394	130.0000000	156.0000000
ln	42	52.9047619	4.0952651	45.0000000	61.0000000
bn	42	39.6904762	3.4179447	33.0000000	48.0000000

---------- sex=M tribe=MARITIME CHUKCHI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	45	188.0666667	7.2469429	173.0000000	200.0000000
bh	45	152.5111111	6.1297420	138.0000000	166.0000000
lfn	45	128.2222222	5.7123824	118.0000000	143.0000000
bf	45	144.9333333	5.8325108	131.0000000	154.0000000
ln	45	52.4888889	4.4955646	44.0000000	64.0000000
bn	45	37.7333333	3.0703864	31.0000000	43.0000000

---------- sex=M tribe=MENOMINI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	98	191.0918367	5.8909099	178.0000000	206.0000000
bh	98	155.0408163	5.9947028	144.0000000	171.0000000
lfn	98	121.5510204	6.7367624	110.0000000	144.0000000
bf	98	145.8163265	5.7299124	131.0000000	163.0000000
ln	98	52.3367347	3.8927474	42.0000000	63.0000000
bn	98	40.6836735	3.3846133	34.0000000	52.0000000

---------- sex=M tribe=MICMAC ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	111	191.0900901	6.5678965	174.0000000	207.0000000
bh	111	150.4504505	5.0231079	135.0000000	162.0000000
lfn	111	122.9189189	6.9689378	107.0000000	148.0000000
bf	111	143.4414414	5.6579545	131.0000000	160.0000000
ln	111	54.6396396	3.9122019	41.0000000	64.0000000
bn	111	39.1891892	3.2849893	30.0000000	49.0000000

---------- sex=M tribe=MISSISSAGUA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	53	194.2830189	7.5889022	180.0000000	213.0000000
bh	53	156.8679245	5.0689012	145.0000000	168.0000000
lfn	53	122.5849057	6.2892887	106.0000000	133.0000000
bf	53	146.7735849	5.9538013	125.0000000	161.0000000
ln	53	54.0377358	3.9024759	43.0000000	65.0000000
bn	53	39.4905660	3.4229016	32.0000000	46.0000000

---------- sex=M tribe=MODOC ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	8	182.0000000	6.4807407	172.0000000	190.0000000
bh	8	159.2500000	5.8002463	152.0000000	169.0000000
lfn	8	121.7500000	5.3917927	114.0000000	132.0000000
bf	8	148.3750000	8.7658021	140.0000000	169.0000000
ln	8	50.3750000	4.9839027	41.0000000	57.0000000
bn	8	38.2500000	3.1052950	34.0000000	44.0000000

---------- sex=M tribe=MOHAWK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	22	196.7727273	6.5314756	187.0000000	211.0000000
bh	22	156.0000000	5.3807417	144.0000000	165.0000000
lfn	22	119.4545455	6.4640196	109.0000000	134.0000000
bf	22	146.1818182	4.7372522	135.0000000	158.0000000
ln	22	52.4545455	2.7555532	47.0000000	59.0000000
bn	22	39.9545455	3.0468918	33.0000000	46.0000000

---------- sex=M tribe=MONTAGNAIS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	21	194.1428571	6.9662451	181.0000000	206.0000000
bh	21	156.1904762	5.6887525	147.0000000	166.0000000
lfn	21	117.8571429	6.3897239	107.0000000	130.0000000
bf	21	145.6666667	5.9104427	138.0000000	156.0000000
ln	21	54.1904762	4.4228842	48.0000000	64.0000000
bn	21	39.5714286	2.7307770	35.0000000	44.0000000

---------- sex=M tribe=MUNSEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	55	196.0545455	5.8386267	181.0000000	212.0000000
bh	55	155.4363636	5.1343565	146.0000000	168.0000000
lfn	55	123.4000000	6.1722197	110.0000000	138.0000000
bf	55	148.8909091	5.1556252	139.0000000	165.0000000
ln	55	52.3272727	3.4643932	44.0000000	60.0000000
bn	55	40.8181818	3.8686341	34.0000000	53.0000000

---------- sex=M tribe=NANAIMO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	9	185.7777778	12.7257394	157.0000000	198.0000000
bh	9	168.8888889	5.3255151	163.0000000	179.0000000
lfn	9	128.5555556	6.0644685	119.0000000	135.0000000
bf	9	147.1111111	5.0359816	138.0000000	154.0000000
ln	9	52.0000000	3.0822070	48.0000000	57.0000000
bn	9	38.1111111	2.2607767	34.0000000	41.0000000

---------- sex=M tribe=NAVAJO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	64	183.0781250	5.7329587	170.0000000	194.0000000
bh	64	154.7812500	5.3850727	140.0000000	165.0000000
lfn	64	116.2187500	5.4524459	106.0000000	128.0000000
bf	64	145.6562500	4.1450630	137.0000000	154.0000000
ln	64	49.1093750	3.3386490	42.0000000	55.0000000
bn	64	38.6718750	2.1532897	32.0000000	43.0000000

---------- sex=M tribe=NEZ PERCE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	16	191.0625000	7.7757636	175.0000000	202.0000000
bh	16	158.5625000	7.4114214	148.0000000	175.0000000
lfn	16	123.5625000	5.5853230	113.0000000	134.0000000
bf	16	147.1875000	5.7760280	139.0000000	156.0000000
ln	16	53.9375000	3.4345063	47.0000000	58.0000000
bn	16	39.6250000	3.2837986	34.0000000	44.0000000

---------- sex=M tribe=NISQUALLY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	7	184.4285714	3.1014590	179.0000000	188.0000000
bh	7	167.2857143	9.3222724	158.0000000	182.0000000
lfn	7	129.5714286	8.9973541	111.0000000	138.0000000
bf	7	154.2857143	6.3956831	145.0000000	163.0000000
ln	7	55.8571429	5.9841059	48.0000000	64.0000000
bn	7	39.2857143	2.4299716	35.0000000	42.0000000

---------- sex=M tribe=NIVKHI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	19	189.2631579	6.6570106	178.0000000	205.0000000
bh	19	156.5789474	6.3273286	147.0000000	168.0000000
lfn	19	123.8947368	7.0229365	111.0000000	136.0000000
bf	19	149.3684211	6.8004128	138.0000000	164.0000000
ln	19	52.0526316	4.7078384	43.0000000	63.0000000
bn	19	39.4736842	3.4216374	35.0000000	48.0000000

---------- sex=M tribe=NORTHERN HILL YOKUTS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	5	191.6000000	7.7974355	183.0000000	204.0000000
bh	5	155.0000000	5.2915026	149.0000000	163.0000000
lfn	5	124.4000000	6.8410526	116.0000000	131.0000000
bf	5	148.6000000	4.5055521	142.0000000	153.0000000
ln	5	53.6000000	2.5099801	50.0000000	56.0000000
bn	5	42.6000000	2.7018512	40.0000000	47.0000000

---------- sex=M tribe=NORTHERN PAIUTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	87	188.9655172	6.3766439	175.0000000	203.0000000
bh	87	154.6666667	4.8384763	144.0000000	167.0000000
lfn	87	119.4482759	6.8857092	107.0000000	137.0000000
bf	87	146.2413793	5.8943519	132.0000000	161.0000000
ln	87	50.3563218	3.5206270	42.0000000	61.0000000
bn	87	41.4252874	2.9634682	35.0000000	50.0000000

---------- sex=M tribe=NORTHERN POMO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	13	190.7692308	4.9523369	182.0000000	200.0000000
bh	13	153.3846154	6.8256680	144.0000000	167.0000000
lfn	13	114.9230769	9.1875055	100.0000000	126.0000000
bf	13	148.9230769	4.5909610	140.0000000	155.0000000
ln	13	49.3076923	4.6794696	39.0000000	56.0000000
bn	13	45.3076923	3.4733417	39.0000000	52.0000000

---------- sex=M tribe=OJIBWA(Gbay) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	48	193.4583333	5.7388498	178.0000000	206.0000000
bh	48	158.1250000	6.0410828	144.0000000	170.0000000
lfn	48	123.9791667	6.7398137	111.0000000	144.0000000
bf	48	149.0625000	5.1173724	140.0000000	160.0000000
ln	48	53.7708333	4.9389446	42.0000000	68.0000000
bn	48	40.1875000	3.3558856	32.0000000	46.0000000

---------- sex=M tribe=OJIBWA(NWLSup) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	95	194.7578947	7.6349083	173.0000000	211.0000000
bh	95	156.7473684	6.5962085	131.0000000	175.0000000
lfn	95	124.8736842	8.3910313	101.0000000	142.0000000
bf	95	145.8736842	6.7701505	128.0000000	165.0000000
ln	95	52.8842105	4.6215572	43.0000000	65.0000000
bn	95	37.6000000	3.0190882	30.0000000	47.0000000

---------- sex=M tribe=OKANAGAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	33	197.1212121	5.5776203	185.0000000	207.0000000
bh	33	158.3636364	6.0405825	148.0000000	172.0000000
lfn	33	125.0909091	5.7138190	114.0000000	142.0000000
bf	33	149.8181818	4.9652199	139.0000000	160.0000000
ln	33	55.5454545	3.7172815	47.0000000	63.0000000
bn	33	41.7272727	3.2042231	36.0000000	48.0000000

---------- sex=M tribe=OMAHA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	30	191.1000000	4.9920627	183.0000000	201.0000000
bh	30	157.7000000	7.2118198	143.0000000	170.0000000
lfn	30	123.2666667	6.3132774	107.0000000	133.0000000
bf	30	149.1333333	6.5481418	137.0000000	165.0000000
ln	30	55.3000000	2.7436447	49.0000000	60.0000000
bn	30	40.8000000	3.7819900	31.0000000	50.0000000

---------- sex=M tribe=ONEIDA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	62	194.9354839	7.0521964	181.0000000	211.0000000
bh	62	154.5483871	5.1618951	144.0000000	168.0000000
lfn	62	125.3870968	6.0091592	114.0000000	140.0000000
bf	62	146.6129032	7.2887851	130.0000000	165.0000000
ln	62	52.8225806	3.3216833	48.0000000	61.0000000
bn	62	38.9516129	3.4232925	31.0000000	47.0000000

---------- sex=M tribe=OSAGE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	16	179.2500000	13.0868891	138.0000000	197.0000000
bh	16	163.1875000	6.3057513	152.0000000	178.0000000
lfn	16	119.8125000	10.1732902	102.0000000	131.0000000
bf	16	149.2500000	4.4646762	141.0000000	157.0000000
ln	16	52.9375000	6.2659796	34.0000000	59.0000000
bn	16	39.7500000	4.5825757	34.0000000	49.0000000

---------- sex=M tribe=PAWNEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	45	191.2666667	4.8260656	182.0000000	200.0000000
bh	45	153.0888889	4.0498161	147.0000000	161.0000000
lfn	45	122.6888889	6.5741305	108.0000000	140.0000000
bf	45	145.1777778	4.7014934	135.0000000	155.0000000
ln	45	54.8222222	3.1427325	50.0000000	64.0000000
bn	45	39.4888889	2.5192191	34.0000000	49.0000000

---------- sex=M tribe=PIEGAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	48	193.2916667	4.6308785	183.0000000	201.0000000
bh	48	154.5208333	3.6669286	146.0000000	161.0000000
lfn	48	124.0208333	5.1010620	113.0000000	135.0000000
bf	48	147.6041667	4.5697413	136.0000000	157.0000000
ln	48	57.0000000	3.6495409	48.0000000	65.0000000
bn	48	39.6666667	2.8904342	34.0000000	46.0000000

---------- sex=M tribe=PONCA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	10	192.2000000	3.4896673	186.0000000	197.0000000
bh	10	155.1000000	3.7252890	150.0000000	161.0000000
lfn	10	126.7000000	4.8773855	115.0000000	131.0000000
bf	10	149.0000000	7.3333333	141.0000000	166.0000000
ln	10	57.4000000	3.8064273	49.0000000	61.0000000
bn	10	40.9000000	2.6853512	37.0000000	47.0000000

---------- sex=M tribe=POTAWATOMI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	8	189.8750000	6.7068728	182.0000000	203.0000000
bh	8	155.3750000	7.2690636	147.0000000	169.0000000
lfn	8	119.8750000	6.1513645	110.0000000	131.0000000
bf	8	151.3750000	4.8971566	147.0000000	161.0000000
ln	8	51.3750000	2.6692696	48.0000000	55.0000000
bn	8	36.5000000	4.1403934	30.0000000	42.0000000

---------- sex=M tribe=PUEBLO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	17	181.4117647	7.4587099	168.0000000	196.0000000
bh	17	149.4705882	6.0220184	139.0000000	163.0000000
lfn	17	117.8823529	4.9356149	109.0000000	128.0000000
bf	17	140.5882353	5.1363755	133.0000000	149.0000000
ln	17	51.5882353	3.4106235	46.0000000	58.0000000
bn	17	38.0000000	2.4238399	33.0000000	42.0000000

---------- sex=M tribe=PUYALLUP ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	23	185.0434783	7.3328542	169.0000000	197.0000000
bh	23	164.6086957	7.0242381	151.0000000	177.0000000
lfn	23	125.9130435	5.3759823	115.0000000	134.0000000
bf	23	152.5652174	6.8279245	141.0000000	165.0000000
ln	23	53.1739130	4.1522412	47.0000000	60.0000000
bn	23	40.1304348	3.3480571	34.0000000	50.0000000

---------- sex=M tribe=QUEETS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	9	183.4444444	8.9458246	168.0000000	196.0000000
bh	9	170.5555556	4.9777282	163.0000000	179.0000000
lfn	9	127.2222222	7.3276493	114.0000000	136.0000000
bf	9	154.4444444	4.9777282	149.0000000	166.0000000
ln	9	55.4444444	3.8115322	47.0000000	60.0000000
bn	9	40.6666667	1.5811388	38.0000000	43.0000000

---------- sex=M tribe=QUILLAYUTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	24	185.7916667	8.0270151	168.0000000	201.0000000
bh	24	165.5416667	3.6710284	157.0000000	172.0000000
lfn	24	120.5416667	6.0359731	108.0000000	132.0000000
bf	24	153.9166667	4.2417866	144.0000000	162.0000000
ln	24	51.1250000	3.3532917	43.0000000	57.0000000
bn	24	39.8333333	2.3713263	36.0000000	44.0000000

---------- sex=M tribe=QUINAULT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	20	180.2000000	5.8812816	171.0000000	192.0000000
bh	20	170.4500000	8.1465201	151.0000000	185.0000000
lfn	20	121.7500000	6.2733773	111.0000000	133.0000000
bf	20	157.1000000	6.0253849	140.0000000	165.0000000
ln	20	51.6000000	2.5833475	47.0000000	57.0000000
bn	20	41.7500000	2.0228953	37.0000000	47.0000000

---------- sex=M tribe=REINDEER CHUKCHI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	97	187.3298969	6.5379049	171.0000000	204.0000000
bh	97	153.5463918	4.2866572	140.0000000	164.0000000
lfn	97	128.6082474	6.2525940	110.0000000	141.0000000
bf	97	146.9175258	5.7166972	133.0000000	163.0000000
ln	97	53.0515464	4.3093192	40.0000000	62.0000000
bn	97	37.8144330	2.8296418	33.0000000	44.0000000

---------- sex=M tribe=REINDEER EVENK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	9	191.0000000	6.3639610	181.0000000	199.0000000
bh	9	151.5555556	5.7251880	145.0000000	162.0000000
lfn	9	124.1111111	5.6666667	119.0000000	135.0000000
bf	9	145.4444444	5.9395099	138.0000000	155.0000000
ln	9	54.1111111	5.2068331	48.0000000	65.0000000
bn	9	37.3333333	2.3979158	33.0000000	40.0000000

---------- sex=M tribe=REINDEER KORYAK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	24	187.5833333	6.0138729	176.0000000	197.0000000
bh	24	152.0416667	6.0754615	139.0000000	161.0000000
lfn	24	127.4583333	6.3859844	117.0000000	144.0000000
bf	24	144.1250000	4.1631144	138.0000000	153.0000000
ln	24	55.8750000	3.8483480	50.0000000	63.0000000
bn	24	37.6250000	2.6508817	33.0000000	43.0000000

---------- sex=M tribe=SAN LUIS REY ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	70	185.6428571	12.8559868	159.0000000	215.0000000
bh	70	161.1571429	5.4789074	150.0000000	175.0000000
lfn	70	122.8571429	6.2095899	110.0000000	137.0000000
bf	70	149.4571429	6.9713403	135.0000000	169.0000000
ln	70	52.1285714	4.0928408	42.0000000	62.0000000
bn	70	44.3285714	4.1379174	34.0000000	55.0000000

---------- sex=M tribe=SARCEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	12	194.5000000	5.4522723	187.0000000	205.0000000
bh	12	152.3333333	3.3665016	147.0000000	157.0000000
lfn	12	122.5000000	6.0677988	113.0000000	134.0000000
bf	12	142.4166667	6.9603857	131.0000000	152.0000000
ln	12	54.4166667	3.4498573	47.0000000	59.0000000
bn	12	39.2500000	2.4167973	34.0000000	43.0000000

---------- sex=M tribe=SAUK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	22	192.6363636	5.8354047	185.0000000	203.0000000
bh	22	154.7272727	7.6853715	144.0000000	174.0000000
lfn	22	119.5454545	6.5735927	107.0000000	132.0000000
bf	22	147.1818182	8.1336243	138.0000000	171.0000000
ln	22	52.3636364	3.9586608	46.0000000	58.0000000
bn	22	39.6818182	4.0753190	33.0000000	48.0000000

---------- sex=M tribe=SENECA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	35	196.7142857	7.1643374	182.0000000	220.0000000
bh	35	154.1428571	4.4268091	148.0000000	164.0000000
lfn	35	127.7142857	9.4482225	111.0000000	145.0000000
bf	35	147.3142857	7.0742758	130.0000000	165.0000000
ln	35	54.6571429	4.4914485	46.0000000	65.0000000
bn	35	40.4000000	3.5744189	34.0000000	49.0000000

---------- sex=M tribe=SERRANO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	27	195.4814815	15.7073485	180.0000000	265.0000000
bh	27	157.8888889	5.4935860	148.0000000	169.0000000
lfn	27	123.5185185	5.8531410	113.0000000	136.0000000
bf	27	149.8518519	6.0428197	142.0000000	168.0000000
ln	27	51.4074074	5.3295927	41.0000000	68.0000000
bn	27	43.4074074	3.3427218	40.0000000	56.0000000

---------- sex=M tribe=SHAWNEE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	16	190.1250000	7.2376331	178.0000000	203.0000000
bh	16	153.3125000	6.3636337	146.0000000	170.0000000
lfn	16	120.6875000	6.6203600	107.0000000	132.0000000
bf	16	144.8750000	6.1196405	135.0000000	152.0000000
ln	16	52.1875000	4.1828021	44.0000000	60.0000000
bn	16	40.6250000	3.1171568	36.0000000	45.0000000

---------- sex=M tribe=SHOSHONI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	35	193.2000000	7.5685106	175.0000000	207.0000000
bh	35	154.3714286	5.6364659	141.0000000	166.0000000
lfn	35	118.8285714	6.8705926	106.0000000	133.0000000
bf	35	149.1428571	5.8868890	136.0000000	163.0000000
ln	35	52.8857143	3.2968026	46.0000000	60.0000000
bn	35	42.5714286	3.5503580	36.0000000	51.0000000

---------- sex=M tribe=SHUSWAP ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	152	189.5000000	5.8975806	175.0000000	205.0000000
bh	152	159.1118421	5.4512279	145.0000000	172.0000000
lfn	152	120.6578947	6.0725255	100.0000000	141.0000000
bf	152	146.3750000	6.6060503	125.0000000	163.0000000
ln	152	51.9210526	3.6129391	42.0000000	63.0000000
bn	152	41.4868421	3.0880819	34.0000000	51.0000000

---------- sex=M tribe=SIOUX(SANTEE) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	90	194.8222222	5.1156903	179.0000000	205.0000000
bh	90	153.7777778	5.3058750	139.0000000	170.0000000
lfn	90	123.5666667	6.1444229	110.0000000	136.0000000
bf	90	147.8777778	5.3858487	135.0000000	158.0000000
ln	90	57.9222222	3.9097337	49.0000000	67.0000000
bn	90	40.2222222	3.1933139	32.0000000	48.0000000

---------- sex=M tribe=SIOUX(TETON) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	173	194.3294798	6.1824111	178.0000000	210.0000000
bh	173	155.8843931	4.9436875	143.0000000	172.0000000
lfn	173	126.1560694	6.3524332	110.0000000	140.0000000
bf	173	149.4104046	4.8559848	138.0000000	164.0000000
ln	173	58.9306358	4.1253383	49.0000000	70.0000000
bn	173	40.2485549	3.4844440	32.0000000	49.0000000

---------- sex=M tribe=SIOUX(YANKTON) ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	101	193.6237624	5.6282350	179.0000000	210.0000000
bh	101	154.8316832	5.0021382	145.0000000	174.0000000
lfn	101	123.9108911	6.4886039	111.0000000	152.0000000
bf	101	148.9900990	6.1375810	136.0000000	168.0000000
ln	101	58.4257426	3.7399105	49.0000000	70.0000000
bn	101	40.5742574	3.4651018	32.0000000	49.0000000

---------- sex=M tribe=SOUTHERN MIWOK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	8	185.1250000	3.4820971	180.0000000	190.0000000
bh	8	163.0000000	5.9281411	155.0000000	169.0000000
lfn	8	123.8750000	3.5228844	118.0000000	130.0000000
bf	8	152.0000000	3.0237158	148.0000000	155.0000000
ln	8	53.2500000	3.5355339	47.0000000	56.0000000
bn	8	43.7500000	3.0118812	39.0000000	49.0000000

---------- sex=M tribe=STALO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	58	188.9137931	6.2303290	173.0000000	203.0000000
bh	58	165.7241379	7.5574829	150.0000000	183.0000000
lfn	58	121.8103448	8.6052960	108.0000000	140.0000000
bf	58	152.7586207	6.5058957	137.0000000	171.0000000
ln	58	50.1896552	5.4594418	35.0000000	62.0000000
bn	58	40.8793103	3.1123838	33.0000000	49.0000000

---------- sex=M tribe=STOCKBRIDGE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	16	194.5625000	8.2701773	180.0000000	213.0000000
bh	16	152.6875000	6.1288253	143.0000000	162.0000000
lfn	16	122.3125000	5.9968742	113.0000000	135.0000000
bf	16	143.1875000	4.8058125	136.0000000	151.0000000
ln	16	51.6250000	3.3441491	46.0000000	60.0000000
bn	16	40.1250000	3.7925365	34.0000000	50.0000000

---------- sex=M tribe=TAHLTAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	18	192.8333333	5.2496498	186.0000000	204.0000000
bh	18	159.2222222	5.3857716	151.0000000	170.0000000
lfn	18	128.8888889	5.7587671	119.0000000	138.0000000
bf	18	150.2777778	6.6403894	135.0000000	162.0000000
ln	18	57.0000000	3.1059715	53.0000000	64.0000000
bn	18	35.7222222	2.3466009	32.0000000	40.0000000

---------- sex=M tribe=TAOS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	22	188.7272727	6.7342891	175.0000000	203.0000000
bh	22	146.5909091	5.4130274	137.0000000	159.0000000
lfn	22	118.1363636	5.7924043	108.0000000	129.0000000
bf	22	140.4545455	6.1545745	130.0000000	152.0000000
ln	22	50.3636364	3.6324654	44.0000000	60.0000000
bn	22	37.8181818	3.2460432	33.0000000	45.0000000

---------- sex=M tribe=TENINO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	27	183.2222222	7.2554135	168.0000000	197.0000000
bh	27	163.4444444	5.2720842	151.0000000	174.0000000
lfn	27	124.1851852	5.6977528	110.0000000	140.0000000
bf	27	151.6296296	6.3919911	134.0000000	162.0000000
ln	27	53.6296296	5.1001369	45.0000000	66.0000000
bn	27	40.4814815	3.2624952	32.0000000	45.0000000

---------- sex=M tribe=THOMPSON ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	138	188.7898551	6.0102745	176.0000000	204.0000000
bh	138	156.1231884	5.5110412	146.0000000	181.0000000
lfn	138	119.0217391	6.3527308	103.0000000	140.0000000
bf	138	147.2173913	4.9988891	132.0000000	168.0000000
ln	138	50.6594203	4.6474173	38.0000000	62.0000000
bn	138	39.6666667	2.8626294	32.0000000	48.0000000

---------- sex=M tribe=TONKAWA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	13	186.0000000	7.6702890	173.0000000	200.0000000
bh	13	158.3076923	4.3852901	152.0000000	167.0000000
lfn	13	125.1538462	4.1199950	119.0000000	132.0000000
bf	13	146.6153846	5.4549437	137.0000000	155.0000000
ln	13	58.6153846	3.7977726	49.0000000	64.0000000
bn	13	40.8461538	6.0943437	27.0000000	52.0000000

---------- sex=M tribe=TSIMSHIAN ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	73	196.6849315	7.3727665	182.0000000	216.0000000
bh	73	161.6027397	5.6143163	143.0000000	178.0000000
lfn	73	122.6027397	6.1231340	109.0000000	141.0000000
bf	73	154.9315068	6.0353790	142.0000000	168.0000000
ln	73	51.6986301	3.1520934	46.0000000	60.0000000
bn	73	40.9178082	2.6233642	35.0000000	47.0000000

---------- sex=M tribe=TUNDRA-EVENK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	21	188.5714286	7.2771659	173.0000000	200.0000000
bh	21	153.3333333	5.7735027	145.0000000	163.0000000
lfn	21	127.0952381	8.2879718	112.0000000	141.0000000
bf	21	146.2380952	5.5398986	137.0000000	155.0000000
ln	21	54.3333333	4.4309517	49.0000000	64.0000000
bn	21	36.4761905	2.7316487	33.0000000	42.0000000

---------- sex=M tribe=TUSCARORA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	26	193.1153846	7.5010768	175.0000000	211.0000000
bh	26	154.3076923	5.7255164	144.0000000	168.0000000
lfn	26	123.6923077	5.7533936	112.0000000	135.0000000
bf	26	143.7692308	7.9614456	123.0000000	156.0000000
ln	26	51.8846154	3.5250750	43.0000000	60.0000000
bn	26	38.1153846	3.1915754	31.0000000	45.0000000

---------- sex=M tribe=TUTUTNI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	15	187.2666667	5.6879153	177.0000000	194.0000000
bh	15	157.6000000	4.0496913	152.0000000	165.0000000
lfn	15	124.2000000	8.4616783	112.0000000	137.0000000
bf	15	141.9333333	5.8610904	132.0000000	151.0000000
ln	15	54.0666667	3.6344909	50.0000000	64.0000000
bn	15	31.4666667	4.5334734	24.0000000	40.0000000

---------- sex=M tribe=UMATILLA ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	14	181.9285714	5.3560072	169.0000000	191.0000000
bh	14	160.3571429	7.7619104	146.0000000	171.0000000
lfn	14	124.2142857	7.7278574	111.0000000	135.0000000
bf	14	149.8571429	6.6778295	141.0000000	164.0000000
ln	14	56.1428571	5.8816160	48.0000000	65.0000000
bn	14	42.3571429	3.6502296	38.0000000	48.0000000

---------- sex=M tribe=UTE ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	69	191.3913043	5.5099306	178.0000000	204.0000000
bh	69	152.6666667	4.5492943	144.0000000	163.0000000
lfn	69	118.2753623	4.7306387	105.0000000	128.0000000
bf	69	146.6956522	6.0031961	133.0000000	159.0000000
ln	69	51.9855072	3.4149014	45.0000000	61.0000000
bn	69	43.7391304	2.8525127	35.0000000	50.0000000

---------- sex=M tribe=WASCO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	23	180.2173913	8.8879721	162.0000000	195.0000000
bh	23	160.3478261	7.7142648	140.0000000	179.0000000
lfn	23	126.2608696	8.5238563	111.0000000	142.0000000
bf	23	145.1304348	9.7668472	121.0000000	162.0000000
ln	23	54.8695652	5.4464696	48.0000000	70.0000000
bn	23	39.3043478	3.0959619	32.0000000	44.0000000

---------- sex=M tribe=WASHO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	7	190.1428571	4.0178175	185.0000000	197.0000000
bh	7	157.1428571	3.5790395	154.0000000	163.0000000
lfn	7	124.4285714	8.4824749	117.0000000	137.0000000
bf	7	150.4285714	3.8668309	146.0000000	156.0000000
ln	7	54.4285714	4.6496288	50.0000000	62.0000000
bn	7	43.4285714	3.1547394	39.0000000	48.0000000

---------- sex=M tribe=WESTERN MONO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	10	194.9000000	8.4122926	183.0000000	208.0000000
bh	10	148.4000000	5.8347617	136.0000000	155.0000000
lfn	10	125.3000000	5.9451194	117.0000000	139.0000000
bf	10	145.7000000	5.7164480	136.0000000	154.0000000
ln	10	54.5000000	5.9488561	45.0000000	64.0000000
bn	10	42.2000000	3.9665266	35.0000000	49.0000000

---------- sex=M tribe=WINNEBAGO ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	60	186.7833333	5.8948172	173.0000000	198.0000000
bh	60	158.4500000	5.6820413	141.0000000	174.0000000
lfn	60	123.0833333	6.3760454	111.0000000	137.0000000
bf	60	147.8166667	4.3354732	136.0000000	160.0000000
ln	60	53.8500000	3.7499153	46.0000000	63.0000000
bn	60	39.7166667	2.9058192	32.0000000	45.0000000

---------- sex=M tribe=YAKUT ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	4	193.2500000	15.4353490	180.0000000	213.0000000
bh	4	154.2500000	4.7871355	150.0000000	161.0000000
lfn	4	127.2500000	8.6554414	121.0000000	140.0000000
bf	4	151.7500000	8.5391256	141.0000000	160.0000000
ln	4	57.0000000	4.0824829	51.0000000	60.0000000
bn	4	37.5000000	3.6968455	34.0000000	42.0000000

---------- sex=M tribe=YOKUTS ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	18	191.6111111	6.9123835	175.0000000	202.0000000
bh	18	160.8333333	5.6072432	151.0000000	171.0000000
lfn	18	119.5555556	6.3729412	109.0000000	132.0000000
bf	18	149.2222222	6.1122399	138.0000000	157.0000000
ln	18	48.6111111	4.8645040	42.0000000	62.0000000
bn	18	42.6111111	1.7868437	38.0000000	45.0000000

---------- sex=M tribe=YUKAGHIR ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	31	192.5161290	4.8088181	182.0000000	205.0000000
bh	31	152.8387097	4.6911035	145.0000000	162.0000000
lfn	31	126.9032258	7.4848952	112.0000000	143.0000000
bf	31	145.2903226	5.3241184	133.0000000	157.0000000
ln	31	54.3870968	5.4140399	45.0000000	68.0000000
bn	31	35.3548387	3.5547938	30.0000000	44.0000000

---------- sex=M tribe=YUKI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	37	195.1351351	5.2023614	184.0000000	207.0000000
bh	37	148.7297297	4.8341876	140.0000000	157.0000000
lfn	37	115.5135135	5.7956958	104.0000000	136.0000000
bf	37	146.4594595	3.6407767	140.0000000	158.0000000
ln	37	49.7837838	4.4167304	40.0000000	63.0000000
bn	37	42.6486486	2.8695355	37.0000000	50.0000000

---------- sex=M tribe=YUROK ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	20	189.2500000	6.0600069	182.0000000	207.0000000
bh	20	157.4000000	4.6498444	150.0000000	168.0000000
lfn	20	121.6500000	5.1735664	112.0000000	130.0000000
bf	20	147.2500000	4.4470570	140.0000000	157.0000000
ln	20	50.7500000	2.9535884	46.0000000	57.0000000
bn	20	42.2500000	2.8631047	37.0000000	47.0000000

---------- sex=M tribe=ZUNI ----------

Variable	N	Mean	Std Dev	Minimum	Maximum
lh	71	181.6760563	8.0227794	165.0000000	198.0000000
bh	71	150.9154930	6.0985864	137.0000000	167.0000000
lfn	71	114.0422535	5.3703860	101.0000000	126.0000000
bf	71	143.0140845	4.8091964	129.0000000	153.0000000
ln	71	47.8169014	2.9486552	42.0000000	54.0000000
bn	71	38.4929577	2.6450668	32.0000000	43.0000000

APPENDIX C

ANOVA Statistics-Body Data

ANOVA Statistics for Stature.

Dependent Variable: st

Source	DF	Sum of Squares	Mean Square	F Value
Model	118	15203210.17	128840.76	39.99
Error	8326	26821804.53	3221.45	
Corrected Total	8444	42025014.70		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	st Mean
0.361766	-2.7495E16	56.75783	-0.000000

Source	DF	Type I SS	Mean Square	F Value
tribe	118	15203210.17	128840.76	39.99

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	118	15203210.17	128840.76	39.99

Source	Pr > F
tribe	<.0001

ANOVA Statistics for shoulder height

Dependent Variable: hsh

Source	DF	Sum of Squares	Mean Square	F Value
Model	118	15398726.57	130497.68	46.15
Error	8326	23542858.31	2827.63	
Corrected Total	8444	38941584.88		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	hsh Mean
0.395431	2.1173E16	53.17548	2.5115E-13

Source	DF	Type I SS	Mean Square	F Value
tribe	118	15398726.57	130497.68	46.15

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	118	15398726.57	130497.68	46.15

Source	Pr > F
tribe	<.0001

ANOVA Statistics for Height at Middle Finger

Dependent Variable: hmf

Source	DF	Sum of Squares	Mean Square	F Value
Model	118	3562840.18	30193.56	22.69
Error	8326	11077140.42	1330.43	
Corrected Total	8444	14639980.60		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	hmf Mean
0.243364	3.72764E15	36.47503	9.785E-13

Source	DF	Type I SS	Mean Square	F Value
tribe	118	3562840.181	30193.561	22.69

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	118	3562840.181	30193.561	22.69

Source	Pr > F
tribe	<.0001

ANOVA Statistics for Arm Stretch

Dependent Variable: str

Source	DF	Sum of Squares	Mean Square	F Value
Model	118	26220793.80	222210.12	50.24
Error	8326	36827436.59	4423.18	
Corrected Total	8444	63048230.39		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	str Mean
0.415885	-3.3019E15	66.50703	-0.000000

Source	DF	Type I SS	Mean Square	F Value
tribe	118	26220793.80	222210.12	50.24

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	118	26220793.80	222210.12	50.24

Source	Pr > F
tribe	<.0001

ANOVA Statistics for Sitting Height

Dependent Variable: hs

Source	DF	Sum of Squares	Mean Square	F Value
Model	118	2881997.65	24423.71	19.97
Error	8326	10185224.22	1223.30	
Corrected Total	8444	13067221.88		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	hs Mean
0.220552	3.51761E16	34.97575	9.9431E-14

Source	DF	Type I SS	Mean Square	F Value
tribe	118	2881997.653	24423.709	19.97

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	118	2881997.653	24423.709	19.97

Source	Pr > F
tribe	<.0001

ANOVA Statistics for Shoulder Width

Dependent Variable: wsh

Source	DF	Sum of Squares	Mean Square	F Value
Model	118	1444013.783	12237.405	26.27
Error	8326	3877809.748	465.747	
Corrected Total	8444	5321823.531		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	wsh Mean
0.271338	-8.7844E15	21.58117	-0.000000

Source	DF	Type I SS	Mean Square	F Value
tribe	118	1444013.783	12237.405	26.27

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	118	1444013.783	12237.405	26.27

Source	Pr > F
tribe	<.0001

ANOVA Statistics for Leg Length

Dependent Variable: ll

Source	DF	Sum of Squares	Mean Square	F Value
Model	118	9049455.78	76690.30	44.88
Error	8326	14228005.53	1708.86	
Corrected Total	8444	23277461.31		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	ll Mean
0.388765	-2.3073E16	41.33841	-0.000000

Source	DF	Type I SS	Mean Square	F Value
tribe	118	9049455.778	76690.303	44.88

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	118	9049455.778	76690.303	44.88

Source	Pr > F
tribe	<.0001

ANOVA Statistics for Arm Length

Dependent Variable: al

Source	DF	Sum of Squares	Mean Square	F Value
Model	118	6787418.84	57520.50	44.23
Error	8326	10828169.87	1300.52	
Corrected Total	8444	17615588.72		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	al Mean
0.385308	-6.2734E15	36.06279	-0.000000

Source	DF	Type I SS	Mean Square	F Value
tribe	118	6787418.843	57520.499	44.23

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	118	6787418.843	57520.499	44.23

Source	Pr > F
tribe	<.0001

APPENDIX D

ANOVA Statistics-Head Data

ANOVA Statistics for Head Length

Dependent Variable: lh

Source	DF	Sum of Squares	Mean Square	F Value
Model	119	138690.4331	1165.4658	27.14
Error	8904	382326.2598	42.9387	
Corrected Total	9023	521016.6928		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	lh Mean
0.266192	5.5211E14	6.552763	1.1869E-12

Source	DF	Type I SS	Mean Square	F Value
tribe	119	138690.4331	1165.4658	27.14

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	119	138690.4331	1165.4658	27.14

Source	Pr > F
tribe	<.0001

ANOVA Statistics for Head Breadth

Dependent Variable: bh

Source	DF	Sum of Squares	Mean Square	F Value
Model	119	151874.7077	1276.2580	41.25
Error	8904	275513.6073	30.9427	
Corrected Total	9023	427388.3150		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	bh Mean
0.355355	6.47948E14	5.562614	8.585E-13

Source	DF	Type I SS	Mean Square	F Value
tribe	119	151874.7077	1276.2580	41.25

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	119	151874.7077	1276.2580	41.25

Source	Pr > F
tribe	<.0001

ANOVA Statistics for Face Length at Nasion

Dependent Variable: lfn

Source	DF	Sum of Squares	Mean Square	F Value
Model	119	124321.5939	1044.7193	25.89
Error	8904	359328.1384	40.3558	
Corrected Total	9023	483649.7323		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	lfn Mean
0.257049	1.66133E15	6.352622	3.8238E-13

Source	DF	Type I SS	Mean Square	F Value
tribe	119	124321.5939	1044.7193	25.89

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	119	124321.5939	1044.7193	25.89

Source	Pr > F
tribe	<.0001

ANOVA Statistics for Face Breadth

Dependent Variable: bf

Source	DF	Sum of Squares	Mean Square	F Value
Model	119	85674.6068	719.9547	20.62
Error	8904	310881.7810	34.9148	
Corrected Total	9023	396556.3878		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	bf Mean
0.216046	1.47306E16	5.908879	4.0113E-14

Source	DF	Type I SS	Mean Square	F Value
tribe	119	85674.60683	719.95468	20.62

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	119	85674.60683	719.95468	20.62

Source	Pr > F
tribe	<.0001

ANOVA Statistics for Nose Length

Dependent Variable: ln

Source	DF	Sum of Squares	Mean Square	F Value
Model	119	77719.8691	653.1081	41.25
Error	8904	140987.1902	15.8341	
Corrected Total	9023	218707.0593		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	ln Mean
0.355361	-2.5301E15	3.979214	-0.000000

Source	DF	Type I SS	Mean Square	F Value
tribe	119	77719.86907	653.10814	41.25

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	119	77719.86907	653.10814	41.25

Source	Pr > F
tribe	<.0001

ANOVA Statistics for Nose Breadth

Dependent Variable: bn

Source	DF	Sum of Squares	Mean Square	F Value
Model	119	32208.7559	270.6618	28.26
Error	8904	85269.9905	9.5766	
Corrected Total	9023	117478.7464		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	bn Mean
0.274167	3.57239E15	3.094607	8.6626E-14

Source	DF	Type I SS	Mean Square	F Value
tribe	119	32208.75587	270.66181	28.26

Source	Pr > F
tribe	<.0001

Source	DF	Type III SS	Mean Square	F Value
tribe	119	32208.75587	270.66181	28.26

Source	Pr > F
tribe	<.0001

APPENDIX E

MATLAB M Files Used in Spatial Autocorrelation Analysis.

```
diary bodycan14.out
ntotal=714;
p=1;
k=6;
n1=119;
n2=119;
n3=119;
n4=119;
n5=119;
n6=119;
N=[n1;n2;n3;n4;n5;n6];
data=[  1.00  -0.35
        1.00   0.01
        1.00  -1.43
        1.00  -1.22
        1.00   0.29
        1.00   0.97
        1.00   0.35
        1.00  -0.31
        1.00  -0.16
        1.00  -0.33
        1.00   0.36
        1.00   1.27
        1.00   0.10
        1.00  -0.03
        1.00   0.55
        1.00   0.30
        1.00   1.18
        1.00  -0.01
        1.00  -0.30
        1.00   0.71
        1.00   0.62
        1.00   0.35
        1.00  -1.97
        1.00   0.10
        1.00  -0.43
        1.00   0.26
        1.00   0.26
        1.00   0.62
        1.00  -0.59
        1.00   0.92
        1.00   1.41
        1.00   0.09
        1.00  -1.77
        1.00  -0.55
        1.00  -1.93
        1.00  -1.69
        1.00   0.38
        1.00   0.01
        1.00  -0.42
        1.00  -0.97
```

```
1.00  -1.29
1.00  -0.67
1.00   0.83
1.00  -0.04
1.00  -1.58
1.00   0.26
1.00  -0.99
1.00  -0.66
1.00  -0.36
1.00   0.28
1.00  -1.59
1.00   0.25
1.00   0.61
1.00   0.74
1.00   0.08
1.00   0.88
1.00  -0.45
1.00   0.88
1.00  -0.10
1.00   0.12
1.00   0.27
1.00  -0.33
1.00  -1.12
1.00  -0.40
1.00   0.20
1.00  -0.03
1.00   0.94
1.00   1.03
1.00   0.12
1.00   0.74
1.00   0.84
1.00   0.83
1.00   0.38
1.00   1.13
1.00   0.85
1.00   0.43
1.00  -0.40
1.00  -0.38
1.00  -0.47
1.00  -0.72
1.00  -0.61
1.00  -1.54
1.00  -2.92
1.00  -2.12
1.00   0.36
1.00   0.45
1.00   0.65
1.00   0.89
1.00   0.73
1.00   0.22
1.00   0.01
1.00  -0.24
1.00   0.97
```

```
1.00   1.00
1.00   0.81
1.00  -0.02
1.00  -0.36
1.00   0.73
1.00   0.34
1.00  -0.63
1.00  -0.29
1.00  -0.63
1.00   0.43
1.00  -0.06
1.00  -2.20
1.00   0.88
1.00  -0.79
1.00  -0.47
1.00  -0.31
1.00  -0.19
1.00   0.48
1.00  -0.15
1.00   0.94
1.00  -0.91
1.00   0.18
1.00  -1.66
1.00  -0.78
1.00  -0.83
1.00  -1.11
2.00   0.10
2.00   2.41
2.00   0.60
2.00  -1.86
2.00  -0.25
2.00  -0.11
2.00  -0.59
2.00  -0.13
2.00   1.23
2.00  -1.66
2.00  -0.74
2.00   0.80
2.00  -0.19
2.00   0.79
2.00   0.35
2.00   0.56
2.00  -0.14
2.00   0.13
2.00  -0.41
2.00   0.22
2.00  -0.41
2.00   1.33
2.00   0.81
2.00  -1.76
2.00   0.81
2.00   1.09
2.00  -0.66
```

```
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2.00  -0.53
2.00   0.08
2.00   0.25
2.00  -0.14
2.00  -0.12
2.00   0.94
2.00   0.15
2.00   0.49
2.00  -0.82
2.00  -1.05
2.00   0.76
2.00  -0.67
2.00  -0.11
2.00   0.57
2.00  -1.03
2.00  -1.05
2.00   0.02
2.00  -1.12
2.00  -0.05
2.00   0.71
2.00  -0.67
2.00  -0.49
2.00  -0.45
2.00   0.32
2.00  -0.10
2.00  -0.27
2.00  -0.35
2.00   0.56
2.00  -0.65
2.00  -0.43
2.00  -0.49
2.00  -1.00
2.00   0.09
2.00   0.21
2.00   0.36
2.00  -0.06
2.00   0.51
2.00  -0.24
2.00   0.18
2.00  -0.80
2.00  -0.24
2.00  -0.45
2.00  -0.60
2.00   0.11
2.00  -0.40
2.00  -0.74
2.00  -0.69
2.00  -1.40
2.00  -1.11
```

```
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2.00   1.11
2.00   1.77
2.00   1.54
2.00   2.14
2.00   1.19
2.00   0.43
2.00  -0.60
2.00   1.48
2.00  -0.18
2.00  -0.04
2.00  -0.44
2.00  -0.07
2.00  -0.17
2.00   0.03
2.00   0.11
2.00  -1.42
2.00  -0.83
2.00  -0.48
2.00  -0.68
2.00   0.15
2.00  -0.65
2.00   0.05
2.00  -0.54
2.00  -0.35
2.00  -0.66
2.00  -0.54
2.00  -0.88
2.00   2.539145e-03
2.00  -0.08
2.00   0.48
2.00   0.07
2.00  -0.13
2.00  -0.60
2.00   1.74
2.00  -0.27
2.00   0.23
2.00  -0.09
2.00  -0.69
3.00  -0.11
3.00  -0.63
3.00   0.07
3.00  -0.45
3.00  -0.46
3.00  -0.34
3.00  -0.03
3.00  -0.21
3.00  -0.35
3.00   0.63
3.00  -0.25
3.00  -0.48
3.00  -0.16
3.00  -0.18
```

```
3.00   0.34
3.00  -0.06
3.00   0.22
3.00   0.81
3.00   0.11
3.00   0.53
3.00   0.66
3.00   0.59
3.00   0.28
3.00  -0.73
3.00   0.49
3.00  -0.46
3.00  -0.78
3.00  -1.03
3.00   0.06
3.00  -8.435516e-03
3.00  -1.08
3.00   0.06
3.00  -0.30
3.00  -0.18
3.00  -0.17
3.00  -0.15
3.00  -0.93
3.00  -0.01
3.00  -0.57
3.00   0.04
3.00   0.01
3.00  -0.21
3.00  -0.88
3.00   0.21
3.00  -0.42
3.00  -1.45
3.00   0.52
3.00   0.25
3.00  -0.12
3.00   0.39
3.00   0.23
3.00   0.66
3.00   0.52
3.00   0.70
3.00  -0.32
3.00   0.60
3.00   0.25
3.00   0.62
3.00  -0.59
3.00  -0.60
3.00  -0.51
3.00  -0.54
3.00   0.03
3.00   0.10
3.00  -0.67
3.00  -0.23
3.00  -0.02
```

```
3.00  -2.05
3.00  -0.35
3.00   0.56
3.00   0.52
3.00  -0.19
3.00   0.06
3.00  -0.34
3.00  -0.17
3.00   0.15
3.00   0.55
3.00  -0.02
3.00  -0.68
3.00   0.02
3.00  -0.76
3.00   0.41
3.00   0.29
3.00  -0.23
3.00  -0.09
3.00  -0.18
3.00  -0.77
3.00   0.01
3.00   0.44
3.00   0.31
3.00  -0.17
3.00   0.06
3.00   0.98
3.00   0.67
3.00   0.99
3.00   0.09
3.00  -0.18
3.00   0.91
3.00  -0.18
3.00  -3.49876e-04
3.00  -0.25
3.00  -0.15
3.00  -0.56
3.00   0.21
3.00  -0.21
3.00   0.01
3.00   0.04
3.00  -0.40
3.00  -0.15
3.00   0.41
3.00   0.03
3.00  -0.11
3.00   0.94
3.00   0.41
3.00  -0.62
3.00   0.15
3.00  -0.42
3.00   0.97
3.00  -0.24
4.00   1.35
```

```
4.00   0.83
4.00   0.34
4.00   0.53
4.00   0.12
4.00  -0.03
4.00  -0.77
4.00   1.49
4.00   0.42
4.00   0.51
4.00   1.06
4.00  -1.47
4.00   0.08
4.00  -0.34
4.00  -1.26
4.00  -0.16
4.00  -0.78
4.00  -0.05
4.00  -0.30
4.00   0.01
4.00   0.11
4.00  -0.69
4.00  -0.44
4.00  -0.75
4.00   0.68
4.00   0.73
4.00  -0.54
4.00   0.20
4.00   0.19
4.00  -0.34
4.00   0.49
4.00   0.18
4.00  -1.771732e-03
4.00   0.30
4.00  -0.02
4.00  -0.52
4.00   0.86
4.00   0.65
4.00  -0.14
4.00   0.32
4.00   0.34
4.00   1.28
4.00  -0.03
4.00   0.46
4.00  -0.30
4.00  -0.75
4.00   0.68
4.00   0.16
4.00   0.12
4.00  -0.17
4.00  -0.05
4.00  -0.19
4.00  -0.33
4.00   0.13
```

```
4.00   1.87
4.00  -0.03
4.00  -0.62
4.00  -0.23
4.00   1.32
4.00  -0.08
4.00  -0.01
4.00   0.87
4.00  -1.33
4.00   0.97
4.00   0.51
4.00   0.91
4.00  -0.35
4.00  -0.93
4.00  -0.39
4.00   0.22
4.00   0.21
4.00   0.09
4.00   0.17
4.00  -0.33
4.00   0.28
4.00   0.08
4.00   0.15
4.00   0.87
4.00  -1.02
4.00   0.57
4.00  -0.05
4.00   0.11
4.00   0.03
4.00  -0.26
4.00   1.01
4.00  -0.60
4.00  -0.41
4.00   0.11
4.00   0.58
4.00  -0.32
4.00   0.11
4.00  -0.25
4.00  -0.38
4.00   0.07
4.00  -0.09
4.00   0.83
4.00  -0.49
4.00  -0.46
4.00   0.08
4.00  -0.18
4.00   0.03
4.00  -0.61
4.00  -0.21
4.00   0.69
4.00  -0.36
4.00  -0.32
4.00   0.24
```

```
4.00  -0.99
4.00   0.56
4.00   0.35
4.00   0.49
4.00   0.43
4.00   0.34
4.00  -0.52
4.00   0.47
4.00  -0.47
4.00   1.03
4.00   1.68
4.00  -0.05
5.00   0.28
5.00   0.05
5.00  -1.48
5.00  -0.24
5.00  -0.70
5.00  -0.51
5.00  -0.65
5.00  -0.08
5.00  -0.21
5.00   0.83
5.00   0.19
5.00   0.23
5.00   0.15
5.00  -0.59
5.00   0.12
5.00   0.01
5.00  -0.73
5.00   3.847062e-03
5.00  -0.14
5.00   0.32
5.00   0.27
5.00   0.35
5.00   0.48
5.00   0.34
5.00  -0.44
5.00   0.11
5.00  -0.15
5.00  -0.08
5.00  -0.18
5.00  -0.69
5.00   0.16
5.00  -9.678974e-03
5.00   0.40
5.00  -0.62
5.00   0.49
5.00   0.34
5.00  -0.43
5.00   0.17
5.00  -0.27
5.00   0.42
5.00   0.40
```

```
5.00   0.13
5.00   0.03
5.00   0.06
5.00   0.18
5.00  -0.70
5.00  -0.11
5.00   0.36
5.00   0.40
5.00   0.36
5.00  -1.02
5.00   0.01
5.00  -0.29
5.00   0.29
5.00   0.49
5.00   0.28
5.00   0.07
5.00   0.49
5.00   0.66
5.00  -0.81
5.00  -0.33
5.00   0.77
5.00   0.61
5.00   0.33
5.00  -0.16
5.00   0.23
5.00   0.64
5.00   0.84
5.00  -0.21
5.00  -0.21
5.00  -0.07
5.00  -0.16
5.00  -0.29
5.00  -0.40
5.00  -0.54
5.00   0.07
5.00   0.30
5.00   0.52
5.00   0.42
5.00   0.84
5.00   0.22
5.00  -0.26
5.00   0.27
5.00   0.15
5.00   0.25
5.00   0.05
5.00  -0.90
5.00  -0.05
5.00   0.25
5.00  -0.73
5.00  -0.09
5.00   0.15
5.00  -0.19
5.00  -0.27
```

```
5.00  -0.14
5.00  -0.05
5.00  -0.03
5.00  -0.14
5.00  -0.58
5.00  -0.79
5.00  -0.24
5.00  -0.45
5.00  -0.14
5.00   0.20
5.00   0.65
5.00   0.24
5.00   0.37
5.00  -1.54
5.00  -0.22
5.00  -0.32
5.00  -0.28
5.00  -0.14
5.00  -0.17
5.00   0.49
5.00  -0.31
5.00   0.81
5.00   0.22
5.00   0.52
5.00  -0.31
6.00   0.35
6.00   0.22
6.00   0.06
6.00   0.13
6.00  -0.21
6.00   0.43
6.00  -0.49
6.00   0.22
6.00  -0.56
6.00   0.39
6.00   0.45
6.00  -0.42
6.00  -0.51
6.00  -0.19
6.00   0.19
6.00  -0.05
6.00   0.42
6.00   0.13
6.00   0.07
6.00   0.23
6.00   0.08
6.00  -0.05
6.00   0.33
6.00   0.30
6.00   0.31
6.00   0.32
6.00   0.44
6.00  -0.69
```

6.00	0.03
6.00	-0.09
6.00	-0.14
6.00	-0.07
6.00	0.12
6.00	0.41
6.00	-0.22
6.00	-0.47
6.00	-0.21
6.00	0.27
6.00	0.12
6.00	-0.08
6.00	-0.24
6.00	0.03
6.00	-0.10
6.00	0.58
6.00	0.29
6.00	0.13
6.00	0.56
6.00	-0.53
6.00	0.19
6.00	-0.14
6.00	0.25
6.00	0.17
6.00	0.04
6.00	0.06
6.00	0.02
6.00	0.39
6.00	-0.43
6.00	-0.01
6.00	0.71
6.00	0.37
6.00	0.80
6.00	0.19
6.00	-0.14
6.00	-0.13
6.00	-0.08
6.00	-0.73
6.00	0.53
6.00	0.24
6.00	0.26
6.00	-0.17
6.00	0.26
6.00	-0.39
6.00	0.18
6.00	-0.20
6.00	0.52
6.00	0.39
6.00	-0.45
6.00	0.01
6.00	0.29
6.00	0.08
6.00	0.27

```
    6.00  -5.91488e-04
    6.00   0.80
    6.00   0.41
    6.00   0.15
    6.00  -0.73
    6.00   0.71
    6.00   0.41
    6.00  -0.27
    6.00   0.32
    6.00   0.13
    6.00   0.11
    6.00   0.03
    6.00  -0.32
    6.00  -0.25
    6.00  -0.01
    6.00  -0.29
    6.00   0.26
    6.00   0.68
    6.00   0.22
    6.00   0.17
    6.00  -0.42
    6.00   0.30
    6.00   0.34
    6.00  -0.52
    6.00   0.17
    6.00   0.89
    6.00   0.72
    6.00  -0.50
    6.00  -0.12
    6.00  -0.04
    6.00   4.223711e-03
    6.00  -0.29
    6.00  -0.16
    6.00  -0.18
    6.00  -0.30
    6.00  -0.89
    6.00  -0.50
    6.00  -0.06];

X1=[41.30
    33.27
    64.42
    53.25
    33.35
    43.00
    47.50
    40.55
    43.20
    52.37
    40.22
    49.48
    32.07
    52.97
```

34.91
35.14
44.10
35.00
51.92
47.86
45.97
32.75
64.67
48.12
37.95
33.47
47.13
34.60
40.23
33.32
45.60
37.60
58.20
67.43
65.37
61.92
47.18
54.02
41.03
56.83
57.60
45.05
34.66
42.68
62.45
49.62
51.70
50.32
48.36
47.92
64.37
44.88
46.60
46.17
41.80
44.98
53.53
41.85
49.15
35.47
46.40
47.05
52.85
36.90
41.10
39.40
46.22

```
50.32
48.70
42.10
42.75
36.63
41.21
48.26
43.00
42.25
35.08
47.18
47.47
47.95
47.33
64.75
65.25
62.50
33.17
52.25
37.95
43.07
34.06
35.26
43.06
50.67
44.53
45.08
42.87
37.30
49.20
44.07
57.93
36.39
44.77
50.23
32.65
54.15
68.78
43.17
42.40
45.67
40.47
45.58
39.20
36.80
44.28
62.17
38.42
64.73
39.92
41.48
35.07];
```

```
X2=[121.25
    116.62
    187.75
    168.50
    110.46
    108.93
    102.50
    121.25
    112.29
    126.75
    121.17
    113.36
     95.50
    122.48
     81.03
     84.06
    104.00
     88.10
    123.03
     95.00
     89.88
     89.12
    189.58
    123.42
    119.95
    115.88
    116.54
    100.40
    121.50
     83.83
    107.46
    118.50
     62.63
    134.87
    208.97
    201.03
    113.85
    132.15
    123.65
    203.02
    201.00
    123.60
     98.41
    121.65
    196.78
    115.63
    127.25
    122.82
    124.61
     69.50
    187.15
     88.64
     63.85
```

 83.02
121.40
 74.65
 60.15
 74.95
123.92
108.53
116.80
122.70
218.80
119.55
120.25
123.50
 80.58
 92.28
119.43
 96.50
 81.42
 96.40
 98.46
112.41
101.00
 86.00
107.47
122.28
123.83
124.38
124.28
182.52
191.33
193.80
116.77
113.80
 95.20
 78.44
116.59
 96.93
112.45
120.33
 94.98
101.12
 97.38
119.50
121.73
 88.28
131.17
105.58
121.29
121.57
 98.12
129.95
202.80
 78.96

```
    124.42
    118.55
    109.92
    121.17
    120.23
    118.65
     90.85
    230.17
    121.57
    206.00
    123.18
    123.51
    108.85];
z=data(1:714,2:2);
SAAF(p,k,N,X1,X2,z)
diary off
```

```
diary headcan6a.out
ntotal=720;
p=1;
k=6;
n1=120;
n2=120;
n3=120;
n4=120;
n5=120;
n6=120;
N=[n1;n2;n3;n4;n5;n6];
data=[  1.00  0.92
        1.00  1.49
        1.00 -0.78
        1.00  0.36
        1.00  1.82
        1.00 -0.54
        1.00 -1.21
        1.00  0.84
        1.00  0.17
        1.00  0.20
        1.00  0.76
        1.00 -0.52
        1.00  0.14
        1.00  0.10
        1.00 -0.43
        1.00 -0.62
        1.00 -0.54
        1.00 -0.36
        1.00  0.98
        1.00 -0.61
        1.00  0.12
        1.00 -0.10
        1.00 -1.30
        1.00  2.70
        1.00  1.69
        1.00  1.57
        1.00  0.38
        1.00  0.01
        1.00 -0.13
        1.00 -0.92
        1.00 -0.45
        1.00  0.73
        1.00 -0.68
        1.00 -1.44
        1.00 -0.53
        1.00 -0.96
        1.00  0.64
        1.00  0.46
        1.00  0.43
        1.00 -0.93
```

```
1.00 -0.89
1.00  1.13
1.00 -0.34
1.00  1.59
1.00 -0.10
1.00 -0.81
1.00 -0.52
1.00 -0.28
1.00  1.09
1.00  1.42
1.00 -0.58
1.00 -0.26
1.00 -0.03
1.00 -0.89
1.00 -0.30
1.00  1.43
1.00 -0.46
1.00 -0.13
1.00 -0.32
1.00  2.35
1.00  0.87
1.00  0.61
1.00  1.57
1.00  0.42
1.00  0.12
1.00  0.48
1.00  0.42
1.00  0.01
1.00 -0.43
1.00 -0.07
1.00 -0.04
1.00 -0.54
1.00  2.06
1.00 -0.51
1.00 -0.63
1.00 -0.23
1.00  0.47
1.00  0.07
1.00  1.78
1.00  2.74
1.00  2.47
1.00  3.32
1.00 -0.03
1.00 -0.84
1.00 -0.53
1.00  1.85
1.00 -0.92
1.00 -0.18
1.00 -0.76
1.00  0.46
1.00  1.761687e-03
1.00 -0.03
1.00  0.80
```

```
1.00 -0.95
1.00 -0.69
1.00 -0.67
1.00  1.82
1.00  1.88
1.00 -0.52
1.00 -0.34
1.00 -1.13
1.00  1.68
1.00  0.37
1.00  0.74
1.00  0.63
1.00 -0.49
1.00 -0.48
1.00 -0.41
1.00  1.46
1.00  0.01
1.00  1.64
1.00  0.61
1.00 -1.33
1.00  0.74
1.00 -0.40
1.00  1.72
1.00 -0.93
1.00 -0.72
1.00  0.80
1.00  0.52
2.00  0.04
2.00 -0.04
2.00  0.19
2.00  0.76
2.00 -0.26
2.00  0.32
2.00  1.04
2.00  0.45
2.00 -1.62
2.00  1.15
2.00 -0.37
2.00  0.78
2.00  0.76
2.00  0.40
2.00 -1.11
2.00 -0.54
2.00  1.15
2.00 -1.66
2.00  0.25
2.00  0.40
2.00 -0.11
2.00 -0.44
2.00  0.82
2.00  0.34
2.00  0.89
2.00 -0.20
```

```
2.00 -0.59
2.00  1.26
2.00 -0.86
2.00 -0.15
2.00  1.79
2.00  1.06
2.00 -0.59
2.00  0.07
2.00 -0.36
2.00 -0.65
2.00  0.22
2.00  0.08
2.00 -0.22
2.00 -1.38
2.00 -1.34
2.00  0.25
2.00  0.43
2.00  0.46
2.00  1.17
2.00 -0.17
2.00  1.25
2.00  0.50
2.00 -0.14
2.00 -0.04
2.00 -0.33
2.00 -0.21
2.00 -0.35
2.00 -0.14
2.00  0.23
2.00 -0.34
2.00 -0.38
2.00  0.20
2.00 -0.30
2.00  0.73
2.00 -0.86
2.00  0.46
2.00  0.85
2.00 -0.34
2.00  0.18
2.00 -0.49
2.00 -1.33
2.00  0.06
2.00 -0.27
2.00  0.35
2.00  0.25
2.00  0.04
2.00  0.55
2.00  0.27
2.00  0.73
2.00  1.04
2.00 -0.61
2.00 -0.51
2.00  0.50
```

```
2.00  0.93
2.00  0.04
2.00  0.37
2.00 -0.25
2.00 -0.18
2.00  0.29
2.00  0.29
2.00  0.25
2.00 -0.24
2.00 -0.08
2.00 -0.19
2.00 -0.32
2.00 -0.09
2.00 -0.13
2.00  0.81
2.00  1.26
2.00  1.01
2.00  0.82
2.00 -0.23
2.00 -0.41
2.00  1.09
2.00 -1.38
2.00  0.36
2.00 -0.81
2.00  1.27
2.00 -0.09
2.00 -0.04
2.00 -0.64
2.00  0.11
2.00  1.46
2.00 -0.49
2.00  0.70
2.00  0.48
2.00 -0.24
2.00  0.25
2.00  0.44
2.00 -0.42
2.00 -0.17
2.00 -1.58
2.00 -0.70
2.00 -1.57
3.00 -0.34
3.00  0.94
3.00 -1.19
3.00 -1.41
3.00 -0.03
3.00  0.61
3.00  0.75
3.00 -0.60
3.00  0.67
3.00 -0.99
3.00 -0.23
3.00  0.36
```

```
3.00  0.36
3.00 -0.94
3.00  0.56
3.00  0.44
3.00  0.30
3.00 -0.01
3.00 -0.26
3.00  0.32
3.00  0.07
3.00  0.43
3.00 -1.62
3.00 -1.00
3.00 -0.09
3.00  0.90
3.00  0.22
3.00  0.21
3.00  1.07
3.00  0.77
3.00  0.19
3.00  0.40
3.00  0.02
3.00 -0.82
3.00 -1.24
3.00 -1.02
3.00  1.72
3.00 -0.29
3.00  0.10
3.00 -0.71
3.00 -0.64
3.00  0.34
3.00  0.05
3.00 -0.31
3.00  0.12
3.00 -0.66
3.00  1.26
3.00 -0.73
3.00 -0.18
3.00 -1.12
3.00  0.21
3.00 -0.98
3.00  0.31
3.00  0.17
3.00  0.03
3.00 -0.67
3.00  0.40
3.00  0.67
3.00  0.26
3.00 -1.35
3.00  0.19
3.00  0.19
3.00 -1.24
3.00 -0.44
3.00  0.47
```

```
3.00  0.58
3.00  1.38
3.00 -0.20
3.00 -0.68
3.00  0.36
3.00  0.24
3.00 -0.17
3.00 -0.13
3.00  0.36
3.00  0.44
3.00  0.13
3.00 -0.74
3.00  0.25
3.00 -0.88
3.00 -1.18
3.00 -0.67
3.00 -0.79
3.00 -1.05
3.00 -0.46
3.00 -0.53
3.00  0.61
3.00  0.60
3.00  0.39
3.00  0.07
3.00  0.79
3.00  0.62
3.00  1.30
3.00  0.30
3.00  0.40
3.00  0.13
3.00  0.42
3.00 -0.37
3.00 -0.38
3.00  0.46
3.00 -1.26
3.00  0.05
3.00 -0.46
3.00 -4.04662e-04
3.00  0.29
3.00 -0.08
3.00 -1.23
3.00 -0.11
3.00 -1.65
3.00  0.72
3.00  1.56
3.00 -0.55
3.00  0.46
3.00  0.73
3.00 -0.08
3.00 -1.08
3.00  0.44
3.00 -1.16
3.00  1.22
```

```
3.00  0.25
3.00  0.10
4.00 -0.08
4.00 -0.48
4.00 -0.25
4.00 -0.16
4.00 -0.19
4.00  0.46
4.00  0.29
4.00  0.01
4.00  0.94
4.00  0.32
4.00  0.91
4.00  0.29
4.00 -1.48
4.00 -1.03
4.00 -0.75
4.00 -0.36
4.00  0.04
4.00 -0.23
4.00 -0.40
4.00  0.16
4.00  0.38
4.00 -0.74
4.00 -0.34
4.00  0.08
4.00 -0.76
4.00  1.22
4.00  1.23
4.00 -1.15
4.00  0.42
4.00 -0.13
4.00  0.17
4.00 -0.55
4.00  0.18
4.00 -0.07
4.00  0.39
4.00  0.51
4.00  0.71
4.00  1.63
4.00 -0.98
4.00  0.10
4.00 -0.17
4.00 -1.60
4.00 -0.20
4.00 -0.73
4.00 -1.35
4.00 -0.09
4.00 -0.11
4.00  0.43
4.00 -0.12
4.00  0.35
4.00 -0.09
```

```
4.00 -0.39
4.00  0.09
4.00 -0.30
4.00  0.32
4.00 -0.22
4.00  0.59
4.00  0.59
4.00  0.73
4.00  0.05
4.00 -0.41
4.00  0.02
4.00  0.37
4.00  0.14
4.00 -0.55
4.00  6.721066e-03
4.00  0.01
4.00  0.50
4.00  0.49
4.00  0.99
4.00  0.11
4.00  0.44
4.00 -0.36
4.00 -0.16
4.00  0.10
4.00 -0.14
4.00  0.34
4.00 -1.23
4.00  0.26
4.00  0.12
4.00  0.40
4.00  0.42
4.00 -0.43
4.00 -0.14
4.00 -0.49
4.00  0.03
4.00  0.10
4.00  0.50
4.00  0.45
4.00  0.87
4.00 -0.12
4.00  0.41
4.00  0.11
4.00  0.13
4.00  0.19
4.00  0.11
4.00  0.11
4.00  0.79
4.00  0.15
4.00  0.59
4.00 -0.60
4.00 -0.27
4.00  0.08
4.00 -1.28
```

```
4.00  1.53
4.00 -0.19
4.00  0.23
4.00 -0.38
4.00 -0.68
4.00  0.02
4.00 -1.02
4.00 -0.09
4.00  0.01
4.00 -0.10
4.00  0.24
4.00  0.62
4.00  0.07
4.00  0.41
4.00  0.07
4.00 -0.80
5.00  0.28
5.00  0.29
5.00  0.52
5.00 -4.65341e-04
5.00 -0.01
5.00  0.69
5.00 -0.43
5.00  0.12
5.00  1.00
5.00  0.43
5.00  0.12
5.00  0.06
5.00 -0.45
5.00  0.15
5.00 -1.19
5.00  4.967262e-03
5.00  0.58
5.00 -0.46
5.00 -0.11
5.00 -0.64
5.00 -0.30
5.00  0.32
5.00  0.27
5.00  0.37
5.00  0.76
5.00  0.75
5.00  0.53
5.00 -0.04
5.00 -0.01
5.00  0.19
5.00 -0.13
5.00  1.14
5.00 -0.32
5.00  1.32
5.00 -0.47
5.00 -0.39
5.00 -1.63
```

```
5.00 -0.06
5.00 -0.36
5.00  0.10
5.00  0.01
5.00 -1.42
5.00  0.30
5.00 -0.24
5.00 -0.78
5.00  0.28
5.00 -0.94
5.00  0.40
5.00 -0.15
5.00  0.81
5.00 -0.59
5.00  0.27
5.00 -0.12
5.00 -0.11
5.00 -0.49
5.00 -0.17
5.00 -0.87
5.00 -1.07
5.00  0.03
5.00 -1.39
5.00  0.05
5.00 -0.29
5.00 -0.33
5.00  0.29
5.00  0.85
5.00  0.20
5.00  0.59
5.00 -0.22
5.00 -0.75
5.00 -0.13
5.00  0.12
5.00 -0.15
5.00 -0.02
5.00  0.01
5.00  0.17
5.00  0.54
5.00  0.34
5.00  0.17
5.00  0.19
5.00 -0.01
5.00  0.21
5.00  0.23
5.00  0.35
5.00  0.03
5.00  0.16
5.00  0.25
5.00 -0.48
5.00  1.503304e-03
5.00 -0.11
5.00  0.34
```

```
5.00 -0.01
5.00  0.57
5.00 -0.43
5.00  0.08
5.00  0.31
5.00  0.28
5.00  0.62
5.00 -0.28
5.00 -0.36
5.00 -0.10
5.00 -0.11
5.00 -0.04
5.00 -0.22
5.00  0.06
5.00  0.27
5.00 -0.10
5.00 -0.50
5.00 -1.67
5.00  0.74
5.00  0.46
5.00 -0.30
5.00  0.93
5.00  0.84
5.00  0.02
5.00  0.20
5.00 -0.31
5.00 -0.29
5.00  0.50
5.00  0.03
5.00  0.05
6.00  0.64
6.00  0.57
6.00  0.48
6.00 -0.21
6.00 -0.84
6.00 -0.05
6.00 -0.62
6.00  0.43
6.00  0.67
6.00 -0.49
6.00  0.71
6.00  0.01
6.00  0.44
6.00  0.34
6.00 -0.21
6.00 -0.18
6.00 -0.27
6.00 -0.55
6.00  0.14
6.00  0.12
6.00  0.18
6.00 -0.06
6.00  0.50
```

```
6.00 -0.22
6.00  0.49
6.00  0.20
6.00  0.57
6.00  0.35
6.00  0.74
6.00 -0.21
6.00  0.17
6.00  0.47
6.00 -0.07
6.00 -0.17
6.00  0.06
6.00 -0.19
6.00  0.86
6.00 -0.11
6.00  0.87
6.00  0.19
6.00 -0.13
6.00  0.75
6.00 -0.08
6.00  0.15
6.00  0.44
6.00 -0.11
6.00  0.10
6.00  0.23
6.00 -0.61
6.00 -0.24
6.00  0.32
6.00  0.76
6.00  0.17
6.00  0.02
6.00 -0.29
6.00 -0.60
6.00 -0.13
6.00 -0.36
6.00  0.24
6.00  0.78
6.00 -0.49
6.00  0.11
6.00 -0.04
6.00  0.12
6.00  1.10
6.00  0.27
6.00  0.18
6.00 -0.01
6.00  0.20
6.00  0.16
6.00 -0.41
6.00  0.33
6.00 -0.64
6.00 -0.14
6.00 -0.30
6.00 -0.03
```

```
    6.00 -0.83
    6.00 -0.30
    6.00  8.881459e-03
    6.00 -0.46
    6.00 -0.54
    6.00 -0.44
    6.00  0.61
    6.00 -0.13
    6.00  0.18
    6.00  0.53
    6.00  0.16
    6.00 -0.32
    6.00  0.41
    6.00  0.79
    6.00  0.12
    6.00 -0.26
    6.00  0.14
    6.00 -0.55
    6.00 -0.46
    6.00 -0.69
    6.00  0.31
    6.00  0.03
    6.00  0.71
    6.00 -0.43
    6.00 -0.01
    6.00 -0.02
    6.00 -0.21
    6.00 -0.46
    6.00  0.02
    6.00  9.064376e-03
    6.00  0.32
    6.00 -0.67
    6.00 -0.38
    6.00  0.14
    6.00  0.10
    6.00  0.30
    6.00  0.43
    6.00 -0.32
    6.00 -0.31
    6.00  0.43
    6.00  0.06
    6.00  8.026197e-03
    6.00  1.11
    6.00 -0.47];

X1=[41.30
    33.27
    64.42
    53.25
    33.35
    43.00
    47.50
    40.55
```

43.20
52.37
40.22
49.48
32.07
52.97
34.91
35.14
44.10
35.00
51.92
47.86
45.97
32.75
64.67
48.12
37.95
33.47
47.13
34.60
40.23
33.32
45.60
37.60
58.20
67.43
65.37
61.92
47.18
54.02
41.03
56.83
57.60
45.05
34.66
42.68
46.33
62.45
49.62
51.70
50.32
48.36
47.92
64.37
44.88
46.60
46.17
41.80
44.98
53.53
41.85
49.15
35.47

46.40
47.05
52.85
36.90
41.10
39.40
46.22
50.32
48.70
42.10
42.75
36.63
41.21
48.26
43.00
42.25
35.08
47.18
47.47
47.95
47.33
64.75
65.25
62.50
33.17
52.25
37.95
43.07
34.06
35.26
43.06
50.67
44.53
45.08
42.87
37.30
49.20
44.07
57.93
36.39
44.77
50.23
32.65
54.15
68.78
43.17
42.40
45.67
40.47
45.58
39.20
36.80
44.28
62.17

```
     38.42
     64.73
     39.92
     41.48
     35.07];

X2=[121.25
     116.62
     187.75
     168.50
     110.46
     108.93
     102.50
     121.25
     112.29
     126.75
     121.17
     113.36
      95.50
     122.48
      81.03
      84.06
     104.00
      88.10
     123.03
      95.00
      89.88
      89.12
     189.58
     123.42
     119.95
     115.88
     116.54
     100.40
     121.50
      83.83
     107.46
     118.50
      62.63
     134.87
     208.97
     201.03
     113.85
     132.15
     123.65
     203.02
     201.00
     123.60
      98.41
     121.65
     120.83
     196.78
     115.63
     127.25
```

122.82
124.61
 69.50
187.15
 88.64
 63.85
 83.02
121.40
 74.65
 60.15
 74.95
123.92
108.53
116.80
122.70
218.80
119.55
120.25
123.50
 80.58
 92.28
119.43
 96.50
 81.42
 96.40
 98.46
112.41
101.00
 86.00
107.47
122.28
123.83
124.38
124.28
182.52
191.33
193.80
116.77
113.80
 95.20
 78.44
116.59
 96.93
112.45
120.33
 94.98
101.12
 97.38
119.50
121.73
 88.28
131.17
105.58
121.29

```
    121.57
     98.12
    129.95
    202.80
     78.96
    124.42
    118.55
    109.92
    121.17
    120.23
    118.65
     90.85
    230.17
    121.57
    206.00
    123.18
    123.51
    108.85];
z=data(1:720,2:2);
SAAF(p,k,N,X1,X2,z)
diary off
```

SAAF.M

```
function SAAF(p,k,N,X1,X2,z)

   n=size(X1);
   lat = X1 * 0.017453;
   n=size(X2);
   long = X2 * 0.017453;
   n=size(lat);
   n=size(long);
   for i=1:n
       for j=1:n
           a(i,j)=sin(lat(i))*sin(lat(j))+cos(lat(i))*cos(lat(j))...
           *cos(long(i)-long(j));
       end
   end
   a;
   n=size(a);
   dist=acos(a);
   n=size(dist);
   deg=dist*57.296;
   n=size(deg);
   namiles=deg*60;
   n=size(namiles);
   miles=namiles*1.15;
   n=size(miles);
   km=miles*1.609;
   n=size(km);
   for i=1:n
       for j=1:n
           if km(i,j)>3000.01 & km(i,j)<=3500;
               gabriel(i,j)=1;
           else
               gabriel(i,j)=0;
           end
       end
   end
   w=gabriel;
   adj=sum(w);
   W=sum(adj);
   nH=0;
   for H=1:k
       zH=z(nH+1:nH+N(H),1:p);
          for i=1:n
              for j=1:n
                  a(i,j)=zH(i)*zH(j);
              end
          end
          for i=1:n
              bsq(i)=zH(i)^2;
          end
          for i=1:n
              for j=1:n
```

```
            c(i,j)=w(i,j)*a(i,j);
        end
    end
f=120;
d=sum(c);
moransI=(f*sum(d))/(W*sum(bsq))
exp=-1/(f-1)
for i=1:n
    for j=1:n
        g(i,j)=((w(i,j)+w(j,i))^2);
    end
end
g2=sum(g);
g3=sum(g2);
s1=g3/2
g4=sum(w);
for i=1:n
    g5(i)=(g4(i)^2);
end
s2=4*(sum(g5))
B=(sum(bsq))^2;
for i=1:n
    B1(i)=zH(i)^4;
end
B15=sum(B1);
B2=f*B15/B
D1=((f^2)-(3*f)+3)*s1-(f*s2)+(3*(W^2));
D2=((f^2)-f)*s1-(2*f*s2)+(6*(W^2));
D3=(f-1)*(f-2)*(f-3)*(W^2);
D4=1/((f-1)^2);
D5=f*D1;
D6=B2*D2;
D7=D5-D6;
var=(D7/D3)-D4
standerr=sqrt(var)
A=W/2;
Y=A/f;
R=(2*(sqrt(f)-1))/sqrt(f);
Q=(2*(sqrt(f)-1)*((2*sqrt(f))-1))/f;
if R<Y & Y<=Q;
    kalpha=(5*0.05)^(0.5);
else
    kalpha=1;
end
Ialpha=(-1.96*standerr)+(kalpha*exp)
if moransI<Ialpha
    disp('Reject Ho')
end
if moransI>=Ialpha
    disp('Fail to Reject Ho')
end
Ialpha1=(1.96*standerr)+(kalpha*exp)
if moransI>Ialpha1
```

```
        disp('Reject Ho')
    end
    if moransI<=Ialpha1
        disp('Fail to Reject Ho')
    end
    x=moransI;
    m=exp;
    sigma=standerr;
    alpha=0.05;
    tail=0;
    [h,sig,ci,zval]=ztest(x,m,sigma,alpha,tail)
    for i=1:n
        for j=1:n
            a1(i,j)=((zH(i)-zH(j))^2);
        end
    end
    for i=1:n
        for j=1:n
            c1(i,j)=w(i,j)*a1(i,j);
        end
    end
    d1=sum(c1);
    gearysc=((f-1)*sum(d1))/((2*W)*sum(bsq))
    E=(f^2)-(3*f)+3-(f-1)*B2;
    E1=(f^2)+(3*f)-6-((f^2)-f+2)*B2;
    E2=(f^2)-3-((f-1)^2)*B2;
    E3=f*(f-2)*(f-3)*(W^2);
    varc=(((f-1)*s1*E)-(0.25*(f-1)*s2*E1)+((W^2)*E2))/E3
    standerrc=sqrt(varc)
    calpha=(-1.96*standerrc)+1
    if gearysc<calpha
        disp('Reject Ho')
    end
    if gearysc>=calpha
        disp('Fail to Reject Ho')
    end
    calpha1=1+(1.96*standerrc)-(kalpha*(1/(f-1)))
    if gearysc>calpha1
        disp('Reject Ho')
    end
    if gearysc<=calpha1
        disp('Fail to Reject Ho')
    end
    x=gearysc;
    m=1;
    sigma=standerrc;
    alpha=0.05;
    tail=0;
    [h,sig,ci,zval]=ztest(m,x,sigma,alpha,tail)
    nH=nH+N(H);
end
```

APPENDIX F

Distance Matrices-Body and Head Data

Title	Page
Matrix 1F. Language Distance Matrix	436
Matrix 2F. Matrix of Great Circle Distances	502
Matrix 3F. Squared Distance Matrix (Body Data)	574
Matrix 4F. Squared Distance Matrix (Head Data)	646

Matrix 1F. Language Distance Matrix (0=same language, 1=same family, 2=different family, 3=different subphyla, 4=different phyla)

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Achomawi	0	3	4	4	4
Aqua Caliente	3	0	4	4	4
Aiwan	4	4	0	3	4
Aleut	4	4	3	0	4
Apache	4	4	4	4	0
Arapaho	2	3	4	4	4
Assiniboin	2	3	4	4	4
Atsugewi	1	3	4	4	4
Bannock	3	1	4	4	4
Bella Coola	2	3	4	4	4
Big Meadow	2	3	4	4	4
Blood	2	3	4	4	4
Caddo	2	3	4	4	4
Carrier	4	4	4	4	1
Catawba	2	3	4	4	4
Cherokee	2	3	4	4	4
Cheyenne	2	3	4	4	4
Chickasaw	2	3	4	4	4
Chilcotin	4	4	4	4	1
Chippewa(MN)	2	3	4	4	4
Chippewa(WI)	2	3	4	4	4
Choctaw	2	3	4	4	4
Chuvantsy	4	4	4	4	4
Clallum	2	3	4	4	4
C. Miwok	2	3	4	4	4
Coahuilla	3	1	4	4	4
Coeur d'Alene	2	3	4	4	4
Comanche	3	1	4	4	4
Concow	2	3	4	4	4
Creek	2	3	4	4	4
Crow	2	3	4	4	4
E. Mono	3	1	4	4	4
Eskimo(EC)	4	4	2	3	4
Eskimo(WC)	4	4	2	3	4
Even	4	4	4	4	4
Evenk	4	4	4	4	4
Flathead	2	3	4	4	4
Haida	4	4	4	4	3
Hoopa	4	4	4	4	1
Itelman1	4	4	4	4	4
Itelman2	4	4	4	4	4
Kalapuya	2	3	4	4	4
Kiowa	3	2	4	4	4
Klamath	2	3	4	4	4
Klickitat**	2	3	4	4	4
Koryak	4	4	4	4	4
Kuteni	2	3	4	4	4
Kwakiutl	2	3	4	4	4

Matrix 1F. cont.

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Lillooet	2	3	4	4	4
Makah	2	3	4	4	4
Malecite	2	3	4	4	4
Maritime Chukchi	4	4	4	4	4
Menomini	2	3	4	4	4
Micmac	2	3	4	4	4
Mississagua	2	3	4	4	4
Modoc	2	3	4	4	4
Mohawk	2	3	4	4	4
Montagnais	2	3	4	4	4
Munsee	2	3	4	4	4
Nanaimo	2	3	4	4	4
Navajo	4	4	4	4	1
Nez Perce	2	3	4	4	4
Nisqually	2	3	4	4	4
Nivkhi	4	4	4	4	4
N. Hill Yokut	2	3	4	4	4
N. Paiute	3	2	4	4	4
N. Pomo	1	3	4	4	4
Ojibwa1*	2	3	4	4	4
Ojibwa2*	2	3	4	4	4
Okanagan	2	3	4	4	4
Omaha	2	3	4	4	4
Oneida	2	3	4	4	4
Osage	2	3	4	4	4
Pawnee	2	3	4	4	4
Piegan	2	3	4	4	4
Ponca	2	3	4	4	4
Potawatomi	2	3	4	4	4
Pueblo	2	3	4	4	4
Puyallup	2	3	4	4	4
Queets	2	3	4	4	4
Quillayute	2	3	4	4	4
Quinault	2	3	4	4	4
Reindeer Chukchi	4	4	4	4	4
Reindeer Even	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4
San Luis Rey	3	1	4	4	4
Sarcee	4	4	4	4	1
Sauk	2	3	4	4	4
Seneca	2	3	4	4	4
Serrano	3	1	4	4	4
Shawnee	2	3	4	4	4
Shoshone	3	1	4	4	4
Shuswap	2	3	4	4	4
Sioux(Santee)	2	3	4	4	4
Sioux(Teton)	2	3	4	4	4

Matrix 1F. cont.

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Sioux(Yankton)	2	3	4	4	4
S. Miwok	2	3	4	4	4
Stalo	2	3	4	4	4
Stockbridge	2	3	4	4	4
Tahltan	4	4	4	4	1
Taos	3	2	4	4	4
Tenino	2	3	4	4	4
Thompson	2	3	4	4	4
Tonkawa	1	3	4	4	4
Tsimshian	2	3	4	4	4
Tundra Evenk	4	4	4	4	4
Tuscarora	2	3	4	4	4
Tututni	4	4	4	4	1
Umatilla	2	3	4	4	4
Ute	3	1	4	4	4
Wasco	2	3	4	4	4
Washo	1	3	4	4	4
W. Mono	3	1	4	4	4
Winnebago	2	3	4	4	4
Yakut	4	4	4	4	4
Yokuts	2	3	4	4	4
Yukaghir	4	4	4	4	4
Yuki	2	3	4	4	4
Yurok	2	3	4	4	4
Zuni	2	3	4	4	4

Matrix 1F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
Achomawi	2	2	1	3	2
Aqua Caliente	3	3	3	1	3
Aiwan	4	4	4	4	4
Aleut	4	4	4	4	4
Apache	4	4	4	4	4
Arapaho	0	2	2	3	2
Assiniboin	2	0	2	3	2
Atsugewi	2	2	0	3	2
Bannock	3	3	3	0	3
Bella Coola	2	2	2	3	0
Big Meadow	2	2	2	3	2
Blood	1	2	2	3	2
Caddo	2	2	2	3	2
Carrier	4	4	4	4	4
Catawba	2	1	2	3	2
Cherokee	2	2	2	3	2
Cheyenne	1	2	2	3	2
Chickasaw	2	2	2	3	2
Chilcotin	4	4	4	4	4
Chippewa(MN)	1	2	2	3	2
Chippewa(WI)	1	2	2	3	2
Choctaw	2	2	2	3	2
Chuvantsy	4	4	4	4	4
Clallum	2	2	2	3	1
C. Miwok	2	2	2	3	2
Coahuilla	3	3	3	1	3
Coeur d'Alene	2	2	2	3	1
Comanche	3	3	3	1	3
Concow	2	2	2	3	2
Creek	2	2	2	3	2
Crow	2	1	2	3	2
E. Mono	3	3	3	1	3
Eskimo(EC)	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4
Even	4	4	4	4	4
Evenk	4	4	4	4	4
Flathead	2	2	2	3	1
Haida	4	4	4	4	4
Hoopa	4	4	4	4	4
Itelman1	4	4	4	4	4
Itelman2	4	4	4	4	4
Kalapuya	2	2	2	3	2
Kiowa	3	3	3	2	3
Klamath	2	2	2	3	2
Klickitat**	2	2	2	3	2
Koryak	4	4	4	4	4
Kutenai	2	2	2	3	2
Kwakiutl	2	2	2	3	2
Lillooet	2	2	2	3	1

Matrix 1F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
Makah	2	2	2	3	2
Malecite	1	2	2	3	2
Maritime Chukchi	4	4	4	4	4
Menomini	1	2	2	3	2
Micmac	1	2	2	3	2
Mississagua	1	2	2	3	2
Modoc	2	2	2	3	2
Mohawk	2	2	2	3	2
Montagnais	1	2	2	3	2
Munsee	1	2	2	3	2
Nanaimo	2	2	2	3	1
Navajo	4	4	4	4	4
Nez Perce	2	2	2	3	2
Nisqually	2	2	2	3	1
Nivkhi	4	4	4	4	4
N. Hill Yokut	2	2	2	3	2
N. Paiute	3	3	3	0	3
N. Pomo	2	2	1	3	2
Ojibwa1*	1	2	2	3	2
Ojibwa2*	1	2	2	3	2
Okanagan	2	2	2	3	1
Omaha	2	1	2	3	2
Oneida	2	2	2	3	2
Osage	2	1	2	3	2
Pawnee	2	2	2	3	2
Piegan	1	2	2	3	2
Ponca	2	1	2	3	2
Potawatomi	1	2	2	3	2
Pueblo	2	2	2	3	2
Puyallup	2	2	2	3	1
Queets	2	2	2	3	1
Quillayute	2	2	2	3	2
Quinault	2	2	2	3	1
Reindeer Chukchi	4	4	4	4	4
Reindeer Even	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4
San Luis Rey	3	3	3	1	3
Sarcee	4	4	4	4	4
Sauk	1	2	2	3	2
Seneca	2	2	2	3	2
Serrano	3	3	3	1	3
Shawnee	1	2	2	3	2
Shoshone	3	3	3	1	3
Shuswap	2	2	2	3	1
Sioux(Santee)	2	0	2	3	2
Sioux(Teton)	2	0	2	3	2
Sioux(Yankton)	2	0	2	3	2

Matrix 1F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
S. Miwok	2	2	2	3	2
Stalo	2	2	2	3	1
Stockbridge	1	2	2	3	2
Tahltan	4	4	4	4	4
Taos	3	3	3	2	3
Tenino	2	2	2	3	2
Thompson	2	2	2	3	1
Tonkawa	2	2	1	3	2
Tsimshian	2	2	2	3	2
Tundra Evenk	4	4	4	4	4
Tuscarora	2	2	2	3	2
Tututni	4	4	4	4	4
Umatilla	2	2	2	3	2
Ute	3	3	3	1	3
Wasco	2	2	2	3	2
Washo	2	2	1	3	2
W. Mono	3	3	3	1	3
Winnebago	2	1	2	3	2
Yakut	4	4	4	4	4
Yokuts	2	2	2	3	2
Yukaghir	4	4	4	4	4
Yuki	2	2	2	3	2
Yurok	2	2	2	3	2
Zuni	2	2	2	3	2

Matrix 1F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Achomawi	2	2	2	4	2
Agua Caliente	3	3	3	4	3
Aiwan	4	4	4	4	4
Aleut	4	4	4	4	4
Apache	4	4	4	1	4
Arapaho	2	1	2	4	2
Assiniboin	2	2	2	4	1
Atsugewi	2	2	2	4	2
Bannock	3	3	3	4	3
Bella Coola	2	2	2	4	2
Big Meadow	0	2	2	4	2
Blood	2	0	2	4	2
Caddo	2	2	0	4	2
Carrier	4	4	4	0	4
Catawba	2	2	2	4	0
Cherokee	2	2	2	4	2
Cheyenne	2	1	2	4	2
Chickasaw	1	2	2	4	2
Chilcotin	4	4	4	1	4
Chippewa(MN)	2	1	2	4	2
Chippewa(WI)	2	1	2	4	2
Choctaw	1	2	2	4	2
Chuvantsy	4	4	4	4	4
Clallum	2	2	2	4	2
C. Miwok	1	2	2	4	2
Coahuilla	3	3	3	4	3
Coeur d'Alene	2	2	2	4	2
Comanche	3	3	3	4	3
Concow	1	2	2	4	2
Creek	1	2	2	4	2
Crow	2	2	2	4	1
E. Mono	3	3	3	4	3
Eskimo(EC)	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4
Even	4	4	4	4	4
Evenk	4	4	4	4	4
Flathead	2	2	2	4	2
Haida	4	4	4	3	4
Hoopa	4	4	4	1	4
Itelman1	4	4	4	4	4
Itelman2	4	4	4	4	4
Kalapuya	1	2	2	4	2
Kiowa	3	3	3	4	3
Klamath	1	2	2	4	2
Klickitat**	1	2	2	4	2
Koryak	4	4	4	4	4
Kutenai	2	2	2	4	2
Kwakiutl	2	2	2	4	2
Lillooet	2	2	2	4	2

Matrix 1F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Makah	2	2	2	4	2
Malecite	2	1	2	4	2
Maritime Chukchi	4	4	4	4	4
Menomini	2	1	2	4	2
Micmac	2	1	2	4	2
Mississagua	2	1	2	4	2
Modoc	1	2	2	4	2
Mohawk	2	2	2	4	2
Montagnais	2	1	2	4	2
Munsee	2	1	2	4	2
Nanaimo	2	2	2	4	2
Navajo	4	4	4	1	4
Nez Perce	1	2	2	4	2
Nisqually	2	2	2	4	2
Nivkhi	4	4	4	4	4
N. Hill Yokut	1	2	2	4	2
N. Paiute	3	3	3	4	3
N. Pomo	2	2	2	4	2
Ojibwa1*	2	1	2	4	2
Ojibwa2*	2	1	2	4	2
Okanagan	2	2	2	4	2
Omaha	2	2	2	4	1
Oneida	2	2	2	4	2
Osage	2	2	2	4	1
Pawnee	2	2	1	4	2
Piegan	2	0	2	4	2
Ponca	2	2	2	4	1
Potawatomi	2	1	2	4	2
Pueblo	2	2	2	4	2
Puyallup	2	2	2	4	2
Queets	2	2	2	4	2
Quillayute	2	2	2	4	2
Quinault	2	2	2	4	2
Reindeer Chukchi	4	4	4	4	4
Reindeer Even	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4
San Luis Rey	3	3	3	4	3
Sarcee	4	4	4	1	4
Sauk	2	1	2	4	2
Seneca	2	2	2	4	2
Serrano	3	3	3	4	3
Shawnee	2	1	2	4	2
Shoshone	3	3	3	4	3
Shuswap	2	2	2	4	2
Sioux(Santee)	2	2	2	4	1
Sioux(Teton)	2	2	2	4	1

Matrix 1F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Sioux(Yankton)	2	2	2	4	1
S. Miwok	1	2	2	4	2
Stalo	2	2	2	4	2
Stockbridge	2	1	2	4	2
Tahltan	4	4	4	1	4
Taos	3	3	3	4	3
Tenino	1	2	2	4	2
Thompson	2	2	2	4	2
Tonkawa	2	2	2	4	2
Tsimshian	1	2	2	4	2
Tundra Evenk	4	4	4	4	4
Tuscarora	2	2	2	4	2
Tututni	4	4	4	1	4
Umatilla	1	2	2	4	2
Ute	3	3	3	4	3
Wasco	1	2	2	4	2
Washo	2	2	2	4	2
W. Mono	3	3	3	4	3
Winnebago	2	2	2	4	1
Yakut	4	4	4	4	4
Yokuts	1	2	2	4	2
Yukaghir	4	4	4	4	4
Yuki	1	2	2	4	2
Yurok	2	2	2	4	2
Zuni	1	2	2	4	2

Matrix 1F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa(MN)
Achomawi	2	2	2	4	2
Agua Caliente	3	3	3	4	3
Aiwan	4	4	4	4	4
Aleut	4	4	4	4	4
Apache	4	4	4	1	4
Arapaho	2	1	2	4	1
Assiniboin	2	2	2	4	2
Atsugewi	2	2	2	4	2
Bannock	3	3	3	4	3
Bella Coola	2	2	2	4	2
Big Meadow	2	2	1	4	2
Blood	2	1	2	4	1
Caddo	2	2	2	4	2
Carrier	4	4	4	1	4
Catawba	2	2	2	4	2
Cherokee	0	2	2	4	2
Cheyenne	2	0	2	4	1
Chickasaw	2	2	0	4	2
Chilcotin	4	4	4	0	4
Chippewa(MN)	2	1	2	4	0
Chippewa(WI)	2	1	2	4	0
Choctaw	2	2	1	4	2
Chuvantsy	4	4	4	4	4
Clallum	2	2	2	4	2
C. Miwok	2	2	1	4	2
Coahuilla	3	3	3	4	3
Coeur d'Alene	2	2	2	4	2
Comanche	3	3	3	4	3
Concow	2	2	1	4	2
Creek	2	2	1	4	2
Crow	2	2	2	4	2
E. Mono	3	3	3	4	3
Eskimo(EC)	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4
Even	4	4	4	4	4
Evenk	4	4	4	4	4
Flathead	2	2	2	4	2
Haida	4	4	4	3	4
Hoopa	4	4	4	1	4
Itelman1	4	4	4	4	4
Itelman2	4	4	4	4	4
Kalapuya	2	2	1	4	2
Kiowa	3	3	3	4	3
Klamath	2	2	1	4	2
Klickitat**	2	2	1	4	2
Koryak	4	4	4	4	4
Kutenai	2	2	2	4	2
Kwakiutl	2	2	2	4	2
Lillooet	2	2	2	4	2

Matrix 1F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa(MN)
Makah	2	2	2	4	2
Malecite	2	1	2	4	1
Maritime Chukchi	4	4	4	4	4
Menomini	2	1	2	4	1
Micmac	2	1	2	4	1
Mississagua	2	1	2	4	0
Modoc	2	2	1	4	2
Mohawk	1	2	2	4	2
Montagnais	2	1	2	4	1
Munsee	2	1	2	4	1
Nanaimo	2	2	2	4	2
Navajo	4	4	4	1	4
Nez Perce	2	2	1	4	2
Nisqually	2	2	2	4	2
Nivkhi	4	4	4	4	4
N. Hill Yokut	2	2	1	4	2
N. Paiute	3	3	3	4	3
N. Pomo	2	2	2	4	2
Ojibwa1*	2	1	2	4	0
Ojibwa2*	2	1	2	4	0
Okanagan	2	2	2	4	2
Omaha	2	2	2	4	2
Oneida	1	2	2	4	2
Osage	2	2	2	4	2
Pawnee	2	2	2	4	2
Piegan	2	1	2	4	1
Ponca	2	2	2	4	2
Potawatomi	2	1	2	4	1
Pueblo	2	2	2	4	2
Puyallup	2	2	2	4	2
Queets	2	2	2	4	2
Quillayute	2	2	2	4	2
Quinault	2	2	2	4	2
Reindeer Chukchi	4	4	4	4	4
Reindeer Even	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4
San Luis Rey	3	3	3	4	3
Sarcee	4	4	4	1	4
Sauk	2	1	2	4	1
Seneca	1	2	2	4	2
Serrano	3	3	3	4	3
Shawnee	2	1	2	4	1
Shoshone	3	3	3	4	3
Shuswap	2	2	2	4	2
Sioux(Santee)	2	2	2	4	2
Sioux(Teton)	2	2	2	4	2
Sioux(Yankton)	2	2	2	4	2

Matrix 1F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa(MN)
S. Miwok	2	2	1	4	2
Stalo	2	2	2	4	2
Stockbridge	2	1	2	4	1
Tahltan	4	4	4	1	4
Taos	3	3	3	4	3
Tenino	2	2	1	4	2
Thompson	2	2	2	4	2
Tonkawa	2	2	2	4	2
Tsimshian	2	2	1	4	2
Tundra Evenk	4	4	4	4	4
Tuscarora	1	2	2	4	2
Tututni	4	4	4	1	4
Umatilla	2	2	1	4	2
Ute	3	3	3	4	3
Wasco	2	2	1	4	2
Washo	2	2	2	4	2
W. Mono	3	3	3	4	3
Winnebago	2	2	2	4	2
Yakut	4	4	4	4	4
Yokuts	2	2	1	4	2
Yukaghir	4	4	4	4	4
Yuki	2	2	1	4	2
Yurok	2	2	2	4	2
Zuni	2	2	1	4	2

Matrix 1F. cont.

	Chippewa(WI)	Choctaw	Chuvantsy	Clallum	C. Miwok
Achomawi	2	2	4	2	2
Agua Caliente	3	3	4	3	3
Aiwan	4	4	4	4	4
Aleut	4	4	4	4	4
Apache	4	4	4	4	4
Arapaho	1	2	4	2	2
Assiniboin	2	2	4	2	2
Atsugewi	2	2	4	2	2
Bannock	3	3	4	3	3
Bella Coola	2	2	4	1	2
Big Meadow	2	1	4	2	1
Blood	1	2	4	2	2
Caddo	2	2	4	2	2
Carrier	4	4	4	4	4
Catawba	2	2	4	2	2
Cherokee	2	2	4	2	2
Cheyenne	1	2	4	2	2
Chickasaw	2	1	4	2	1
Chilcotin	4	4	4	4	4
Chippewa(MN)	0	2	4	2	2
Chippewa(WI)	0	2	4	2	2
Choctaw	2	0	4	2	1
Chuvantsy	4	4	0	4	4
Clallum	2	2	4	0	2
C. Miwok	2	1	4	2	0
Coahuilla	3	3	4	3	3
Coeur d'Alene	2	2	4	1	2
Comanche	3	3	4	3	3
Concow	2	1	4	2	1
Creek	2	1	4	2	1
Crow	2	2	4	2	2
E. Mono	3	3	4	3	3
Eskimo(EC)	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4
Even	4	4	4	4	4
Evenk	4	4	4	4	4
Flathead	2	2	4	1	2
Haida	4	4	4	4	4
Hoopa	4	4	4	4	4
Itelman1	4	4	4	4	4
Itelman2	4	4	4	4	4
Kalapuya	2	1	4	2	1
Kiowa	3	3	4	3	3
Klamath	2	1	4	2	1
Klickitat**	2	1	4	2	1
Koryak	4	4	4	4	4
Kutenai	2	2	4	2	2
Kwakiutl	2	2	4	2	2

Matrix 1F. cont.

	Chippewa(WI)	Choctaw	Chuvantsy	Clallum	C. Miwok
Lillooet	2	2	4	1	2
Makah	2	2	4	2	2
Malecite	1	2	4	2	2
Maritime Chukchi	4	4	4	4	4
Menomini	1	2	4	2	2
Micmac	1	2	4	2	2
Mississagua	0	2	4	2	2
Modoc	2	1	4	2	1
Mohawk	2	2	4	2	2
Montagnais	1	2	4	2	2
Munsee	1	2	4	2	2
Nanaimo	2	2	4	1	2
Navajo	4	4	4	4	4
Nez Perce	2	1	4	2	1
Nisqually	2	2	4	1	2
Nivkhi	4	4	4	4	4
N. Hill Yokut	2	1	4	2	1
N. Paiute	3	3	4	3	3
N. Pomo	2	2	4	2	2
Ojibwa1*	0	2	4	2	2
Ojibwa2*	0	2	4	2	2
Okanagan	2	2	4	1	2
Omaha	2	2	4	2	2
Oneida	2	2	4	2	2
Osage	2	2	4	2	2
Pawnee	2	2	4	2	2
Piegan	1	2	4	2	2
Ponca	2	2	4	2	2
Potawatomi	1	2	4	2	2
Pueblo	2	2	4	2	2
Puyallup	2	2	4	1	2
Queets	2	2	4	1	2
Quillayute	2	2	4	2	2
Quinault	2	2	4	1	2
Reindeer Chukchi	4	4	4	4	4
Reindeer Even	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4
San Luis Rey	3	3	4	3	3
Sarcee	4	4	4	4	4
Sauk	1	2	4	2	2
Seneca	2	2	4	2	2
Serrano	3	3	4	3	3
Shawnee	1	2	4	2	2
Shoshone	3	3	4	3	3
Shuswap	2	2	4	1	2
Sioux(Santee)	2	2	4	2	2
Sioux(Teton)	2	2	4	2	2

Matrix 1F. cont.

	Chippewa(WI)	Choctaw	Chuvantsy	Clallum	C. Miwok
Sioux(Yankton)	2	2	4	2	2
S. Miwok	2	1	4	2	1
Stalo	2	2	4	1	2
Stockbridge	1	2	4	2	2
Tahltan	4	4	4	4	4
Taos	3	3	4	3	3
Tenino	2	1	4	2	1
Thompson	2	2	4	1	2
Tonkawa	2	2	4	2	2
Tsimshian	2	1	4	2	1
Tundra Evenk	4	4	4	4	4
Tuscarora	2	2	4	2	2
Tututni	4	4	4	4	4
Umatilla	2	1	4	2	1
Ute	3	3	4	3	3
Wasco	2	1	4	2	1
Washo	2	2	4	2	2
W. Mono	3	3	4	3	3
Winnebago	2	2	4	2	2
Yakut	4	4	4	4	4
Yokuts	2	1	4	2	1
Yukaghir	4	4	1	4	4
Yuki	2	1	4	2	1
Yurok	2	2	4	2	2
Zuni	2	1	4	2	1

Matrix 1F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Achomawi	3	2	3	2	2
Aqua Caliente	1	3	1	3	3
Aiwan	4	4	4	4	4
Aleut	4	4	4	4	4
Apache	4	4	4	4	4
Arapaho	3	2	3	2	2
Assiniboin	3	2	3	2	2
Atsugewi	3	2	3	2	2
Bannock	1	3	1	3	3
Bella Coola	3	1	3	2	2
Big Meadow	3	2	3	1	1
Blood	3	2	3	2	2
Caddo	3	2	3	2	2
Carrier	4	4	4	4	4
Catawba	3	2	3	2	2
Cherokee	3	2	3	2	2
Cheyenne	3	2	3	2	2
Chickasaw	3	2	3	1	1
Chilcotin	4	4	4	4	4
Chippewa(MN)	3	2	3	2	2
Chippewa(WI)	3	2	3	2	2
Choctaw	3	2	3	1	1
Chuvantsy	4	4	4	4	4
Clallum	3	1	3	2	2
C. Miwok	3	2	3	1	1
Coahuilla	0	3	1	3	3
Coeur d'Alene	3	0	3	2	2
Comanche	1	3	0	3	3
Concow	3	2	3	0	1
Creek	3	2	3	1	0
Crow	3	2	3	2	2
E. Mono	1	3	1	3	3
Eskimo(EC)	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4
Even	4	4	4	4	4
Evenk	4	4	4	4	4
Flathead	3	1	3	2	2
Haida	4	4	4	4	4
Hoopa	4	4	4	4	4
Itelman1	4	4	4	4	4
Itelman2	4	4	4	4	4
Kalapuya	3	2	3	1	1
Kiowa	2	3	2	3	3
Klamath	3	2	3	1	1
Klickitat**	3	2	3	1	1
Koryak	4	2	4	4	4
Kutenai	3	2	3	2	2
Kwakiutl	3	2	3	2	2
Lillooet	3	1	3	2	2

Matrix 1F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Makah	3	2	3	2	2
Malecite	3	2	3	2	2
Maritime Chukchi	4	4	4	4	4
Menomini	3	2	3	2	2
Micmac	3	2	3	2	2
Mississagua	3	2	3	2	2
Modoc	3	2	3	1	1
Mohawk	3	2	3	2	2
Montagnais	3	2	3	2	2
Munsee	3	2	3	2	2
Nanaimo	3	1	3	2	2
Navajo	4	4	4	4	4
Nez Perce	3	2	3	1	1
Nisqually	3	1	3	2	2
Nivkhi	4	4	4	4	4
N. Hill Yokut	3	2	3	1	1
N. Paiute	1	3	1	3	3
N. Pomo	3	2	3	2	2
Ojibwa1	3	2	3	2	2
Ojibwa2	3	2	3	2	2
Okanagan	3	1	3	2	2
Omaha	3	2	3	2	2
Oneida	3	2	3	2	2
Osage	3	2	3	2	2
Pawnee	3	2	3	2	2
Piegan	3	2	3	2	2
Ponca	3	2	3	2	2
Potawatomi	3	2	3	2	2
Pueblo	3	2	3	2	2
Puyallup	3	1	3	2	2
Queets	3	1	3	2	2
Quillayute	3	2	3	2	2
Quinault	3	1	3	2	2
Reindeer Chukchi	4	4	4	4	4
Reindeer Even	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4
San Luis Rey	1	3	1	3	3
Sarcee	4	4	4	4	4
Sauk	3	2	3	2	2
Seneca	3	2	3	2	2
Serrano	1	3	1	3	3
Shawnee	3	2	3	2	2
Shoshone	1	3	1	3	3
Shuswap	3	1	3	2	2
Sioux(Santee)	3	2	3	2	2
Sioux(Teton)	3	2	3	2	2
Sioux(Yankton)	3	2	3	2	2
S. Miwok	3	2	3	1	1
Stalo	3	2	3	2	2

Matrix 1F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Stockbridge	3	2	3	2	2
Tahltan	4	4	4	4	4
Taos	2	3	2	3	3
Tenino	3	2	3	1	1
Thompson	3	1	3	2	2
Tonkawa	3	2	3	2	2
Tsimshian	3	2	3	1	1
Tundra Evenk	4	4	4	4	4
Tuscarora	3	2	3	2	2
Tututni	4	4	4	4	4
Umatilla	3	2	3	1	1
Ute	1	3	1	3	3
Wasco	3	2	3	1	1
Washo	3	2	3	2	2
W. Mono	1	3	1	3	3
Winnebago	3	2	3	2	2
Yakut	4	4	4	4	4
Yokuts	3	2	3	1	1
Yukaghir	4	4	4	4	4
Yuki	3	2	3	1	1
Yurok	3	2	3	2	2
Zuni	3	2	3	1	1

Matrix 1F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even	Evenk
Achomawi	2	3	4	4	4	4
Agua Caliente	3	1	4	4	4	4
Aiwan	4	4	2	2	4	4
Aleut	4	4	3	3	4	4
Apache	4	4	4	4	4	4
Arapaho	2	3	4	4	4	4
Assiniboin	1	3	4	4	4	4
Atsugewi	2	3	4	4	4	4
Bannock	3	1	4	4	4	4
Bella Coola	2	3	4	4	4	4
Big Meadow	2	3	4	4	4	4
Blood	2	3	4	4	4	4
Caddo	2	3	4	4	4	4
Carrier	4	4	4	4	4	4
Catawba	1	3	4	4	4	4
Cherokee	2	3	4	4	4	4
Cheyenne	2	3	4	4	4	4
Chickasaw	2	3	4	4	4	4
Chilcotin	4	4	4	4	4	4
Chippewa(MN)	2	3	4	4	4	4
Chippewa(WI)	2	3	4	4	4	4
Choctaw	2	3	4	4	4	4
Chuvantsy	4	4	4	4	4	4
Clallum	2	3	4	4	4	4
C. Miwok	2	3	4	4	4	4
Coahuilla	3	1	4	4	4	4
Coeur d'Alene	2	3	4	4	4	4
Comanche	3	1	4	4	4	4
Concow	2	3	4	4	4	4
Creek	2	3	4	4	4	4
Crow	0	3	4	4	4	4
E. Mono	3	0	4	4	4	4
Eskimo(EC)	4	4	0	0	4	4
Eskimo(WC)	4	4	0	0	4	4
Even	4	4	4	4	0	1
Evenk	4	4	4	4	1	0
Flathead	2	3	4	4	4	4
Haida	4	4	4	4	4	4
Hoopa	4	4	4	4	4	4
Itelman1	4	4	4	4	4	4
Itelman2	4	4	4	4	4	4
Kalapuya	2	3	4	4	4	4
Kiowa	3	2	4	4	4	4
Klamath	2	3	4	4	4	4
Klickitat**	2	3	4	4	4	4
Koryak	4	4	4	4	4	4
Kutenai	2	3	4	4	4	4
Kwakiutl	2	3	4	4	4	4
Lillooet	2	3	4	4	4	4

Matrix 1F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even	Evenk
Makah	2	3	4	4	4	4
Malecite	2	3	4	4	4	4
Maritime Chukchi	4	4	4	4	4	4
Menomini	2	3	4	4	4	4
Micmac	2	3	4	4	4	4
Mississagua	2	3	4	4	4	4
Modoc	2	3	4	4	4	4
Mohawk	2	3	4	4	4	4
Montagnais	2	3	4	4	4	4
Munsee	2	3	4	4	4	4
Nanaimo	2	3	4	4	4	4
Navajo	4	4	4	4	4	4
Nez Perce	2	3	4	4	4	4
Nisqually	2	3	4	4	4	4
Nivkhi	4	4	4	4	4	4
N. Hill Yokut	2	3	4	4	4	4
N. Paiute	3	1	4	4	4	4
N. Pomo	2	3	4	4	4	4
Ojibwa1	2	3	4	4	4	4
Ojibwa2	2	3	4	4	4	4
Okanagan	2	3	4	4	4	4
Omaha	1	3	4	4	4	4
Oneida	2	3	4	4	4	4
Osage	1	3	4	4	4	4
Pawnee	2	3	4	4	4	4
Piegan	2	3	4	4	4	4
Ponca	1	3	4	4	4	4
Potawatomi	2	3	4	4	4	4
Pueblo	2	3	4	4	4	4
Puyallup	2	3	4	4	4	4
Queets	2	3	4	4	4	4
Quillayute	2	3	4	4	4	4
Quinault	2	3	4	4	4	4
Reindeer Chukchi	4	4	4	4	4	4
Reindeer Even	4	4	4	4	0	1
Reindeer Koryak	4	4	4	4	4	4
San Luis Rey	3	1	4	4	4	4
Sarcee	4	4	4	4	4	4
Sauk	2	3	4	4	4	4
Seneca	2	3	4	4	4	4
Serrano	3	1	4	4	4	4
Shawnee	2	3	4	4	4	4
Shoshone	3	1	4	4	4	4
Shuswap	2	3	4	4	4	4
Sioux(Santee)	1	3	4	4	4	4
Sioux(Teton)	1	3	4	4	4	4
Sioux(Yankton)	1	3	4	4	4	4

Matrix 1F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even	Evenk
S. Miwok	2	3	4	4	4	4
Stalo	2	3	4	4	4	4
Stockbridge	2	3	4	4	4	4
Tahltan	4	4	4	4	4	4
Taos	3	2	4	4	4	4
Tenino	2	3	4	4	4	4
Thompson	2	3	4	4	4	4
Tonkawa	2	3	4	4	4	4
Tsimshian	2	3	4	4	4	4
Tundra Evenk	4	4	4	4	4	4
Tuscarora	2	3	4	4	4	4
Tututni	4	4	4	4	4	4
Umatilla	2	3	4	4	4	4
Ute	3	1	4	4	4	4
Wasco	2	3	4	4	4	4
Washo	2	3	4	4	4	4
W. Mono	3	0	4	4	4	4
Winnebago	1	3	4	4	4	4
Yakut	4	4	4	4	2	2
Yokuts	2	3	4	4	4	4
Yukaghir	4	4	4	4	4	4
Yuki	2	3	4	4	4	4
Yurok	2	3	4	4	4	4
Zuni	2	3	4	4	4	4

Matrix 1F. cont.

	Flathead	Haida	Hoopa	Itelman1	Itelman2	Kalapuya
Achomawi	2	4	4	4	4	2
Agua Caliente	3	4	4	4	4	3
Aiwan	4	4	4	4	4	4
Aleut	4	4	4	4	4	4
Apache	4	3	1	4	4	4
Arapaho	2	4	4	4	4	2
Assiniboin	2	4	4	4	4	2
Atsugewi	2	4	4	4	4	2
Bannock	3	4	4	4	4	3
Bella Coola	1	4	4	4	4	2
Big Meadow	2	4	4	4	4	1
Blood	2	4	4	4	4	2
Caddo	2	4	4	4	4	2
Carrier	4	3	1	4	4	4
Catawba	2	4	4	4	4	2
Cherokee	2	4	4	4	4	2
Cheyenne	2	4	4	4	4	2
Chickasaw	2	4	4	4	4	1
Chilcotin	4	3	1	4	4	4
Chippewa(MN)	2	4	4	4	4	2
Chippewa(WI)	2	4	4	4	4	2
Choctaw	2	4	4	4	4	1
Chuvantsy	4	4	4	4	4	4
Clallum	1	4	4	4	4	2
C. Miwok	2	4	4	4	4	1
Coahuilla	3	4	4	4	4	3
Coeur d'Alene	1	4	4	4	4	2
Comanche	3	4	4	4	4	3
Concow	2	4	4	4	4	1
Creek	2	4	4	4	4	1
Crow	2	4	4	4	4	2
E. Mono	3	4	4	4	4	3
Eskimo(EC)	4	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4	4
Even	4	4	4	4	4	4
Evenk	4	4	4	4	4	4
Flathead	0	4	4	4	4	2
Haida	4	0	3	4	4	4
Hoopa	4	3	0	4	4	4
Itelman1	4	4	4	0	0	4
Itelman2	4	4	4	0	0	4
Kalapuya	2	4	4	4	4	0
Kiowa	3	4	4	4	4	3
Klamath	2	4	4	4	4	1
Klickitat**	2	4	4	4	4	2
Koryak	4	4	4	3	3	4
Kutenai	2	4	4	4	4	2
Kwakiutl	2	4	4	4	4	2
Lillooet	1	4	4	4	4	2

Matrix 1F. cont.

	Flathead	Haida	Hoopa	Itelman1	Itelman2	Kalapuya
Makah	2	4	4	4	4	2
Malecite	2	4	4	4	4	2
Maritime Chukchi	4	4	4	3	3	4
Menomini	2	4	4	4	4	2
Micmac	2	4	4	4	4	2
Mississagua	2	4	4	4	4	2
Modoc	2	4	4	4	4	1
Mohawk	2	4	4	4	4	2
Montagnais	2	4	4	4	4	2
Munsee	2	4	4	4	4	2
Nanaimo	1	4	4	4	4	2
Navajo	4	4	4	4	4	4
Nez Perce	2	4	4	4	4	1
Nisqually	1	4	4	4	4	2
Nivkhi	4	4	4	4	4	4
N. Hill Yokut	2	4	4	4	4	1
N. Paiute	3	4	4	4	4	3
N. Pomo	2	4	4	4	4	2
Ojibwa1*	2	4	4	4	4	2
Ojibwa2*	2	4	4	4	4	2
Okanagan	1	4	4	4	4	2
Omaha	2	4	4	4	4	2
Oneida	2	4	4	4	4	2
Osage	2	4	4	4	4	2
Pawnee	2	4	4	4	4	2
Piegan	2	4	4	4	4	2
Ponca	2	4	4	4	4	2
Potawatomi	2	4	4	4	4	2
Pueblo	2	4	4	4	4	2
Puyallup	1	4	4	4	4	2
Queets	1	4	4	4	4	2
Quillayute	2	4	4	4	4	2
Quinault	1	4	4	4	4	2
Reindeer Chukchi	4	4	4	3	3	4
Reindeer Even	4	4	4	4	4	4
Reindeer Koryak	4	4	4	3	3	4
San Luis Rey	3	4	4	4	4	3
Sarcee	4	3	4	4	4	4
Sauk	2	4	4	4	4	2
Seneca	2	4	4	4	4	2
Serrano	3	4	4	4	4	3
Shawnee	2	4	4	4	4	2
Shoshone	3	4	4	4	4	3
Shuswap	1	4	4	4	4	2
Sioux(Santee)	2	4	4	4	4	2
Sioux(Teton)	2	4	4	4	4	2
Sioux(Yankton)	2	4	4	4	4	2
S. Miwok	2	4	4	4	4	1
Stalo	1	4	4	4	4	2

Matrix 1F. cont.

	Flathead	Haida	Hoopa	Itelman1	Itelman2	Kalapuya
Stockbridge	2	4	4	4	4	2
Tahltan	4	3	1	4	4	4
Taos	3	4	4	4	4	3
Tenino	2	4	4	4	4	1
Thompson	1	4	4	4	4	2
Tonkawa	2	4	4	4	4	2
Tsimshian	2	4	4	4	4	1
Tundra Evenk	4	4	4	4	4	4
Tuscarora	2	4	4	4	4	2
Tututni	4	3	1	4	4	4
Umatilla	2	4	4	4	4	1
Ute	3	4	4	4	4	3
Wasco	2	4	4	4	4	1
Washo	2	4	4	4	4	2
W. Mono	3	4	4	4	4	3
Winnebago	2	4	4	4	4	2
Yakut	4	4	4	4	4	4
Yokuts	2	4	4	4	4	1
Yukaghir	4	4	4	4	4	4
Yuki	2	4	4	4	4	1
Yurok	2	4	4	4	4	2
Zuni	2	4	4	4	4	1

Matrix 1F. cont.

	Kiowa	Klamath	Klickitat	Koryak	Kutenai	Kwakiutl
Achomawi	3	2	2	4	2	2
Aqua Caliente	2	3	3	4	3	3
Aiwan	4	4	4	4	4	4
Aleut	4	4	4	4	4	4
Apache	4	4	4	4	4	4
Arapaho	3	2	2	4	2	2
Assiniboin	3	2	2	4	2	2
Atsugewi	3	2	2	4	2	2
Bannock	2	3	3	4	3	3
Bella Coola	3	2	2	4	2	2
Big Meadow	3	1	1	4	2	2
Blood	3	2	2	4	2	2
Caddo	3	2	2	4	2	2
Carrier	4	4	4	4	4	4
Catawba	3	2	2	4	2	2
Cherokee	3	2	2	4	2	2
Cheyenne	3	2	2	4	2	2
Chickasaw	3	1	1	4	2	2
Chilcotin	4	4	4	4	4	4
Chippewa(MN)	3	2	2	4	2	2
Chippewa(WI)	3	2	2	4	2	2
Choctaw	3	1	1	4	2	2
Chuvantsy	4	4	4	4	4	4
Clallum	3	2	2	4	2	2
C. Miwok	3	1	1	4	2	2
Coahuilla	2	3	3	4	3	3
Coeur d'Alene	3	2	2	4	2	2
Comanche	2	3	3	4	3	3
Concow	3	1	1	4	2	2
Creek	3	1	1	4	2	2
Crow	3	2	2	4	2	2
E. Mono	2	3	3	4	3	3
Eskimo(EC)	4	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4	4
Even	4	4	4	4	4	4
Evenk	4	4	4	4	4	4
Flathead	3	2	2	4	2	2
Haida	4	4	4	4	4	4
Hoopa	4	4	4	4	4	4
Itelman1	4	4	4	3	4	4
Itelman2	4	4	4	3	4	4
Kalapuya	3	1	2	4	2	2
Kiowa	0	3	3	4	3	3
Klamath	3	0	1	4	2	2
Klickitat**	3	1	0	4	2	2
Koryak	4	4	4	0	4	4
Kutenai	3	2	2	4	0	2
Kwakiutl	3	2	2	4	2	0
Lillooet	3	2	2	4	2	2

Matrix 1F. cont.

	Kiowa	Klamath	Klickitat**	Koryak	Kutenai	Kwakiutl
Makah	3	2	2	4	2	1
Malecite	3	2	2	4	2	2
Maritime Chukchi	4	4	4	2	4	4
Menomini	3	2	2	4	2	2
Micmac	3	2	2	4	2	2
Mississagua	3	2	2	4	2	2
Modoc	3	0	1	4	2	2
Mohawk	3	2	2	4	2	2
Montagnais	3	2	2	4	2	2
Munsee	3	2	2	4	2	2
Nanaimo	3	2	2	4	2	2
Navajo	4	4	4	4	4	4
Nez Perce	3	1	1	4	2	2
Nisqually	3	2	2	4	2	2
Nivkhi	4	4	4	4	4	4
N. Hill Yokut	3	1	1	4	2	2
N. Paiute	2	3	3	4	3	3
N. Pomo	3	2	2	4	2	2
Ojibwa1*	3	2	2	4	2	2
Ojibwa2*	3	2	2	4	2	2
Okanagan	3	2	2	4	2	2
Omaha	3	2	2	4	2	2
Oneida	3	2	2	4	2	2
Osage	3	2	2	4	2	2
Pawnee	3	2	2	4	2	2
Piegan	3	2	2	4	2	2
Ponca	3	2	2	4	2	2
Potawatomi	3	2	2	4	2	2
Pueblo	3	2	2	4	2	2
Puyallup	3	2	2	4	2	2
Queets	3	2	2	4	2	2
Quillayute	3	2	2	4	2	2
Quinault	3	2	2	4	2	2
Reindeer Chukchi	4	4	4	2	4	4
Reindeer Even	4	4	4	4	4	4
Reindeer Koryak	4	4	4	0	4	4
San Luis Rey	2	3	3	4	3	3
Sarcee	4	4	4	4	4	4
Sauk	3	2	2	4	2	2
Seneca	3	2	2	4	2	2
Serrano	2	3	3	4	2	3
Shawnee	3	2	2	4	2	2
Shoshone	2	3	3	4	3	3
Shuswap	3	2	2	4	2	2
Sioux(Santee)	3	2	2	4	2	2
Sioux(Teton)	3	2	2	4	2	2
Sioux(Yankton)	3	2	2	4	2	2

Matrix 1F. cont.

	Kiowa	Klamath	Klickitat	Koryak	Kutenai	Kwakiutl
S. Miwok	3	1	1	4	2	2
Stalo	3	2	2	4	2	2
Stockbridge	3	2	2	4	2	2
Tahltan	4	4	4	4	4	4
Taos	1	3	3	4	3	3
Tenino	3	1	1	4	2	2
Thompson	3	2	2	4	2	2
Tonkawa	3	2	2	4	2	2
Tsimshian	3	1	1	4	2	2
Tundra Evenk	4	4	4	4	4	4
Tuscarora	3	2	2	4	2	2
Tututni	4	4	4	4	4	4
Umatilla	3	1	1	4	2	2
Ute	2	3	3	4	3	3
Wasco	3	1	1	4	2	2
Washo	3	2	2	4	2	2
W. Mono	2	3	3	4	3	3
Winnebago	3	2	2	4	2	2
Yakut	4	4	4	4	4	4
Yokuts	3	1	1	4	2	2
Yukaghir	4	4	4	4	4	4
Yuki	3	1	1	4	2	2
Yurok	3	2	2	4	2	2
Zuni	3	1	1	4	2	2

Matrix 1F. cont.

	Lillooet	Makah	Malecite	Maritime Chukchi	Menomini
Achomawi	2	2	2	4	2
Aqua Caliente	3	3	3	4	3
Aiwan	4	4	4	4	4
Aleut	4	4	4	4	4
Apache	4	4	4	4	4
Arapaho	2	2	1	4	1
Assiniboin	2	2	2	4	2
Atsugewi	2	2	2	4	2
Bannock	3	3	3	4	3
Bella Coola	1	2	2	4	2
Big Meadow	2	2	2	4	2
Blood	2	2	1	4	1
Caddo	2	2	2	4	2
Carrier	4	4	4	4	4
Catawba	2	2	2	4	2
Cherokee	2	2	2	4	2
Cheyenne	2	2	1	4	1
Chickasaw	2	2	2	4	2
Chilcotin	4	4	4	4	4
Chippewa(MN)	2	2	1	4	1
Chippewa(WI)	2	2	1	4	1
Choctaw	2	2	2	4	2
Chuvantsy	4	4	4	4	4
Clallum	1	2	2	4	2
C. Miwok	2	2	2	4	2
Coahuilla	3	3	3	4	3
Coeur d'Alene	1	2	2	4	2
Comanche	3	3	3	4	3
Concow	2	2	2	4	2
Creek	2	2	2	4	2
Crow	2	2	2	4	2
E. Mono	3	3	3	4	3
Eskimo(EC)	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4
Even	4	4	4	4	4
Evenk	4	4	4	4	4
Flathead	1	2	2	4	2
Haida	4	4	4	4	4
Hoopa	4	4	4	4	4
Itelman1	4	4	4	2	4
Itelman2	4	4	4	2	4
Kalapuya	2	2	2	4	2
Kiowa	3	3	3	4	3
Klamath	2	2	2	4	2
Klickitat**	2	2	2	4	2
Koryak	4	4	4	1	4
Kutenai	2	2	2	4	2
Kwakiutl	2	1	2	4	2
Lillooet	0	2	2	4	2

Matrix 1F. cont.

	Lillooet	Makah	Malecite	Maritime Chukchi	Menomini
Makah	2	0	2	4	2
Malecite	2	2	0	4	1
Maritime Chukchi	4	4	4	0	4
Menomini	2	2	1	4	0
Micmac	2	2	1	4	1
Mississagua	2	2	1	4	1
Modoc	2	2	2	4	2
Mohawk	2	2	2	4	2
Montagnais	2	2	1	4	1
Munsee	2	2	1	4	1
Nanaimo	1	2	2	4	2
Navajo	4	4	4	4	4
Nez Perce	2	2	2	4	2
Nisqually	1	2	2	4	2
Nivkhi	4	4	4	4	4
N. Hill Yokut	2	2	2	4	2
N. Paiute	3	3	3	4	3
N. Pomo	2	2	2	4	2
Ojibwa1*	2	2	1	4	1
Ojibwa2*	2	2	1	4	1
Okanagan	1	2	2	4	2
Omaha	2	2	2	4	2
Oneida	2	2	2	4	2
Osage	2	2	2	4	2
Pawnee	2	2	2	4	2
Piegan	2	2	1	4	1
Ponca	2	2	2	4	2
Potawatomi	2	2	2	4	1
Pueblo	2	2	2	4	2
Puyallup	1	2	2	4	2
Queets	1	2	2	4	2
Quillayute	2	2	2	4	2
Quinault	1	1	2	4	2
Reindeer Chukchi	4	4	4	0	4
Reindeer Even	4	4	4	4	4
Reindeer Koryak	4	4	4	2	4
San Luis Rey	3	3	3	4	3
Sarcee	4	4	4	4	4
Sauk	2	2	1	4	1
Seneca	2	2	2	4	2
Serrano	2	3	3	4	3
Shawnee	2	2	1	4	1
Shoshone	3	3	3	4	3
Shuswap	1	2	2	4	2
Sioux(Santee)	2	2	2	4	2
Sioux(Teton)	2	2	2	4	2
Sioux(Yankton)	2	2	2	4	2

Matrix 1F. cont.

	Lillooet	Makah	Malecite	Maritime Chukchi	Menomini
S. Miwok	2	2	2	4	2
Stalo	1	2	2	4	2
Stockbridge	2	2	1	4	1
Tahltan	4	4	4	4	4
Taos	3	3	3	4	3
Tenino	2	2	2	4	2
Thompson	1	2	2	4	2
Tonkawa	2	2	2	4	2
Tsimshian	2	2	2	4	2
Tundra Evenk	4	4	4	4	4
Tuscarora	2	2	2	4	2
Tututni	4	4	4	4	4
Umatilla	2	2	2	4	2
Ute	3	3	3	4	3
Wasco	2	2	2	4	2
Washo	2	2	2	4	2
W. Mono	3	3	3	4	3
Winnebago	2	2	2	4	2
Yakut	4	4	4	4	4
Yokuts	2	2	2	4	2
Yukaghir	4	4	4	4	4
Yuki	2	2	2	4	2
Yurok	2	2	2	4	2
Zuni	2	2	2	4	2

Matrix 1F. cont.

	Micmac	Mississaqua	Modoc	Mohawk	Montagnais
Achomawi	2	2	2	2	2
Agua Caliente	3	3	3	3	3
Aiwan	4	4	4	4	4
Aleut	4	4	4	4	4
Apache	4	4	4	4	4
Arapaho	1	1	2	2	1
Assiniboin	2	2	2	2	2
Atsugewi	2	2	2	2	2
Bannock	3	3	3	3	3
Bella Coola	2	2	2	2	2
Big Meadow	2	2	1	2	2
Blood	1	1	2	2	1
Caddo	2	2	2	2	2
Carrier	4	4	4	4	4
Catawba	2	2	2	2	2
Cherokee	2	2	2	1	2
Cheyenne	1	1	2	2	1
Chickasaw	2	2	1	2	2
Chilcotin	4	4	4	4	4
Chippewa(MN)	1	0	2	2	1
Chippewa(WI)	1	0	2	2	1
Choctaw	2	2	1	2	2
Chuvantsy	4	4	4	4	4
Clallum	2	2	2	2	2
C. Miwok	2	2	1	2	2
Coahuilla	3	3	3	3	3
Coeur d'Alene	2	2	2	2	2
Commanche	3	3	3	3	3
Concow	2	2	1	2	2
Creek	2	2	1	2	2
Crow	2	2	2	2	2
E. Mono	3	3	3	3	3
Eskimo(EC)	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4
Even	4	4	4	4	4
Evenk	4	4	4	4	4
Flathead	2	2	2	2	2
Haida	4	4	4	4	4
Hoopa	4	4	4	4	4
Itelman1	4	4	4	4	4
Itelman2	4	4	4	4	4
Kalapuya	2	2	1	2	2
Kiowa	3	3	3	3	3
Klamath	2	2	0	2	2
Klickitat**	2	2	1	2	2
Koryak	4	4	4	4	4
Kutenai	2	2	2	2	2
Kwakiutl	2	2	2	2	2
Lillooet	2	2	2	2	2

Matrix 1F. cont.

	Micmac	Mississaqua	Modoc	Mohawk	Montagnais
Makah	2	2	2	2	2
Malecite	1	1	2	2	1
Maritime Chukchi	4	4	4	4	4
Menomini	1	1	2	2	1
Micmac	0	1	2	2	1
Mississagua	1	0	2	2	1
Modoc	2	2	0	2	2
Mohawk	2	2	2	0	2
Montagnais	1	1	2	2	0
Munsee	1	1	2	2	1
Nanaimo	2	2	2	2	2
Navajo	4	4	4	4	4
Nez Perce	2	2	1	2	2
Nisqually	2	2	2	2	2
Nivkhi	4	4	4	4	4
N. Hill Yokut	2	2	1	2	2
N. Paiute	3	3	3	3	3
N. Pomo	2	2	2	2	2
Ojibwa1*	1	0	2	2	1
Ojibwa2*	1	0	2	2	1
Okanagan	2	2	2	2	2
Omaha	2	2	2	2	2
Oneida	2	2	2	1	2
Osage	2	2	2	2	2
Pawnee	2	2	2	2	2
Piegan	1	1	2	2	1
Ponca	2	2	2	2	2
Potawatomi	1	1	2	2	1
Pueblo	2	2	2	2	2
Puyallup	2	2	2	2	2
Queets	2	2	2	2	2
Quillayute	2	2	2	2	2
Quinault	2	2	2	2	2
Reindeer Chukchi	4	4	4	4	4
Reindeer Even	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4
San Luis Rey	3	3	3	3	3
Sarcee	4	4	4	4	4
Sauk	1	1	2	2	1
Seneca	2	2	2	1	2
Serrano	3	3	3	3	3
Shawnee	1	1	2	2	1
Shoshone	3	3	3	3	3
Shushwap	2	2	2	2	2
Sioux(Santee)	2	2	2	2	2
Sioux(Teton)	2	2	2	2	2
Sioux(Yankton)	2	2	2	2	2
S. Miwok	2	2	1	2	2
Stalo	2	2	2	2	2

Matrix 1F. cont.

	Micmac	Mississaqua	Modoc	Mohawk	Montagnais
Stockbridge	1	1	2	2	1
Tahltan	4	4	4	4	4
Taos	3	3	3	3	3
Tenino	2	2	1	2	2
Thompson	2	2	2	2	2
Tonkawa	2	2	2	2	2
Tsimshian	2	2	1	2	2
Tundra Evenk	4	4	4	4	4
Tuscarora	2	2	2	1	2
Tututni	4	4	4	4	4
Umatilla	2	2	1	2	2
Ute	3	3	3	3	3
Wasco	2	2	1	2	2
Washo	2	2	2	2	2
W. Mono	3	3	3	3	3
Winnebago	2	2	2	2	2
Yakut	4	4	4	4	4
Yokuts	2	2	1	2	2
Yukaghir	4	4	4	4	4
Yuki	2	2	1	2	2
Yurok	2	2	2	2	2
Zuni	2	2	1	2	2

Matrix 1F. cont.

	Munsee	Nanaimo	Navajo	Nez Perce	Nisqually	Nivkhi
Achomawi	2	2	4	2	2	4
Agua Caliente	3	3	4	3	3	4
Aiwan	4	4	4	4	4	4
Aleut	4	4	4	4	4	4
Apache	4	4	1	4	4	4
Arapaho	1	2	4	2	2	4
Assiniboin	2	2	4	2	2	4
Atsugewi	2	2	4	2	2	4
Bannock	3	3	4	3	3	4
Bella Coola	2	1	4	2	1	4
Big Meadow	2	2	4	1	2	4
Blood	1	2	4	2	2	4
Caddo	2	2	4	2	2	4
Carrier	4	4	1	4	4	4
Catawba	2	2	4	2	2	4
Cherokee	2	2	4	2	2	4
Cheyenne	1	2	4	2	2	4
Chickasaw	2	2	4	1	2	4
Chilcotin	4	4	1	4	4	4
Chippewa(MN)	1	2	4	2	2	4
Chippewa(WI)	1	2	4	2	2	4
Choctaw	2	2	4	1	2	4
Chuvantsy	4	4	4	4	4	4
Clallum	2	1	4	2	1	4
C. Miwok	2	2	4	1	2	4
Coahuilla	3	3	4	3	3	4
Coeur d'Alene	2	1	4	2	1	4
Comanche	3	3	4	3	3	4
Concow	2	2	4	1	2	4
Creek	2	2	4	1	2	4
Crow	2	2	4	2	2	4
E. Mono	3	3	4	3	3	4
Eskimo(EC)	4	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4	4
Even	4	4	4	4	4	4
Evenk	4	4	4	4	4	4
Flathead	2	1	4	2	1	4
Haida	4	4	3	4	4	4
Hoopa	4	4	4	4	4	4
Itelman1	4	4	4	4	4	4
Itelman2	4	4	4	4	4	4
Kalapuya	2	2	4	1	2	4
Kiowa	3	3	4	3	3	4
Klamath	2	2	4	1	2	4
Klickitat**	2	2	4	1	2	4
Koryak	4	4	4	4	4	4
Kutenai	2	2	4	2	2	4
Kwakiutl	2	2	4	2	2	4
Lillooet	2	1	4	2	1	4

Matrix 1F. cont.

	Munsee	Nanaimo	Navajo	Nez Perce	Nisqually	Nivkhi
Makah	2	2	4	2	2	4
Malecite	1	2	4	2	2	4
Maritime Chukchi	4	4	4	4	4	4
Menomini	1	2	4	2	2	4
Micmac	1	2	4	2	2	4
Mississagua	1	2	4	2	2	4
Modoc	2	2	4	1	2	4
Mohawk	2	2	4	2	2	4
Montagnais	1	2	4	2	2	4
Munsee	0	2	4	2	2	4
Nanaimo	2	0	4	2	1	4
Navajo	4	4	0	4	4	4
Nez Perce	2	2	4	0	2	4
Nisqually	2	1	4	2	0	4
Nivkhi	4	4	4	4	4	0
N. Hill Yokut	2	2	4	1	2	4
N. Paiute	3	3	4	3	3	4
N. Pomo	2	2	4	2	2	4
Ojibwa1*	1	2	4	2	2	4
Ojibwa2*	1	2	4	2	2	4
Okanagan	2	1	4	2	1	4
Omaha	2	2	4	2	2	4
Oneida	2	2	4	2	2	4
Osage	2	2	4	2	2	4
Pawnee	2	2	4	2	2	4
Piegan	1	2	4	2	2	4
Ponca	2	2	4	2	2	4
Potawatomi	1	2	4	2	2	4
Pueblo	2	2	4	2	2	4
Puyallup	2	1	4	2	0	4
Queets	2	1	4	2	1	4
Quillayute	2	2	4	2	2	4
Quinault	2	1	4	2	1	4
Reindeer Chukchi	4	4	4	4	4	4
Reindeer Even	4	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4	4
San Luis Rey	3	3	4	3	3	4
Sarcee	4	4	1	4	4	4
Sauk	1	2	4	2	2	4
Seneca	2	2	4	2	2	4
Serrano	3	3	4	3	3	4
Shawnee	1	2	4	2	2	4
Shoshone	3	3	4	3	3	4
Shuswap	2	1	4	2	1	4
Sioux(Santee)	2	2	4	2	2	4
Sioux(Teton)	2	2	4	2	2	4
Sioux(Yankton)	2	2	4	2	2	4
S. Miwok	2	2	4	1	2	4
Stalo	2	1	4	2	1	4

Matrix 1F. cont.

	Munsee	Nanaimo	Navajo	Nez Perce	Nisqually	Nivkhi
Stockbridge	1	2	4	2	2	4
Tahltan	4	4	1	4	4	4
Taos	3	3	4	3	3	4
Tenino	2	2	4	1	2	4
Thompson	2	1	4	2	1	4
Tonkawa	2	2	4	2	2	4
Tsimshian	2	2	4	1	2	4
Tundra Evenk	4	4	4	4	4	4
Tuscarora	2	2	4	2	2	4
Tututni	4	4	1	4	4	4
Umatilla	2	2	4	1	2	4
Ute	3	3	4	3	3	4
Wasco	2	2	4	1	2	4
Washo	2	2	4	2	2	4
W. Mono	3	3	4	3	3	4
Winnebago	2	2	4	2	2	4
Yakut	4	4	4	4	4	4
Yokuts	2	2	4	1	2	4
Yukaghir	4	4	4	4	4	4
Yuki	2	2	4	1	2	4
Yurok	2	2	4	2	2	4
Zuni	2	2	4	1	2	4

Matrix 1F. cont.

	N. Hill Yokut	N. Paiute	N. Pomo	Ojibwa1*	Ojibwa2*
Achomawi	2	3	1	2	2
Agua Caliente	3	1	3	3	3
Aiwan	4	4	4	4	4
Aleut	4	4	4	4	4
Apache	4	4	4	4	4
Arapaho	2	3	2	1	1
Assiniboin	2	3	2	2	2
Atsugewi	2	3	1	2	2
Bannock	3	0	3	3	3
Bella Coola	2	3	2	2	2
Big Meadow	1	3	2	2	2
Blood	2	3	2	1	1
Caddo	2	3	2	2	2
Carrier	4	4	4	4	4
Catawba	2	3	2	2	2
Cherokee	2	3	2	2	2
Cheyenne	2	3	2	1	1
Chickasaw	1	3	2	2	2
Chilcotin	4	4	4	4	4
Chippewa(MN)	2	3	2	0	0
Chippewa(WI)	2	3	2	0	0
Choctaw	1	3	2	2	2
Chuvantsy	4	4	4	4	4
Clallum	2	3	2	2	2
C. Miwok	1	3	2	2	2
Coahuilla	3	1	3	3	3
Coeur d'Alene	2	3	2	2	2
Comanche	3	1	3	3	3
Concow	1	3	2	2	2
Creek	1	3	2	2	2
Crow	2	3	2	2	2
E. Mono	3	1	3	3	3
Eskimo(EC)	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4
Even	4	4	4	4	4
Evenk	4	4	4	4	4
Flathead	2	3	2	2	2
Haida	4	4	4	4	4
Hoopa	4	4	4	4	4
Itelman1	4	4	4	4	4
Itelman2	4	4	4	4	4
Kalapuya	1	3	2	2	2
Kiowa	3	2	3	3	3
Klamath	1	3	2	2	2
Klickitat**	1	3	2	2	2
Koryak	4	4	4	4	4
Kutenai	2	3	2	2	2
Kwakiutl	2	3	2	2	2
Lillooet	2	3	2	2	2

Matrix 1F. cont.

	N. Hill Yokut	N. Paiute	N. Pomo	Ojibwa1*	Ojibwa2*
Makah	2	3	2	2	2
Malecite	2	3	2	1	1
Maritime Chukchi	4	4	4	4	4
Menomini	2	3	2	1	1
Micmac	2	3	2	1	1
Mississagua	2	3	2	0	0
Modoc	1	3	2	2	2
Mohawk	2	3	2	2	2
Montagnais	2	3	2	1	1
Munsee	2	3	2	1	1
Nanaimo	2	3	2	2	2
Navajo	4	4	4	4	4
Nez Perce	1	3	2	2	2
Nisqually	2	3	2	2	2
Nivkhi	4	4	4	4	4
N. Hill Yokut	0	3	2	2	2
N. Paiute	3	0	3	3	3
N. Pomo	2	3	0	2	2
Ojibwa1*	2	3	2	0	0
Ojibwa2*	2	3	2	0	0
Okanagan	2	3	2	2	2
Omaha	2	3	2	2	2
Oneida	2	3	2	2	2
Osage	2	3	2	2	2
Pawnee	2	3	2	2	2
Piegan	2	3	2	1	1
Ponca	2	3	2	2	2
Potawatomi	2	3	2	1	1
Pueblo	2	3	2	2	2
Puyallup	2	3	2	2	2
Queets	2	3	2	2	2
Quillayute	2	3	2	2	2
Quinault	2	3	2	2	2
Reindeer Chukchi	4	4	4	4	4
Reindeer Even	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4
San Luis Rey	3	1	3	3	3
Sarcee	4	4	4	4	4
Sauk	2	3	2	1	1
Seneca	2	3	2	2	2
Serrano	3	1	3	3	3
Shawnee	2	3	2	1	1
Shoshone	3	1	3	3	3
Shuswap	2	3	2	2	2
Sioux(Santee)	2	3	2	2	2
Sioux(Teton)	2	3	2	2	2
Sioux(Yankton)	2	3	2	2	2
S. Miwok	1	3	2	2	2
Stalo	2	3	2	2	2

Matrix 1F. cont.

	N. Hill Yokut	N. Paiute	N. Pomo	Ojibwa1*	Ojibwa2*
Stockbridge	2	3	2	1	1
Tahltan	4	4	4	4	4
Taos	3	2	3	3	3
Tenino	1	3	2	2	2
Thompson	2	3	2	2	2
Tonkawa	2	3	1	2	2
Tsimshian	1	3	2	2	2
Tundra Evenk	4	4	4	4	4
Tuscarora	2	3	2	2	2
Tututni	4	4	4	4	4
Umatilla	1	3	2	2	2
Ute	3	1	3	3	3
Wasco	1	3	2	2	2
Washo	2	3	1	2	2
W. Mono	3	1	3	3	3
Winnebago	2	3	2	2	2
Yakut	4	4	4	4	4
Yokuts	0	3	2	2	2
Yukaghir	4	4	4	4	4
Yuki	1	3	2	2	2
Yurok	2	3	2	2	2
Zuni	1	3	2	2	2

Matrix 1F. cont.

	Okanagan	Omaha	Oneida	Osage	Pawnee	Piegan
Achomawi	2	2	2	2	2	2
Agua Caliente	3	3	3	3	3	3
Aiwan	4	4	4	4	4	4
Aleut	4	4	4	4	4	4
Apache	4	4	4	4	4	4
Arapaho	2	2	2	2	2	1
Assiniboin	2	1	2	1	2	2
Atsugewi	2	2	2	2	2	2
Bannock	3	3	3	3	3	3
Bella Coola	1	2	2	2	2	2
Big Meadow	2	2	2	2	2	2
Blood	2	2	2	2	2	0
Caddo	2	2	2	2	1	2
Carrier	4	4	4	4	4	4
Catawba	2	1	2	1	2	2
Cherokee	2	2	1	2	2	2
Cheyenne	2	2	2	2	2	1
Chickasaw	2	2	2	2	2	2
Chilcotin	4	4	4	4	4	4
Chippewa(MN)	2	2	2	2	2	1
Chippewa(WI)	2	2	2	2	2	1
Choctaw	2	2	2	2	2	2
Chuvantsy	4	4	4	4	4	4
Clallum	1	2	2	2	2	2
C. Miwok	2	2	2	2	2	2
Coahuilla	3	3	3	3	3	3
Coeur d'Alene	1	2	2	2	2	2
Comanche	3	3	3	3	3	3
Concow	2	2	2	2	2	2
Creek	2	2	2	2	2	2
Crow	2	1	2	1	2	2
E. Mono	3	3	3	3	3	3
Eskimo(EC)	4	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4	4
Even	4	4	4	4	4	4
Evenk	4	4	4	4	4	4
Flathead	1	2	2	2	2	2
Haida	4	4	4	4	4	4
Hoopa	4	4	4	4	4	4
Itelman1	4	4	4	4	4	4
Itelman2	4	4	4	4	4	4
Kalapuya	2	2	2	2	2	2
Kiowa	3	3	3	3	3	3
Klamath	2	2	2	2	2	2
Klickitat**	2	2	2	2	2	2
Koryak	4	4	4	4	4	4
Kutenai	2	2	2	2	2	2
Kwakiutl	2	2	2	2	2	2
Lillooet	1	2	2	2	2	2

Matrix 1F. cont.

	Okanagan	Omaha	Oneida	Osage	Pawnee	Piegan
Makah	2	2	2	2	2	2
Malecite	2	2	2	2	2	1
Maritime Chukchi	4	4	4	4	4	4
Menomini	2	2	2	2	2	1
Micmac	2	2	2	2	2	1
Mississagua	2	2	2	2	2	1
Modoc	2	2	2	2	2	2
Mohawk	2	2	1	2	2	2
Montagnais	2	2	2	2	2	1
Munsee	2	2	2	2	2	1
Nanaimo	1	2	2	2	2	2
Navajo	4	4	4	4	4	4
Nez Perce	2	2	2	2	2	2
Nisqually	1	2	2	2	2	2
Nivkhi	4	4	4	4	4	4
N. Hill Yokut	2	2	2	2	2	2
N. Paiute	3	3	3	3	3	3
N. Pomo	2	2	2	2	2	2
Ojibwa1*	2	2	2	2	2	1
Ojibwa2*	2	2	2	2	2	1
Okanagan	0	2	2	2	2	2
Omaha	2	0	2	1	2	2
Oneida	2	2	0	2	2	2
Osage	2	1	2	0	2	2
Pawnee	2	2	2	2	0	2
Piegan	2	2	2	2	2	0
Ponca	2	0	2	1	2	2
Potawatomi	2	2	2	2	2	1
Pueblo	2	2	2	2	2	2
Puyallup	1	2	2	2	2	2
Queets	1	2	2	2	2	2
Quillayute	2	2	2	2	2	2
Quinault	1	2	2	2	2	2
Reindeer Chuckchi	4	4	4	4	4	4
Reindeer Even	4	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4	4
San Luis Rey	3	3	3	3	3	3
Sarcee	4	4	4	4	4	4
Sauk	2	2	2	2	2	1
Seneca	2	2	1	2	2	2
Serrano	3	3	3	3	3	3
Shawnee	2	2	2	2	2	1
Shoshone	3	3	3	3	3	3
Shuswap	1	2	2	2	2	2
Sioux(Santee)	2	1	2	1	2	2
Sioux(Teton)	2	1	2	1	2	2
Sioux(Yankton)	2	1	2	1	2	2

Matrix 1F. cont.

	Okanagan	Omaha	Oneida	Osage	Pawnee	Piegan
S. Miwok	2	2	2	2	2	2
Stalo	2	2	2	2	2	2
Stockbridge	2	2	2	2	2	1
Tahltan	4	4	4	4	4	4
Taos	3	3	3	3	3	3
Tenino	2	2	2	2	2	2
Thompson	1	2	2	2	2	2
Tonkawa	2	2	2	2	2	2
Tsimshian	2	2	2	2	2	2
Tundra Evenk	4	4	4	4	4	4
Tuscarora	2	2	1	2	2	2
Tututni	4	4	4	4	4	4
Umatilla	2	2	2	2	2	2
Ute	3	3	3	3	3	3
Wasco	2	2	2	2	2	2
Washo	2	2	2	2	2	2
W. Mono	3	3	3	3	3	3
Winnebago	2	1	2	1	2	2
Yakut	4	4	4	4	4	4
Yokuts	2	2	2	2	2	2
Yukaghir	4	4	4	4	4	4
Yuki	2	2	2	2	2	2
Yurok	2	2	2	2	2	2
Zuni	2	2	2	2	2	2

Matrix 1F. cont.

	Ponca	Potawatomi	Pueblo	Puyallup	Queets	Quillayute
Achomawi	2	2	2	2	2	2
Agua Caliente	3	3	3	3	3	3
Aiwan	4	4	4	4	4	4
Aleut	4	4	4	4	4	4
Apache	4	4	4	4	4	4
Arapaho	2	1	2	2	2	2
Assiniboin	1	2	2	2	2	2
Atsugewi	2	2	2	2	2	2
Bannock	3	3	3	3	3	3
Bella Coola	2	2	2	1	1	2
Big Meadow	2	2	2	2	2	2
Blood	2	1	2	2	2	2
Caddo	2	2	2	2	2	2
Carrier	4	4	4	4	4	4
Catawba	1	2	2	2	2	2
Cherokee	2	2	2	2	2	2
Cheyenne	2	1	2	2	2	2
Chickasaw	2	2	2	2	2	2
Chilcotin	4	4	4	4	4	4
Chippewa(MN)	2	1	2	2	2	2
Chippewa(WI)	2	1	2	2	2	2
Choctaw	2	2	2	2	2	2
Chuvantsy	4	4	4	4	4	4
Clallum	2	2	2	1	1	2
C. Miwok	2	2	2	2	2	2
Coahuilla	3	3	3	3	3	3
Coeur d'Alene	2	2	2	1	1	2
Comanche	3	3	3	3	3	3
Concow	2	2	2	2	2	2
Creek	2	2	2	2	2	2
Crow	1	2	2	2	2	2
E. Mono	3	3	3	3	3	3
Eskimo(EC)	4	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4	4
Even	4	4	4	4	4	4
Evenk	4	4	4	4	4	4
Flathead	2	2	2	1	1	2
Haida	4	4	4	4	4	4
Hoopa	4	4	4	4	4	4
Itelman1	4	4	4	4	4	4
Itelman2	4	4	4	4	4	4
Kalapuya	2	2	2	2	2	2
Kiowa	3	3	3	3	3	3
Klamath	2	2	2	2	2	2
Klickitat**	2	2	2	2	2	2
Koryak	4	4	4	4	4	4
Kutenai	2	2	2	2	2	2
Kwakiutl	2	2	2	2	2	2
Lillooet	2	2	2	1	1	2

Matrix 1F. cont.

	Ponca	Potawatomi	Pueblo	Puyallup	Queets	Quillayute
Makah	2	2	2	2	2	2
Malecite	2	1	2	2	2	2
Maritime Chukchi	4	4	4	4	4	4
Menomini	2	1	2	2	2	2
Micmac	2	1	2	2	2	2
Mississaqua	2	1	2	2	2	2
Modoc	2	2	2	2	2	2
Mohawk	2	2	2	2	2	2
Montagnais	2	1	2	2	2	2
Munsee	2	1	2	2	2	2
Nanaimo	2	2	2	1	1	2
Navajo	4	4	4	4	4	4
Nez Perce	2	2	2	2	2	2
Nisqually	2	2	2	0	1	2
Nivkhi	4	4	4	4	4	4
N. Hill Yokut	2	2	2	2	2	2
N. Paiute	3	3	3	3	3	3
N. Pomo	2	2	2	2	2	2
Ojibwa1*	2	1	2	2	2	2
Ojibwa2*	2	1	2	2	2	2
Okanagan	2	2	2	1	1	2
Omaha	0	2	2	2	2	2
Oneida	2	2	2	2	2	2
Osage	1	2	2	2	2	2
Pawnee	2	2	2	2	2	2
Piegan	2	1	2	2	2	2
Ponca	0	2	2	2	2	2
Potawatomi	2	0	2	2	2	2
Pueblo	2	2	0	2	2	2
Puyallup	2	2	2	0	1	2
Queets	2	2	2	1	0	2
Quillayute	2	2	2	2	2	0
Quinault	2	2	2	1	0	2
Reindeer Chukchi	4	4	4	4	4	4
Reindeer Even	4	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4	4
San Luis Rey	3	3	3	3	3	3
Sarcee	4	4	4	4	4	4
Sauk	2	1	2	2	2	2
Seneca	2	2	2	2	2	2
Serrano	3	3	3	3	3	3
Shawnee	2	1	2	2	2	2
Shoshone	3	3	3	3	3	3
Shuswap	2	2	2	1	1	2
Sioux(Santee)	1	2	2	2	2	2
Sioux(Teton)	1	2	2	2	2	2
Sioux(Yankton)	1	2	2	2	2	2

Matrix 1F. cont.

	Ponca	Potawatomi	Pueblo	Puyallup	Queets	Quillayute
S. Miwok	2	2	2	2	2	2
Stalo	2	2	2	1	1	2
Stockbridge	2	1	2	2	2	2
Tahltan	4	4	4	4	4	4
Taos	3	3	3	3	3	3
Tenino	2	2	2	2	2	2
Thompson	2	2	2	1	1	2
Tonkawa	2	2	2	2	2	2
Tsimshian	2	2	2	2	2	2
Tundra Evenk	4	4	4	4	4	4
Tuscarora	2	2	2	2	2	2
Tututni	4	4	4	4	4	4
Umatilla	2	2	2	2	2	2
Ute	3	3	3	3	3	3
Wasco	2	2	2	2	2	2
Washo	2	2	2	2	2	2
W. Mono	3	3	3	3	3	3
Winnebago	1	2	2	2	2	2
Yakut	4	4	4	4	4	4
Yokuts	2	2	2	2	2	2
Yukaghir	4	4	4	4	4	4
Yuki	2	2	2	2	2	2
Yurok	2	2	2	2	2	2
Zuni	2	2	2	2	2	2

Matrix 1F. cont.

	Quinault	Reindeer Chukchi	Reindeer Even	Reindeer Koryak	San Luis Rey
Achomawi	2	4	4	4	3
Agua Caliente	3	4	4	4	1
Aiwan	4	4	4	4	4
Aleut	4	4	4	4	4
Apache	4	4	4	4	4
Arapaho	2	4	4	4	3
Assiniboin	2	4	4	4	3
Atsugewi	2	4	4	4	3
Bannock	3	4	4	4	1
Bella Coola	1	4	4	4	3
Big Meadow	2	4	4	4	3
Blood	2	4	4	4	3
Caddo	2	4	4	4	3
Carrier	4	4	4	4	4
Catawba	2	4	4	4	3
Cherokee	2	4	4	4	3
Cheyenne	2	4	4	4	3
Chickasaw	2	4	4	4	3
Chilcotin	4	4	4	4	4
Chippewa(MN)	2	4	4	4	3
Chippewa(WI)	2	4	4	4	2
Choctaw	2	4	4	4	3
Chuvantsy	4	4	4	4	4
Clallum	1	4	4	4	3
C. Miwok	2	4	4	4	3
Coahuilla	3	4	4	4	1
Coeur d'Alene	1	4	4	4	3
Comanche	3	4	4	4	1
Concow	2	4	4	4	3
Creek	2	4	4	4	3
Crow	2	4	4	4	3
E. Mono	3	4	4	4	1
Eskimo(EC)	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4
Even	4	4	0	4	4
Evenk	4	4	1	4	4
Flathead	1	4	4	4	3
Haida	4	4	4	4	4
Hoopa	4	4	4	4	4
Itelman1	4	3	4	3	4
Itelman2	4	3	4	3	4
Kalapuya	2	4	4	4	3
Kiowa	3	4	4	4	2
Klamath	2	4	4	4	3
Klickitat**	2	4	4	4	3
Koryak	4	2	4	0	4
Kutenai	2	4	4	4	3
Kwakiutl	2	4	4	4	3

Matrix 1F. cont.

	Quinault	Reindeer Chukchi	Reindeer Even	Reindeer Koryak	San Luis Rey
Lillooet	1	4	4	4	3
Makah	2	4	4	4	3
Malecite	2	4	4	4	3
Maritime Chukchi	4	0	4	1	4
Menomini	2	4	4	4	3
Micmac	2	4	4	4	3
Mississagua	2	4	4	4	3
Modoc	2	4	4	4	3
Mohawk	2	4	4	4	3
Montagnais	2	4	4	4	3
Munsee	2	4	4	4	3
Nanaimo	1	4	4	4	3
Navajo	4	4	4	4	4
Nez Perce	2	4	4	4	3
Nisqually	1	4	4	4	3
Nivkhi	4	4	4	4	4
N. Hill Yokut	2	4	4	4	3
N. Paiute	3	4	4	4	1
N. Pomo	2	4	4	4	3
Ojibwa1*	2	4	4	4	3
Ojibwa2*	2	4	4	4	3
Okanagan	1	4	4	4	3
Omaha	2	4	4	4	3
Oneida	2	4	4	4	3
Osage	2	4	4	4	3
Pawnee	2	4	4	4	3
Piegan	2	4	4	4	3
Ponca	2	4	4	4	3
Potawatomi	2	4	4	4	3
Pueblo	2	4	4	4	3
Puyallup	1	4	4	4	3
Queets	0	4	4	4	3
Quillayute	2	4	4	4	3
Quinault	0	4	4	4	3
Reindeer Chuckchi	4	0	4	2	4
Reindeer Even	4	4	0	4	4
Reindeer Koryak	4	2	4	0	4
San Luis Rey	3	4	4	4	0
Sarcee	4	4	4	4	4
Sauk	2	4	4	4	3
Seneca	2	4	4	4	3
Serrano	3	4	4	4	1
Shawnee	2	4	4	4	3
Shoshone	3	4	4	4	1
Shuswap	1	4	4	4	3
Sioux(Santee)	2	4	4	4	3

Matrix 1F. cont.

	Quinault	Reindeer Chukchi	Reindeer Even	Reindeer Koryak	San Luis Rey
Sioux(Teton)	2	4	4	4	3
Sioux(Yankton)	2	4	4	4	3
S. Miwok	2	4	4	4	3
Stalo	1	4	4	4	3
Stockbridge	2	4	4	4	3
Tahltan	4	4	4	4	4
Taos	3	4	4	4	2
Tenino	2	4	4	4	3
Thompson	1	4	4	4	3
Tonkawa	2	4	4	4	3
Tsimshian	2	4	4	4	3
Tundra Evenk	4	4	1	4	4
Tuscarora	2	4	4	4	3
Tututni	4	4	4	4	4
Umatilla	2	4	4	4	3
Ute	3	4	4	4	1
Wasco	2	4	4	4	3
Washo	2	4	4	4	3
W. Mono	3	4	4	4	1
Winnebago	2	4	4	4	3
Yakut	4	4	2	4	4
Yokuts	2	4	4	4	3
Yukaghir	4	4	4	4	4
Yuki	2	4	4	4	3
Yurok	2	4	4	4	3
Zuni	2	4	4	4	3

Matrix 1F. cont.

	Sarcee	Sauk	Seneca	Serrano	Shawnee	Shoshone
Achomawi	4	2	2	3	2	3
Agua Caliente	4	3	3	1	3	1
Aiwan	4	4	4	4	4	4
Aleut	4	4	4	4	4	4
Apache	1	4	4	4	4	4
Arapaho	4	1	2	3	1	3
Assiniboin	4	2	2	3	2	3
Atsugewi	4	2	2	3	2	3
Bannock	4	3	3	1	3	1
Bella Coola	4	2	2	3	2	3
Big Meadow	4	2	2	3	2	3
Blood	4	1	2	3	1	3
Caddo	4	2	2	3	2	3
Carrier	1	4	4	4	4	4
Catawba	4	2	2	3	2	3
Cherokee	4	2	1	3	2	3
Cheyenne	4	1	2	3	1	3
Chickasaw	4	2	2	3	2	3
Chilcotin	1	4	4	4	4	4
Chippewa(MN)	4	1	2	3	1	3
Chippewa(WI)	4	1	2	3	1	3
Choctaw	4	2	2	3	2	3
Chuvantsy	4	4	4	4	4	4
Clallum	4	2	2	3	2	3
C. Miwok	4	2	2	3	2	3
Coahuilla	4	3	3	1	3	1
Coeur d'Alene	4	2	2	3	2	3
Comanche	4	3	3	1	3	1
Concow	4	2	2	3	2	3
Creek	4	2	2	3	2	3
Crow	4	2	2	3	2	3
E. Mono	4	3	3	1	3	1
Eskimo(EC)	4	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4	4
Even	4	4	4	4	4	4
Evenk	4	4	4	4	4	4
Flathead	4	2	2	3	2	3
Haida	3	4	4	4	4	4
Hoopa	4	4	4	4	4	4
Itelman1	4	4	4	4	4	4
Itelman2	4	4	4	4	4	4
Kalapuya	4	2	2	3	2	3
Kiowa	4	3	3	2	3	2
Klamath	4	2	2	3	2	3
Klickitat**	4	2	2	3	2	3
Koryak	4	4	4	4	4	4
Kutenai	4	2	2	3	2	3
Kwakiutl	4	2	2	3	2	3
Lillooet	4	2	2	3	2	3

Matrix 1F. cont.

	Sarcee	Sauk	Seneca	Serrano	Shawnee	Shoshone
Makah	4	2	2	3	2	3
Malecite	4	1	2	3	1	3
Maritime Chukchi	4	4	4	4	4	4
Menomini	4	1	2	3	1	3
Micmac	4	1	2	3	1	3
Mississagua	4	1	2	3	1	3
Modoc	4	2	2	3	2	3
Mohawk	4	2	1	3	2	3
Montagnais	4	1	2	3	1	3
Munsee	4	1	2	3	1	3
Nanaimo	4	2	2	3	2	3
Navajo	1	4	4	4	4	4
Nez Perce	4	2	2	3	2	3
Nisqually	4	2	2	3	2	3
Nivkhi	4	4	4	4	4	4
N. Hill Yokut	4	2	2	3	2	3
N. Paiute	4	3	3	1	3	1
N. Pomo	4	2	2	3	2	3
Ojibwa1*	4	1	2	3	1	3
Ojibwa2*	4	1	2	3	1	3
Okanagan	4	2	2	3	2	3
Omaha	4	2	2	3	2	3
Oneida	4	2	1	3	2	3
Osage	4	2	2	3	2	3
Pawnee	4	2	2	3	2	3
Piegan	4	1	2	3	1	3
Ponca	4	2	2	3	2	3
Potawatomi	4	1	2	3	1	3
Pueblo	4	2	2	3	2	3
Puyallup	4	2	2	3	2	3
Queets	4	2	2	3	2	3
Quillayute	4	2	2	3	2	3
Quinault	4	2	2	3	2	3
Reindeer Chukchi	4	4	4	4	4	4
Reindeer Even	4	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4	4
San Luis Rey	4	3	3	1	3	1
Sarcee	0	4	4	4	4	4
Sauk	4	0	2	3	1	3
Seneca	4	2	0	3	2	3
Serrano	4	3	3	0	3	1
Shawnee	4	1	2	3	0	3
Shoshone	4	3	3	1	3	0
Shuswap	4	2	2	3	2	3
Sioux(Santee)	4	2	2	3	2	3
Sioux(Teton)	4	2	2	3	2	3
Sioux(Yankton)	4	2	2	3	2	3

Matrix 1F. cont.

	Sarcee	Sauk	Seneca	Serrano	Shawnee	Shoshone
S. Miwok	4	2	2	3	2	3
Stalo	4	2	2	3	2	3
Stockbridge	4	1	2	3	1	3
Tahltan	1	4	4	4	4	4
Taos	4	3	3	2	3	2
Tenino	4	2	2	3	2	3
Thompson	4	2	2	3	2	3
Tonkawa	4	2	2	3	2	3
Tsimshian	4	2	2	3	2	3
Tundra Evenk	4	4	4	4	4	4
Tuscarora	4	2	1	3	2	3
Tututni	1	4	4	4	4	4
Umatilla	4	2	2	3	2	3
Ute	4	3	3	1	3	1
Wasco	4	2	2	3	2	3
Washo	4	2	2	3	2	3
W. Mono	4	3	3	1	3	1
Winnebago	4	2	2	3	2	3
Yakut	4	4	4	4	4	4
Yokuts	4	2	2	3	2	3
Yukaghir	4	4	4	4	4	4
Yuki	4	2	2	3	2	3
Yurok	4	2	2	3	2	3
Zuni	4	2	2	3	2	3

Matrix 1F. cont.

	Shuswap	Sioux(Santee)	Sioux(Teton)	Sioux(Yankton)
Achomawi	2	2	2	2
Agua Caliente	3	3	3	3
Aiwan	4	4	4	4
Aleut	4	4	4	4
Apache	4	4	4	4
Arapaho	2	2	2	2
Assiniboin	2	0	0	0
Atsugewi	2	2	2	2
Bannock	3	3	3	3
Bella Coola	1	2	2	2
Big Meadow	2	2	2	2
Blood	2	2	2	2
Caddo	2	2	2	2
Carrier	4	4	4	4
Catawba	2	1	1	1
Cherokee	2	2	2	2
Cheyenne	2	2	2	2
Chickasaw	2	2	2	2
Chilcotin	4	4	4	4
Chippewa(MN)	2	2	2	2
Chippewa(WI)	2	2	2	2
Choctaw	2	2	2	2
Chuvantsy	4	4	4	4
Clallum	1	2	2	2
C. Miwok	2	2	2	2
Coahuilla	3	3	3	3
Coeur d'Alene	1	2	2	2
Comanche	3	3	3	3
Concow	2	2	2	2
Creek	2	2	2	2
Crow	2	1	1	1
E. Mono	3	3	3	3
Eskimo(EC)	4	4	4	4
Eskimo(WC)	4	4	4	4
Even	4	4	4	4
Evenk	4	4	4	4
Flathead	1	2	2	2
Haida	4	4	4	4
Hoopa	4	4	4	4
Itelman1	4	4	4	4
Itelman2	4	4	4	4
Kalapuya	2	2	2	2
Kiowa	3	3	3	3
Klamath	2	2	2	2
Klickitat**	2	2	2	2
Koryak	4	4	4	4
Kutenai	2	2	2	2
Kwakiutl	2	2	2	2
Lillooet	1	2	2	2

Matrix 1F. cont.

	Shuswap	Sioux(Santee)	Sioux(Teton)	Sioux(Yankton)
Makah	2	2	2	2
Malecite	2	2	2	2
Maritime				
Chukchi	4	4	4	4
Menomini	2	2	2	2
Micmac	2	2	2	2
Mississagua	2	2	2	2
Modoc	2	2	2	2
Mohawk	2	2	2	2
Montagnais	2	2	2	2
Munsee	2	2	2	2
Nanaimo	1	2	2	2
Navajo	4	4	4	4
Nez Perce	2	2	2	2
Nisqually	1	2	2	2
Nivkhi	4	4	4	4
N. Hill Yokut	2	2	2	2
N. Paiute	3	3	3	3
N. Pomo	2	2	2	2
Ojibwa1*	2	2	2	2
Ojibwa2*	2	2	2	2
Okanagan	1	2	2	2
Omaha	2	1	1	1
Oneida	2	2	2	2
Osage	2	1	1	1
Pawnee	2	2	2	2
Piegan	2	2	2	2
Ponca	2	1	1	1
Potawatomi	2	2	2	2
Pueblo	2	2	2	2
Puyallup	1	2	2	2
Queets	1	2	2	2
Quillayute	2	2	2	2
Quinault	1	2	2	2
Reindeer Chukchi	4	4	4	4
Reindeer Even	4	4	4	4
Reindeer Koryak	4	4	4	4
San Luis Rey	3	3	3	3
Sarcee	4	4	4	4
Sauk	2	2	2	2
Seneca	2	2	2	2
Serrano	3	3	3	3
Shawnee	2	2	2	2
Shoshone	3	3	3	3
Shuswap	0	2	2	2
Sioux(Santee)	2	0	0	0
Sioux(Teton)	2	0	0	0
Sioux(Yankton)	2	0	0	0
S. Miwok	2	2	2	2

Matrix 1F. cont.

	Shuswap	Sioux(Santee)	Sioux(Teton)	Sioux(Yankton)
Stalo	1	2	2	2
Stockbridge	2	2	2	2
Tahltan	4	4	4	4
Taos	3	3	3	3
Tenino	2	2	2	2
Thompson	1	2	2	2
Tonkawa	2	2	2	2
Tsimshian	2	2	2	2
Tundra Evenk	4	4	4	4
Tuscarora	2	2	2	2
Tututni	4	4	4	4
Umatilla	2	2	2	2
Ute	3	3	3	3
Wasco	2	2	2	2
Washo	2	2	2	2
W. Mono	3	3	3	3
Winnebago	2	1	1	1
Yakut	4	4	4	4
Yokuts	2	2	2	2
Yukaghir	4	4	4	4
Yuki	2	2	2	2
Yurok	2	2	2	2
Zuni	2	2	2	2

Matrix 1F. cont.

	S. Miwok	Stalo	Stockbridge	Tahltan	Taos	Tenino
Achomawi	2	2	2	4	3	2
Agua Caliente	3	3	3	4	2	3
Aiwan	4	4	4	4	4	4
Aleut	4	4	4	4	4	4
Apache	4	4	4	1	4	4
Arapaho	2	2	1	4	3	2
Assiniboin	2	2	2	4	3	2
Atsugewi	2	2	2	4	3	2
Bannock	3	3	3	4	2	3
Bella Coola	2	1	2	4	3	2
Big Meadow	1	2	2	4	3	1
Blood	2	2	1	4	3	2
Caddo	2	2	2	4	3	2
Carrier	4	4	4	1	4	4
Catawba	2	2	2	4	3	2
Cherokee	2	2	2	4	3	2
Cheyenne	2	2	1	4	3	2
Chickasaw	1	2	2	4	3	1
Chilcotin	4	4	4	1	4	4
Chippewa(MN)	2	2	1	4	3	2
Chippewa(WI)	2	2	1	4	3	2
Choctaw	1	2	2	4	3	1
Chuvantsy	4	4	4	4	4	4
Clallum	2	1	2	4	3	2
C. Miwok	1	2	2	4	3	1
Coahuilla	3	3	3	4	2	3
Coeur d'Alene	2	2	2	4	3	2
Comanche	3	3	3	4	2	3
Concow	1	2	2	4	3	1
Creek	1	2	2	4	3	1
Crow	2	2	2	4	3	2
E. Mono	3	3	3	4	2	3
Eskimo(EC)	4	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4	4
Even	4	4	4	4	4	4
Evenk	4	4	4	4	4	4
Flathead	2	1	2	4	3	2
Haida	4	4	4	3	4	4
Hoopa	4	4	4	1	4	4
Itelman1	4	4	4	4	4	4
Itelman2	4	4	4	4	4	4
Kalapuya	1	2	2	4	3	1
Kiowa	3	3	3	4	1	3
Klamath	1	2	2	4	3	1
Klickitat**	1	2	2	4	3	1
Koryak	4	4	4	4	4	4
Kutenai	2	2	2	4	3	2
Kwakiutl	2	2	2	4	3	2
Lillooet	2	1	2	4	3	2

Matrix 1F. cont.

	S. Miwok	Stalo	Stockbridge	Tahltan	Taos	Tenino
Makah	2	2	2	4	3	2
Malecite	2	2	1	4	3	2
Maritime Chukchi	4	4	4	4	4	4
Menomini	2	2	1	4	3	2
Micmac	2	2	1	4	3	2
Mississagua	2	2	1	4	3	2
Modoc	1	2	2	4	3	1
Mohawk	2	2	2	4	3	2
Montagnais	2	2	1	4	3	2
Munsee	2	2	1	4	3	2
Nanaimo	2	1	2	4	3	2
Navajo	4	4	4	1	4	4
Nez Perce	1	2	2	4	3	1
Nisqually	2	1	2	4	3	2
Nivkhi	4	4	4	4	4	4
N. Hill Yokut	1	2	2	4	3	1
N. Paiute	3	3	3	4	2	3
N. Pomo	2	2	2	4	3	2
Ojibwa1*	2	2	1	4	3	2
Ojibwa2*	2	2	1	4	3	2
Okanagan	2	2	2	4	3	2
Omaha	2	2	2	4	3	2
Oneida	2	2	2	4	3	2
Osage	2	2	2	4	3	2
Pawnee	2	2	2	4	3	2
Piegan	2	2	1	4	3	2
Ponca	2	2	2	4	3	2
Potawatomi	2	2	1	4	3	2
Pueblo	2	2	2	4	3	2
Puyallup	2	1	2	4	3	2
Queets	2	1	2	4	3	2
Quillayute	2	2	2	4	3	2
Quinault	2	1	2	4	3	2
Reindeer Chukchi	4	4	4	4	4	4
Reindeer Even	4	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4	4
San Luis Rey	3	3	3	4	2	3
Sarcee	4	4	4	1	4	4
Sauk	2	2	1	4	3	2
Seneca	2	2	2	4	3	2
Serrano	3	3	3	4	2	3
Shawnee	2	2	1	4	3	2
Shoshone	3	3	3	4	2	3
Shuswap	2	1	2	4	3	2
Sioux(Santee)	2	2	2	4	3	2
Sioux(Teton)	2	2	2	4	3	2
Sioux(Yankton)	2	2	2	4	3	2
S. Miwok	0	2	2	4	3	1
Stalo	2	0	2	4	3	2

Matrix 1F. cont.

	S. Miwok	Stalo	Stockbridge	Tahltan	Taos	Tenino
Stockbridge	2	2	0	4	3	2
Tahltan	4	4	4	0	4	4
Taos	3	3	3	4	0	3
Tenino	1	2	2	4	3	0
Thompson	2	2	2	4	3	2
Tonkawa	2	2	2	4	3	2
Tsimshian	1	2	2	4	3	1
Tundra Evenk	4	4	4	4	4	4
Tuscarora	2	2	2	4	3	2
Tututni	4	4	4	1	4	4
Umatilla	1	2	2	4	3	1
Ute	3	3	3	4	2	3
Wasco	1	2	2	4	3	1
Washo	2	2	2	4	3	2
W. Mono	3	3	3	4	2	3
Winnebago	2	2	2	4	3	2
Yakut	4	4	4	4	4	4
Yokuts	1	2	2	4	3	1
Yukaghir	4	4	4	4	4	4
Yuki	1	2	2	4	3	1
Yurok	2	2	2	4	3	2
Zuni	1	2	2	4	3	1

Matrix 1F. cont.

	Thompson	Tonkawa	Tsimshian	Tundra Evenk	Tuscarora
Achomawi	2	1	2	4	2
Agua Caliente	3	3	3	4	3
Aiwan	4	4	4	4	4
Aleut	4	4	4	4	4
Apache	4	4	4	4	4
Arapaho	2	2	2	4	2
Assiniboin	2	2	2	4	2
Atsugewi	2	1	2	4	2
Bannock	3	3	3	4	3
Bella Coola	1	2	2	4	2
Big Meadow	2	2	1	4	2
Blood	2	2	2	4	2
Caddo	2	2	2	4	2
Carrier	4	4	4	4	4
Catawba	2	2	2	4	2
Cherokee	2	2	2	4	1
Cheyenne	2	2	2	4	2
Chickasaw	2	2	1	4	2
Chilcotin	4	4	4	4	4
Chippewa(MN)	2	2	2	4	2
Chippewa(WI)	2	2	2	4	2
Choctaw	2	2	1	4	2
Chuvantsy	4	4	4	4	4
Clallum	1	2	2	4	2
C. Miwok	2	2	1	4	2
Coahuilla	3	3	3	4	3
Coeur d'Alene	1	2	2	4	2
Comanche	3	3	3	4	3
Concow	2	2	1	4	2
Creek	2	2	1	4	2
Crow	2	2	2	4	2
E. Mono	3	3	3	4	3
Eskimo(EC)	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4
Even	4	4	4	1	4
Evenk	4	4	4	0	4
Flathead	1	2	2	4	2
Haida	4	4	4	4	4
Hoopa	4	4	4	4	4
Itelman1	4	4	4	4	4
Itelman2	4	4	4	4	4
Kalapuya	2	2	1	4	2
Kiowa	3	3	3	4	3
Klamath	2	2	1	4	2
Klickitat**	2	2	1	4	2
Koryak	4	4	4	4	4
Kutenai	2	2	2	4	2
Kwakiutl	2	2	2	4	2
Lillooet	1	2	2	4	2

Matrix 1F. cont.

	Thompson	Tonkawa	Tsimshian	Tundra Evenk	Tuscarora
Makah	2	2	2	4	2
Malecite	2	2	2	4	2
Maritime Chukchi	4	4	4	4	4
Menomini	2	2	2	4	2
Micmac	2	2	2	4	2
Mississagua	2	2	2	4	2
Modoc	2	2	1	4	2
Mohawk	2	2	2	4	1
Montagnais	2	2	2	4	2
Munsee	2	3	2	4	2
Nanaimo	1	3	2	4	2
Navajo	4	4	4	4	4
Nez Perce	2	2	1	4	2
Nisqually	1	2	2	4	2
Nivkhi	4	4	4	4	4
N. Hill Yokut	2	2	1	4	2
N. Paiute	3	3	3	4	3
N. Pomo	2	1	2	4	2
Ojibwa1*	2	2	2	4	2
Ojibwa2*	2	2	2	4	2
Okanagan	1	2	2	4	2
Omaha	2	2	2	4	2
Oneida	2	2	2	4	1
Osage	2	2	2	4	2
Pawnee	2	2	2	4	2
Piegan	2	2	2	4	2
Ponca	2	2	2	4	2
Potawatomi	2	3	2	4	2
Pueblo	2	2	2	4	2
Puyallup	1	2	2	4	2
Queets	1	2	2	4	2
Quillayute	2	2	2	4	2
Quinault	1	2	2	4	2
Reindeer Chukchi	4	4	4	4	4
Reindeer Even	4	4	4	1	4
Reindeer Koryak	4	4	4	4	4
San Luis Rey	3	3	3	4	3
Sarcee	4	4	4	4	4
Sauk	2	2	2	4	2
Seneca	2	2	2	4	1
Serrano	3	3	3	4	3
Shawnee	2	2	2	4	2
Shoshone	3	3	3	4	3
Shuswap	1	2	2	4	2
Sioux(Santee)	2	2	2	4	2
Sioux(Teton)	2	2	2	4	2
Sioux(Yankton)	2	2	2	4	2
S. Miwok	2	2	1	4	2
Stalo	2	2	2	4	2

Matrix 1F. cont.

	Thompson	Tonkawa	Tsimshian	Tundra Evenk	Tuscarora
Stockbridge	2	2	2	4	2
Tahltan	4	4	4	4	4
Taos	3	3	3	4	3
Tenino	2	2	1	4	2
Thompson	0	2	2	4	2
Tonkawa	2	0	2	4	2
Tsimshian	2	2	0	4	2
Tundra Evenk	4	4	4	0	4
Tuscarora	2	2	2	4	0
Tututni	4	4	4	4	4
Umatilla	2	2	1	4	2
Ute	3	3	3	4	3
Wasco	2	2	1	4	2
Washo	2	1	2	4	2
W. Mono	3	3	3	4	3
Winnebago	2	2	2	4	2
Yakut	4	4	4	2	4
Yokuts	2	2	1	4	2
Yukaghir	4	4	4	4	4
Yuki	2	2	1	4	2
Yurok	2	2	2	4	2
Zuni	2	2	1	4	2

Matrix 1F. cont.

	Tututni	Umatilla	Ute	Wasco	Washo	W. Mono	Winnebago
Achomawi	4	2	3	2	1	3	2
Agua Caliente	4	3	1	3	3	1	3
Aiwan	4	4	4	4	4	4	4
Aleut	4	4	4	4	4	4	4
Apache	1	4	4	4	4	4	4
Arapaho	4	2	3	2	2	3	2
Assiniboin	4	2	3	2	2	3	1
Atsugewi	4	2	3	2	1	3	2
Bannock	4	3	1	3	3	1	3
Bella Coola	4	2	3	2	2	3	2
Big Meadow	4	1	3	1	2	3	2
Blood	4	2	3	2	2	3	2
Caddo	4	2	3	2	2	3	2
Carrier	1	4	4	4	4	4	4
Catawba	4	2	3	2	2	3	1
Cherokee	4	2	3	2	2	3	2
Cheyenne	4	2	3	2	2	3	2
Chickasaw	4	1	3	1	2	3	2
Chilcotin	1	4	4	4	4	4	4
Chippewa(MN)	4	2	3	2	2	3	2
Chippewa(WI)	4	2	3	2	2	3	2
Choctaw	4	1	3	1	2	3	2
Chuvantsy	4	4	4	4	4	4	4
Clallum	4	2	3	2	2	3	2
C. Miwok	4	1	3	1	2	3	2
Coahuilla	4	3	1	3	3	1	3
Coeur d'Alene	4	2	3	2	2	3	2
Comanche	4	3	1	3	3	1	3
Concow	4	1	3	1	2	3	2
Creek	4	1	3	1	2	3	2
Crow	4	2	3	2	2	3	1
E. Mono	4	3	1	3	3	0	3
Eskimo(EC)	4	4	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4	4	4
Even	4	4	4	4	4	4	4
Evenk	4	4	4	4	4	4	4
Flathead	4	2	3	2	2	3	2
Haida	3	4	4	4	4	4	4
Hoopa	1	4	4	4	4	4	4
Itelman1	4	4	4	4	4	4	4
Itelman2	4	4	4	4	4	4	4
Kalapuya	4	1	3	1	2	3	2
Kiowa	4	3	2	3	3	2	3
Klamath	4	1	3	1	2	3	2
Klickitat**	4	1	3	1	2	3	2
Koryak	4	4	4	4	4	4	4
Kutenai	4	2	3	2	2	3	2
Kwakiutl	4	2	3	2	2	3	2
Lillooet	4	2	3	2	2	3	2

Matrix 1F. cont.

	Tututni	Umatilla	Ute	Wasco	Washo	W. Mono	Winnebago
Makah	4	2	3	2	2	3	2
Malecite	4	2	3	2	2	3	2
Maritime Chukchi	4	4	4	4	4	4	4
Menomini	4	2	3	2	2	3	2
Micmac	4	2	3	2	2	3	2
Mississagua	4	2	3	2	2	3	2
Modoc	4	1	3	1	2	3	2
Mohawk	4	2	3	2	2	3	2
Montagnais	4	2	3	2	2	3	2
Munsee	4	2	3	2	2	3	2
Nanaimo	4	2	3	2	2	3	2
Navajo	1	4	4	4	4	4	4
Nez Perce	4	1	3	1	2	3	2
Nisqually	4	2	3	2	2	3	2
Nivkhi	4	4	4	4	4	4	4
N. Hill Yokut	4	1	3	1	2	3	2
N. Paiute	4	3	1	3	3	1	3
N. Pomo	4	2	3	2	1	3	2
Ojibwa1*	4	2	3	2	2	3	2
Ojibwa2*	4	2	3	2	2	3	2
Okanagan	4	2	3	2	2	3	2
Omaha	4	2	3	2	2	3	1
Oneida	4	2	3	2	2	3	2
Osage	4	2	3	2	2	3	1
Pawnee	4	2	3	2	2	3	2
Piegan	4	2	3	2	2	3	2
Ponca	4	2	3	2	2	3	1
Potawatomi	4	2	3	2	2	3	2
Pueblo	4	2	3	2	2	3	2
Puyallup	4	2	3	2	2	3	2
Queets	4	2	3	2	2	3	2
Quillayute	4	2	3	2	2	3	2
Quinault	4	2	3	2	2	3	2
Reindeer Chukchi	4	4	4	4	4	4	4
Reindeer Even	4	4	4	4	4	4	4
Reindeer Korak	4	4	4	4	4	4	4
San Luis Rey	4	3	1	3	3	1	3
Sarcee	1	4	4	4	4	4	4
Sauk	4	2	3	2	2	3	2
Seneca	4	2	3	2	2	3	2
Serrano	4	3	1	3	3	1	3
Shawnee	4	2	3	2	2	3	2
Shoshone	4	3	1	3	3	1	3
Shuswap	4	2	3	2	2	3	2
Sioux(Santee)	4	2	3	2	2	3	1
Sioux(Teton)	4	2	3	2	2	3	1
Sioux(Yankton)	4	2	3	2	2	3	1
S. Miwok	4	1	3	1	2	3	2
Stalo	4	2	3	2	2	3	2

Matrix 1F. cont.

	Tututni	Umatilla	Ute	Wasco	Washo	W. Mono	Winnebago
Stockbridge	4	2	3	2	2	3	2
Tahltan	1	4	4	4	4	4	4
Taos	4	3	2	3	3	2	3
Tenino	4	1	3	1	2	3	2
Thompson	4	2	3	2	2	3	2
Tonkawa	4	2	3	2	1	3	2
Tsimshian	4	1	3	1	2	3	2
Tundra Evenk	4	4	4	4	4	4	4
Tuscarora	4	2	3	2	2	3	2
Tututni	0	4	4	4	4	4	4
Umatilla	4	0	3	1	2	3	2
Ute	4	3	0	3	3	1	3
Wasco	4	1	3	0	2	3	2
Washo	4	2	3	2	0	3	2
W. Mono	4	3	1	3	3	0	3
Winnebago	4	2	3	2	2	3	0
Yakut	4	4	4	4	4	4	4
Yokuts	4	1	3	1	2	3	2
Yukaghir	4	4	4	4	4	4	4
Yuki	4	1	3	1	2	3	2
Yurok	4	2	3	2	2	3	2
Zuni	4	1	3	1	2	3	2

Matrix 1F. cont.

	Yakut	Yokuts	Yukaghir	Yuki	Yurok	Zuni
Achomawi	4	2	4	2	2	2
Agua Caliente	4	3	4	3	3	3
Aiwan	4	4	4	4	4	4
Aleut	4	4	4	4	4	4
Apache	4	4	4	4	4	4
Arapaho	4	2	4	2	2	2
Assiniboin	4	2	4	2	2	2
Atsugewi	4	2	4	2	2	2
Bannock	4	3	4	3	3	3
Bella Coola	4	2	4	2	2	2
Big Meadow	4	1	4	1	2	1
Blood	4	2	4	2	2	2
Caddo	4	2	4	2	2	2
Carrier	4	4	4	4	4	4
Catawba	4	2	4	2	2	2
Cherokee	4	2	4	2	2	2
Cheyenne	4	2	4	2	2	2
Chickasaw	4	1	4	1	2	1
Chilcotin	4	4	4	4	4	4
Chippewa(MN)	4	2	4	2	2	2
Chippewa(WI)	4	2	4	2	2	2
Choctaw	4	1	4	1	2	1
Chuvantsy	4	4	1	4	4	4
Clallum	4	2	4	2	2	2
C. Miwok	4	1	4	1	2	1
Coahuilla	4	3	4	3	3	3
Coeur d'Alene	4	2	4	2	2	2
Comanche	4	3	4	3	3	3
Concow	4	1	4	1	2	1
Creek	4	1	4	1	2	1
Crow	4	2	4	2	2	2
E. Mono	4	3	4	3	3	3
Eskimo(EC)	4	4	4	4	4	4
Eskimo(WC)	4	4	4	4	4	4
Even	2	4	4	4	4	4
Evenk	2	4	4	4	4	4
Flathead	4	2	4	2	2	2
Haida	4	4	4	4	4	4
Hoopa	4	4	4	4	4	4
Itelman1	4	4	4	4	4	4
Itelman2	4	4	4	4	4	4
Kalapuya	4	1	4	1	2	1
Kiowa	4	3	4	3	3	3
Klamath	4	1	4	1	2	1
Klickitat**	4	1	4	1	2	1
Koryak	4	4	4	4	4	4
Kutenai	4	2	4	2	2	2
Kwakiutl	4	2	4	2	2	2
Lillooet	4	2	4	2	2	2

Matrix 1F. cont.

	Yakut	Yokuts	Yukaghir	Yuki	Yurok	Zuni
Makah	4	2	4	2	2	2
Malecite	4	2	4	2	2	2
Maritime Chukchi	4	4	4	4	4	4
Menomini	4	2	4	2	2	2
Micmac	4	2	4	2	2	2
Mississagua	4	2	4	2	2	2
Modoc	4	1	4	1	2	1
Mohawk	4	2	4	2	2	2
Montagnais	4	2	4	2	2	2
Munsee	4	2	4	2	2	2
Nanaimo	4	2	4	2	2	2
Navajo	4	4	4	4	4	4
Nez Perce	4	1	4	1	2	1
Nisqually	4	2	4	2	2	2
Nivkhi	4	4	4	4	4	4
N. Hill Yokut	4	0	4	1	2	1
N. Paiute	4	3	4	3	3	3
N. Pomo	4	2	4	2	2	2
Ojibwa1*	4	2	4	2	2	2
Ojibwa2*	4	2	4	2	2	2
Okanagan	4	2	4	2	2	2
Omaha	4	2	4	2	2	2
Oneida	4	2	4	2	2	2
Osage	4	2	4	2	2	2
Pawnee	4	2	4	2	2	2
Piegan	4	2	4	2	2	2
Ponca	4	2	4	2	2	2
Potawatomi	4	2	4	2	2	2
Pueblo	4	2	4	2	2	2
Puyallup	4	2	4	2	2	2
Queets	4	2	4	2	2	2
Quillayute	4	2	4	2	2	2
Quinault	4	2	4	2	2	2
Reindeer Chukchi	4	4	4	4	4	4
Reindeer Even	2	4	4	4	4	4
Reindeer Koryak	4	4	4	4	4	4
San Luis Rey	4	3	4	3	3	3
Sarcee	4	4	4	4	4	4
Sauk	4	2	4	2	2	2
Seneca	4	2	4	2	2	2
Serrano	4	3	4	3	3	3
Shawnee	4	2	4	2	2	2
Shoshone	4	3	4	3	3	3
Shuswap	4	2	4	2	2	2
Sioux(Santee)	4	2	4	2	2	2
Sioux(Teton)	4	2	4	2	2	2
Sioux(Yankton)	4	2	4	2	2	2

Matrix 1F. cont.

	Yakut	Yokuts	Yukaghir	Yuki	Yurok	Zuni
S. Miwok	4	1	4	1	2	1
Stalo	4	2	4	2	2	2
Stockbridge	4	2	4	2	2	2
Tahltan	4	4	4	4	4	4
Taos	4	3	4	3	3	3
Tenino	4	1	4	1	2	1
Thompson	4	2	4	2	2	2
Tonkawa	4	2	4	2	2	2
Tsimshian	4	1	4	1	2	1
Tundra Evenk	2	4	4	4	4	4
Tuscarora	4	2	4	2	2	2
Tututni	4	4	4	4	4	4
Umatilla	4	1	4	1	2	1
Ute	4	3	4	3	3	3
Wasco	4	1	4	1	2	1
Washo	4	2	4	2	2	2
W. Mono	4	3	4	3	3	3
Winnebago	4	2	4	2	2	2
Yakut	0	4	4	4	4	4
Yokuts	4	0	4	1	2	1
Yukaghir	4	4	0	4	4	4
Yuki	4	1	4	0	2	1
Yurok	4	2	4	2	0	2
Zuni	4	1	4	1	2	0

Itelman1=Itelman located in and near Khayryuzovo, Siberia.
Itelman2=Itelman located in and near Sedanka, Siberia.
Klickitat**=Only head measurements present in data.
Ojibwa1*=Ojibwa locations in the Georgian Bay area.
Ojibwa2*=Ojibwa locations in the Northwest Lake Superior area.

Matrix 2F. Matrix of Great Circle Distances. (In Kilometers.)

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Achomawi	0	980.42	4836.09	3718.47	1296.70
Agua Caliente	980.42	0	5806.07	4612.99	571.52
Aiwan	4836.09	5806.07	0	1648.35	6093.40
Aleut	3718.47	4612.99	1648.35	0	5014.44
Apache	1296.70	571.52	6093.40	5014.44	0
Arapaho	1030.48	1270.62	5266.75	4420.62	1079.57
Assiniboin	1633.31	1973.63	5155.42	4547.54	1706.68
Atsugewi	83.26	906.37	4904.43	3769.37	1245.46
Bannock	765.51	1164.85	5090.98	4187.14	1105.03
Bella Coola	1297.09	2270.11	3622.90	2763.40	2480.43
Big Meadow	120.09	870.99	4938.44	3797.39	1218.48
Blood	1095.54	1819.55	4489.07	3749.05	1806.59
Caddo	2498.70	1974.93	6918.76	6105.44	1403.46
Carrier	1298.87	2236.21	3776.88	3013.43	2378.35
Catawba	3551.69	3260.10	7274.49	6805.72	2700.42
Cherokee	3288.84	2983.50	7125.03	6598.01	2423.87
Cheyenne	1438.48	1621.55	5394.45	4668.26	1317.04
Chickasaw	2958.18	2618.96	6965.24	6353.38	2057.61
Chilcotin	1186.72	2133.71	3834.87	3018.67	2295.55
Chippewa(MN)	2187.11	2423.64	5449.63	4986.58	2063.85
Chippewa(WI)	2555.95	2666.94	5839.49	5422.53	2237.15
Choctaw	2981.97	2553.45	7140.11	6467.10	1983.48
Chuvantsy	4922.44	5893.28	91.63	1734.08	6177.52
Clallum	776.18	1743.43	4131.10	3166.87	1963.16
C. Miwok	388.16	600.13	5206.33	4039.27	996.09
Coahuilla	989.46	72.11	5822.53	4646.17	502.41
Coeur d'Alene	747.59	1538.75	4542.50	3670.66	1613.01
Comanche	1964.77	1499.67	6449.02	5585.05	936.12
Concow	120.64	885.91	4921.71	3774.81	1242.05
Creek	3392.46	3030.03	7313.93	6759.38	2463.24
Crow	1207.58	1575.74	5100.52	4349.75	1383.80
E. Mono	473.55	509.87	5308.39	4160.79	866.09
Eskimo(EC)	4430.68	4830.37	5609.87	5940.21	4473.45
Eskimo(WC)	3015.95	3971.60	2343.37	2375.17	4097.56
Even	5799.36	6775.41	1000.29	2593.17	7035.53
Evenk	5532.23	6495.89	719.31	2131.41	6799.05
Flathead	878.16	1561.76	4664.48	3842.81	1561.62
Haida	1626.29	2606.71	3238.00	2367.97	2856.08
Hoopa	202.81	1061.79	4745.61	3577.45	1442.25
Itelman1	5808.31	6749.68	1178.10	2207.06	7095.56
Itelman2	5665.64	6609.31	1036.05	2082.05	6951.71
Kalapuya	457.69	1437.85	4388.03	3324.74	1717.46
Kiowa	2122.59	1681.52	6535.32	5711.40	1117.82
Klamath	156.72	1133.09	4692.20	3601.02	1422.57
Klickitat**	559.44	1493.14	4408.51	3434.07	1687.25
Koryak	5304.55	6268.66	498.26	1934.65	6571.22
Kutenai	1021.40	1817.00	4371.81	3596.86	1855.62
Kwakiutl	1241.27	2218.07	3652.53	2755.89	2444.19

Matrix 2F. cont.

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Lillooet	1008.68	1959.49	3975.28	3100.11	2137.01
Makah	827.02	1802.36	4053.95	3076.42	2039.45
Malecite	4076.80	4214.29	6419.95	6423.88	3754.82
Maritime Chukchi	4807.41	5777.21	29.32	1622.77	6065.18
Menomini	2655.34	2714.95	5993.37	5573.99	2262.40
Micmac	4523.32	4634.21	6735.37	6820.34	4159.52
Mississagua	3083.26	3174.69	6097.83	5813.28	2719.57
Modoc	56.89	1035.83	4783.56	3675.16	1342.00
Mohawk	3744.85	3792.31	6530.20	6378.80	3308.32
Montagnais	4630.30	4918.42	6143.67	6420.85	4508.26
Munsee	3798.19	3749.67	6827.93	6609.87	3237.00
Nanaimo	896.01	1863.27	4020.34	3082.91	2076.07
Navajo	1280.34	780.25	5984.27	4980.57	294.34
Nez Perce	668.71	1457.77	4593.76	3695.06	1544.93
Nisqually	648.69	1613.20	4257.00	3270.78	1836.50
Nivkhi	6905.11	7847.80	2171.05	3286.81	8190.32
N. Hill Yokut	509.94	482.91	5323.34	4142.80	914.11
N. Paiute	86.43	926.44	4902.20	3798.35	1218.82
N. Pomo	284.12	916.87	4902.08	3700.47	1343.29
Ojibwa1*	3269.73	3358.22	6187.69	5949.88	2897.30
Ojibwa2*	2435.17	2740.82	5339.57	4991.01	2397.05
Okanagan	833.81	1728.82	4271.36	3398.24	1859.30
Omaha	2046.33	2014.08	5916.69	5284.06	1560.59
Oneida	3258.18	3226.71	6490.19	6162.73	2727.74
Osage	2198.62	1873.68	6438.66	5692.11	1328.21
Pawnee	1896.66	1825.93	5912.36	5222.02	1370.70
Piegan	1039.00	1700.73	4637.79	3875.21	1663.24
Ponca	1673.31	1734.99	5631.52	4934.46	1350.64
Potawatomi	2899.53	2847.79	6352.98	5926.01	2351.14
Pueblo	1384.17	863.76	6071.44	5080.42	334.99
Puyallup	657.90	1615.97	4265.85	3291.43	1828.46
Queets	714.81	1688.47	4166.97	3173.70	1926.58
Quillayute	778.43	1753.88	4099.73	3112.39	1993.78
Quinault	711.25	1688.26	4157.46	3151.43	1937.06
Reindeer Chukchi	4587.89	5559.24	251.80	1500.09	5842.88
Reindeer Even	5001.11	5973.78	192.46	1838.46	6251.27
Reindeer Koryak	5152.87	6116.36	367.88	1793.92	6420.85
San Luis Rey	985.25	17.81	5808.39	4610.94	586.03
Sarcee	1339.47	2119.24	4236.80	3586.57	2115.26
Sauk	2249.68	1996.92	6366.79	5670.20	1466.16
Seneca	3488.81	3471.44	6575.41	6312.51	2972.23
Serrano	901.70	87.75	5732.53	4553.53	571.53
Shawnee	2214.46	1817.02	6545.68	5762.21	1257.76
Shoshoni	749.48	1145.80	5096.07	4185.68	1091.79
Shuswap	1042.65	1955.22	4063.97	3244.99	2083.78
Sioux(Santee)	2156.20	2238.02	5756.94	5210.12	1818.33

Matrix 2F. cont.

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Sioux(Teton)	1677.71	1864.25	5435.45	4787.85	1527.73
Sioux (Yankton)	1967.83	1983.61	5805.80	5174.20	1553.01
S. Miwok	468.81	517.90	5288.40	4116.57	928.27
Stalo	877.85	1818.19	4120.25	3223.52	1990.14
Stockbridge	2690.06	2714.99	6084.90	5653.88	2249.17
Tahltan	1974.49	2947.32	3003.24	2366.54	3138.58
Taos	1457.81	1063.28	6036.80	5107.22	557.98
Tenino	385.25	1338.14	4523.23	3494.64	1571.44
Thompson	991.71	1925.92	4041.89	3185.12	2082.21
Tonkawa	2255.74	1722.43	6742.00	5887.10	1150.92
Tsimshian	1564.83	2543.16	3332.84	2504.16	2768.19
Tundra Evenk	5447.24	6427.02	817.88	2465.37	6660.34
Tuscarora	3445.30	3430.59	6545.60	6274.58	2932.93
Tututni	289.18	1221.51	4584.63	3435.21	1579.41
Umatilla	531.59	1386.43	4574.69	3622.40	1531.33
Ute	954.74	995.82	5451.71	4526.32	791.91
Wasco	475.21	1420.63	4457.74	3454.66	1635.68
Washo	248.64	733.26	5077.22	3931.07	1088.15
W. Mono	547.50	433.14	5375.83	4209.73	836.49
Winnebago	2484.30	2528.00	5957.30	5482.35	2076.83
Yakut	6880.00	7858.26	2090.95	3634.89	8101.16
Yokuts	320.90	724.54	5085.08	3898.08	1145.74
Yukaghir	5687.72	6661.66	867.57	2441.98	6931.90
Yuki	223.44	941.17	4869.60	3685.04	1345.57
Yurok	189.29	1094.71	4711.42	3556.40	1459.66
Zuni	1282.27	740.93	6006.89	4989.55	241.47

Matrix 2F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
Achomawi	1030.48	1633.31	83.26	765.51	1297.09
Agua Caliente	1270.62	1973.63	906.37	1164.85	2270.11
Aiwan	5266.75	5155.42	4904.43	5090.98	3622.90
Aleut	4420.62	4547.54	3769.37	4187.14	2763.40
Apache	1079.57	1706.68	1245.46	1105.03	2480.43
Arapaho	0	708.17	1054.58	273.26	1682.23
Assiniboin	708.17	0	1677.96	899.73	1805.39
Atsugewi	1054.58	1677.96	0	796.46	1377.00
Bannock	273.26	899.73	796.46	0	1478.18
Bella Coola	1682.23	1805.39	1377.00	1478.18	0
Big Meadow	1060.73	1692.92	37.26	806.36	1414.10
Blood	795.42	827.92	1167.44	701.99	988.71
Caddo	1690.03	1812.26	2477.12	1918.57	3371.14
Carrier	1491.42	1536.79	1381.98	1319.19	295.04
Catawba	2556.20	2260.63	3555.18	2828.38	4063.54
Cherokee	2303.53	2051.22	3290.22	2574.35	3844.75
Cheyenne	414.99	394.90	1466.63	673.10	1905.01
Chickasaw	1997.24	1829.82	2955.23	2263.71	3590.82
Chilcotin	1444.80	1547.28	1269.57	1256.13	258.29
Chippewa(MN)	1209.63	561.81	2227.76	1436.94	2295.33
Chippewa(WI)	1540.49	974.04	2588.64	1792.26	2736.33
Choctaw	2067.53	1986.66	2971.30	2324.63	3704.99
Chuvantsy	5345.02	5225.71	4991.10	5171.32	3705.14
Clallum	1258.90	1556.52	857.80	1020.34	527.62
C. Miwok	1085.15	1767.94	309.52	869.34	1685.24
Coahuilla	1218.24	1918.26	918.49	1124.24	2270.91
Coeur d'Alene	751.96	1056.13	821.75	548.49	933.85
Comanche	1187.90	1442.76	1944.16	1399.85	2867.94
Concow	1086.49	1715.34	41.34	830.84	1405.70
Creek	2427.66	2217.96	3389.23	2695.45	4000.63
Crow	311.37	433.37	1248.68	466.53	1586.86
E. Mono	1006.89	1703.02	404.22	813.25	1760.34
Eskimo(EC)	3578.56	2871.32	4490.36	3758.63	3947.76
Eskimo(WC)	3118.86	2871.67	3097.61	3005.22	1728.54
Even	6158.62	5974.87	5870.25	6001.97	4555.33
Evenk	5984.80	5872.16	5598.62	5806.55	4335.26
Flathead	603.12	853.87	943.88	458.38	1087.32
Haida	2085.08	2185.39	1701.48	1877.63	403.04
Hoopa	1232.04	1821.03	208.64	965.22	1280.58
Itelman1	6345.77	6290.18	5869.23	6150.03	4671.86
Itelman2	6198.16	6141.72	5727.03	6003.12	4524.94
Kalapuya	1191.23	1636.59	534.94	923.60	844.58
Kiowa	1296.10	1465.45	2105.53	1524.87	2977.73
Klamath	1035.11	1588.52	238.79	762.52	1140.98
Klickitat**	1008.49	1392.87	642.58	756.99	794.99
Koryak	5759.47	5653.68	5371.04	5580.02	4108.07
Kutenai	895.96	991.64	1098.32	757.01	833.77
Kwakiutl	1675.26	1831.12	1320.04	1462.02	81.85

Matrix 2F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
Lillooet	1330.79	1510.34	1091.47	1123.22	354.98
Makah	1350.61	1641.78	906.79	1110.74	470.22
Malecite	3083.91	2446.78	4116.88	3323.50	3995.20
Maritime Chukchi	5239.92	5130.67	4875.67	5063.64	3595.13
Menomini	1631.06	1102.54	2684.38	1889.90	2880.05
Micmac	3524.94	2895.05	4562.28	3767.74	4436.06
Mississagua	2069.15	1482.92	3116.81	2320.36	3190.09
Modoc	1030.01	1616.03	139.34	761.29	1240.35
Mohawk	2726.46	2145.00	3777.07	2980.88	3819.17
Montagnais	3707.51	3016.20	4682.55	3915.92	4290.66
Munsee	2768.59	2250.26	3822.84	3033.41	3989.99
Nanaimo	1337.78	1586.38	977.45	1109.62	408.94
Navajo	836.68	1425.50	1245.74	916.64	2361.37
Nez Perce	726.25	1089.04	741.55	502.27	976.36
Nisqually	1168.30	1518.11	730.88	919.62	658.06
Nivkhi	7419.50	7326.45	6966.53	7231.16	5753.81
N. Hill Yokut	1127.93	1823.51	431.12	931.91	1807.02
N. Paiute	955.95	1574.23	103.86	695.09	1344.06
N. Pomo	1279.04	1908.03	230.08	1024.64	1461.27
Ojibwa1*	2256.62	1664.53	3303.73	2507.27	3351.86
Ojibwa2*	1501.46	807.92	2482.78	1707.43	2378.36
Okanagan	1027.87	1259.67	916.09	821.84	657.35
Omaha	1020.57	762.93	2063.42	1293.19	2524.21
Oneida	2228.33	1727.11	3282.47	2493.71	3495.36
Osage	1279.20	1306.28	2192.16	1533.54	2936.06
Pawnee	884.35	768.16	1908.94	1157.19	2458.62
Piegan	643.26	742.18	1104.95	561.84	1111.83
Ponca	643.64	513.13	1694.26	914.78	2171.11
Potawatomi	1869.17	1419.29	2920.65	2137.93	3216.28
Pueblo	888.20	1439.05	1350.44	991.98	2449.12
Puyallup	1142.72	1484.51	740.64	896.91	659.02
Queets	1263.57	1595.27	795.27	1016.33	582.54
Quillayute	1319.30	1629.34	858.23	1075.67	518.78
Quinault	1291.40	1630.98	790.56	1041.56	586.72
Reindeer Chukchi	5015.17	4908.40	4656.70	4839.18	3371.40
Reindeer Even	5408.09	5275.83	5070.47	5238.08	3775.81
Reindeer Koryak	5614.38	5516.94	5219.16	5433.03	3959.88
San Luis Rey	1287.16	1990.50	910.52	1179.67	2276.43
Sarcee	1089.04	963.62	1416.84	1010.98	877.94
Sauk	1285.82	1214.67	2249.82	1550.94	2907.72
Seneca	2460.47	1934.03	3515.06	2723.50	3677.57
Serrano	1193.65	1898.83	829.43	1080.67	2187.69
Shawnee	1341.63	1434.94	2201.92	1584.08	3015.39
Shoshoni	285.73	919.32	779.27	20.24	1481.36
Shuswap	1211.81	1339.69	1125.76	1027.91	481.78

Matrix 2F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
Sioux (Santee)	1129.87	666.57	2183.85	1390.75	2471.95
Sioux(Teton)	664.36	288.76	1709.58	913.28	2030.25
Sioux (Yankton)	938.17	651.40	1988.24	1208.89	2415.36
S. Miwok	1096.34	1788.94	391.17	895.01	1765.57
Stalo	1199.43	1427.38	961.06	983.48	497.79
Stockbridge	1661.88	1162.90	2716.45	1924.82	2951.05
Tahltan	2263.52	2224.04	2054.08	2093.85	677.63
Taos	787.48	1259.10	1435.85	947.56	2425.34
Tenino	1007.28	1473.13	468.51	739.34	933.59
Thompson	1251.43	1421.14	1074.96	1051.09	430.81
Tonkawa	1486.97	1689.38	2231.73	1701.91	3168.34
Tsimshian	1965.91	2045.83	1642.66	1766.80	290.15
Tundra Evenk	5755.16	5544.69	5520.67	5609.06	4182.19
Tuscarora	2417.04	1890.90	3471.62	2679.98	3636.27
Tututni	1263.80	1805.81	334.19	991.21	1120.48
Umatilla	818.76	1239.08	608.99	566.74	952.55
Ute	292.60	979.05	955.73	360.92	1836.43
Wasco	1012.84	1438.01	558.47	751.91	855.90
Washo	1034.11	1696.17	173.25	797.63	1545.25
W. Mono	1075.36	1776.26	473.34	892.38	1840.63
Winnebago	1456.59	967.43	2511.07	1718.99	2764.89
Yakut	7192.43	6956.80	6952.17	7049.71	5622.02
Yokuts	1177.36	1840.76	238.06	942.33	1599.46
Yukaghir	6069.41	5903.43	5757.65	5907.34	4453.23
Yuki	1232.19	1852.85	177.89	974.26	1408.75
Yurok	1208.62	1786.13	215.63	939.56	1233.38
Zuni	880.41	1476.88	1244.50	949.72	2384.25

Matrix 2F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Achomawi	120.09	1095.54	2498.70	1298.87	3551.69
Agua Caliente	870.99	1819.55	1974.93	2236.21	3260.10
Aiwan	4938.44	4489.07	6918.76	3776.88	7274.49
Aleut	3797.39	3749.05	6105.44	3013.43	6805.72
Apache	1218.48	1806.59	1403.46	2378.35	2700.42
Arapaho	1060.73	795.42	1690.03	1491.42	2556.20
Assiniboin	1692.92	827.92	1812.26	1536.79	2260.63
Atsugewi	37.26	1167.44	2477.12	1381.98	3555.18
Bannock	806.36	701.99	1918.57	1319.19	2828.38
Bella Coola	1414.10	988.71	3371.14	295.04	4063.54
Big Meadow	0	1196.32	2461.81	1418.96	3550.49
Blood	1196.32	0	2434.42	742.29	3077.27
Caddo	2461.81	2434.42	0	3166.14	1374.99
Carrier	1418.96	742.29	3166.14	0	3797.41
Catawba	3550.49	3077.27	1374.99	3797.41	0
Cherokee	3284.65	2856.21	1110.57	3585.07	276.64
Cheyenne	1474.05	927.75	1526.19	1669.88	2205.91
Chickasaw	2947.84	2604.43	757.85	3343.13	643.26
Chilcotin	1306.69	731.24	3129.40	122.37	3805.25
Chippewa(MN)	2240.55	1354.63	1753.50	2011.13	1843.61
Chippewa(WI)	2597.53	1788.49	1616.43	2452.35	1435.57
Choctaw	2960.53	2727.14	602.63	3469.32	783.40
Chuvantsy	5025.21	4565.53	6993.49	3856.02	7335.00
Clallum	895.06	750.40	2938.61	542.50	3758.92
C. Miwok	273.06	1383.65	2309.41	1678.84	3467.67
Coahuilla	884.15	1789.47	1905.78	2227.46	3188.25
Coeur d'Alene	852.10	350.95	2441.87	773.80	3233.23
Comanche	1929.50	1961.26	534.18	2677.91	1764.39
Concow	27.99	1208.77	2489.29	1416.33	3578.34
Creek	3381.61	3012.14	1098.53	3746.10	312.06
Crow	1262.35	616.97	1819.30	1356.65	2517.91
E. Mono	371.18	1381.42	2177.58	1733.77	3345.63
Eskimo(EC)	4512.14	3371.68	3805.64	3672.95	2920.73
Eskimo(WC)	3134.86	2324.72	4676.35	1737.20	4932.07
Even	5905.05	5368.23	7771.72	4682.82	7986.43
Evenk	5631.99	5208.19	7638.05	4494.29	7974.14
Flathead	969.77	257.89	2285.57	888.36	3036.84
Haida	1737.59	1381.19	3774.17	648.68	4446.02
Hoopa	227.49	1233.35	2685.70	1328.48	3753.47
Itelman1	5900.74	5587.31	8021.31	4856.99	8441.47
Itelman2	5758.72	5439.11	7873.18	4709.12	8294.51
Kalapuya	571.70	913.71	2811.82	883.02	3744.41
Kiowa	2092.30	2047.42	394.27	2775.66	1582.97
Klamath	276.01	987.47	2575.62	1144.04	3582.47
Klickitat**	678.88	656.33	2674.06	746.60	3541.30
Koryak	5404.46	4984.23	7415.27	4268.62	7767.53
Kutenai	1130.03	164.24	2562.99	603.27	3237.39
Kwakiutl	1356.96	1007.85	3365.29	352.89	4085.12
Lillooet	1128.61	682.42	3020.71	295.13	3754.15

Matrix 2F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Makah	943.88	829.29	3029.24	533.23	3849.44
Malecite	4128.96	3172.82	2802.52	3700.30	1730.07
Maritime Chukchi	4909.67	4462.70	6892.80	3749.86	7252.37
Menomini	2691.54	1924.30	1540.64	2597.85	1281.32
Micmac	4573.78	3622.42	3129.21	4141.44	1934.35
Mississiagua	3125.97	2275.26	1893.83	2899.44	1261.19
Modoc	176.47	1055.33	2526.32	1242.70	3562.74
Mohawk	3785.48	2927.44	2297.65	3525.77	1241.87
Montagnais	4700.54	3617.62	3673.73	4005.45	2631.44
Munsee	3827.71	3061.37	2113.65	3700.31	934.10
Nanaimo	1014.70	764.53	3024.20	435.81	3810.49
Navajo	1225.65	1604.01	1259.21	2228.59	2487.78
Nez Perce	771.29	426.96	2411.97	835.14	3237.07
Nisqually	768.12	740.49	2837.19	657.42	3691.68
Nivkhi	6998.20	6650.70	9084.07	5928.23	9422.22
N. Hill Yokut	394.48	1482.50	2258.60	1798.50	3447.49
N. Paiute	124.69	1073.72	2412.29	1328.39	3468.83
N. Pomo	218.56	1375.16	2638.81	1508.53	3756.06
Ojibwa1*	3313.06	2449.04	2022.19	3059.73	1256.20
Ojibwa2*	2498.82	1505.29	2043.39	2085.40	1937.10
Okanagan	951.42	449.60	2717.90	519.94	3479.30
Omaha	2065.34	1535.80	1117.02	2271.73	1559.63
Oneida	3287.27	2547.41	1712.40	3209.97	871.04
Osage	2183.51	1973.04	512.92	2713.26	1396.07
Pawnee	1908.76	1476.91	1048.23	2218.85	1672.46
Piegan	1130.78	152.17	2289.00	879.97	2967.76
Ponca	1698.17	1188.43	1305.70	1930.33	1937.15
Potawatomi	2924.08	2247.09	1406.47	2938.23	921.58
Pueblo	1330.62	1668.97	1155.66	2309.09	2397.63
Puyallup	777.79	705.63	2815.25	642.96	3661.75
Queets	832.46	801.50	2934.14	618.06	3781.20
Quillayute	895.33	824.12	2994.14	573.21	3827.56
Quinault	827.60	838.61	2958.24	639.05	3813.37
Reindeer Chukchi	4690.87	4238.08	6668.51	3525.16	7037.59
Reindeer Even	5104.80	4625.76	7050.25	3921.05	7370.07
Reindeer Koryak	5252.51	4841.13	7273.43	4123.17	7642.08
San Luis Rey	874.91	1832.41	1989.26	2244.69	3276.23
Sarcee	1448.72	309.06	2682.71	590.24	3219.17
Sauk	2244.03	1930.46	653.36	2672.75	1308.48
Seneca	3520.71	2745.50	1928.60	3388.75	932.94
Serrano	794.69	1732.26	1971.10	2150.48	3238.28
Shawnee	2190.61	2066.41	377.98	2802.30	1443.46
Shoshoni	788.70	716.14	1920.57	1325.90	2839.00
Shuswap	1161.98	513.68	2896.29	294.88	3590.70
Sioux(Santee)	2190.55	1491.34	1384.04	2202.33	1595.81

Matrix 2F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Sioux(Teton)	1718.51	1041.58	1523.51	1774.91	2039.16
Sioux (Yankton)	1991.71	1426.71	1210.31	2161.44	1662.01
S. Miwok	354.93	1438.87	2259.75	1754.87	3437.13
Stalo	997.93	605.95	2889.02	421.79	3654.48
Stockbridge	2722.36	1988.55	1472.66	2670.88	1190.51
Tahltan	2091.12	1492.17	3926.58	775.14	4460.85
Taos	1420.97	1582.80	1041.36	2261.09	2214.89
Tenino	505.23	794.38	2631.99	914.46	3561.39
Thompson	1111.74	593.21	2940.58	310.59	3665.23
Tonkawa	2215.49	2252.95	253.99	2974.80	1594.83
Tsimshian	1679.39	1247.20	3652.57	509.46	4306.31
Tundra Evenk	5556.21	4961.50	7348.28	4292.39	7531.68
Tuscarora	3477.32	2702.94	1900.04	3347.71	934.14
Tututni	363.31	1158.40	2783.81	1182.28	3809.55
Umatilla	641.33	574.20	2484.53	858.56	3357.83
Ute	951.69	1035.83	1588.94	1679.83	2599.45
Wasco	595.06	727.55	2660.63	825.87	3558.94
Washo	138.81	1263.66	2358.59	1538.33	3478.40
W. Mono	438.23	1470.56	2177.89	1819.62	3369.85
Winnebago	2517.22	1795.07	1414.35	2488.10	1335.05
Yakut	6987.33	6397.79	8766.80	5733.64	8857.22
Yokuts	202.77	1390.28	2457.14	1616.84	3602.19
Yukaghir	5792.15	5281.61	7693.92	4588.38	7940.93
Yuki	173.98	1311.78	2621.85	1449.78	3723.27
Yurok	241.20	1186.63	2685.77	1277.94	3738.94
Zuni	1223.08	1641.35	1277.90	2256.92	2522.10

Matrix 2F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa(MN)
Achomawi	3288.84	1438.48	2958.18	1186.72	2187.11
Agua Caliente	2983.50	1621.55	2618.96	2133.71	2423.64
Aiwan	7125.03	5394.45	6965.24	3834.87	5449.63
Aleut	6598.01	4668.26	6353.38	3018.67	4986.58
Apache	2423.87	1317.04	2057.61	2295.55	2063.85
Arapaho	2303.53	414.99	1997.24	1444.80	1209.63
Assiniboin	2051.22	394.90	1829.82	1547.28	561.81
Atsugewi	3290.22	1466.63	2955.23	1269.57	2227.76
Bannock	2574.35	673.10	2263.71	1256.13	1436.94
Bella Coola	3844.75	1905.01	3590.82	258.29	2295.33
Big Meadow	3284.65	1474.05	2947.84	1306.69	2240.55
Blood	2856.21	927.75	2604.43	731.24	1354.63
Caddo	1110.57	1526.19	757.85	3129.40	1753.50
Carrier	3585.07	1669.88	3343.13	122.37	2011.13
Catawba	276.64	2205.91	643.26	3805.25	1843.61
Cherokee	0	1966.51	367.40	3586.84	1676.06
Cheyenne	1966.51	0	1690.14	1651.28	809.40
Chickasaw	367.40	1690.14	0	3334.79	1537.35
Chilcotin	3586.84	1651.28	3334.79	0	2041.28
Chippewa(MN)	1676.06	809.40	1537.35	2041.28	0
Chippewa(WI)	1297.79	1125.50	1227.03	2481.91	441.22
Choctaw	536.16	1800.90	266.90	3452.06	1748.49
Chuvantsy	7188.28	5468.48	7032.23	3915.34	5513.60
Clallum	3521.62	1555.10	3237.62	422.79	2099.79
C. Miwok	3196.53	1496.75	2848.23	1569.35	2293.44
Coahuilla	2911.66	1561.83	2547.24	2127.26	2361.57
Coeur d'Alene	2995.41	1028.89	2713.01	707.64	1612.55
Commanche	1487.90	1098.73	1121.49	2632.64	1538.62
Concow	3312.56	1499.47	2975.82	1303.08	2263.99
Creek	203.16	2108.73	434.30	3743.39	1864.42
Crow	2282.21	319.17	2009.23	1334.10	979.60
E. Mono	3073.61	1412.43	2723.38	1628.60	2216.17
Eskimo(EC)	3007.38	3208.84	3185.79	3769.18	2414.54
Eskimo(WC)	4788.18	3159.08	4645.32	1837.92	3116.54
Even	7865.07	6247.18	7743.06	4751.76	6207.68
Evenk	7830.77	6113.60	7677.75	4550.52	6157.06
Flathead	2801.83	836.77	2525.72	843.99	1411.80
Haida	4232.54	2303.51	3985.62	652.24	2653.79
Hoopa	3490.04	1638.28	3157.80	1209.92	2377.96
Itelman1	8284.91	6506.60	8111.91	4901.45	6608.92
Itelman2	8137.26	6358.21	7963.63	4753.98	6461.32
Kalapuya	3494.19	1549.82	3187.16	763.85	2196.74
Kiowa	1306.57	1151.88	939.90	2737.01	1492.43
Klamath	3323.96	1429.89	3001.77	1031.02	2148.20
Klickitat**	3297.11	1336.65	3001.76	640.77	1950.48
Koryak	7620.55	5891.53	7462.93	4324.09	5945.66
Kutenai	3014.03	1072.83	2757.05	578.57	1518.15
Kwakiutl	3862.76	1914.01	3602.82	290.65	2331.05

Matrix 2F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa(MN)
Lillooet	3527.69	1572.51	3262.40	178.23	2028.90
Makah	3612.72	1646.22	3329.37	410.88	2181.97
Malecite	1858.37	2670.90	2099.77	3764.72	1889.70
Maritime					
Chukchi	7102.15	5368.69	6941.34	3807.51	5426.61
Menomini	1148.82	1217.75	1097.83	2624.69	588.61
Micmac	2110.31	3110.87	2395.69	4208.19	2336.60
Mississagua	1227.64	1654.17	1311.24	2941.22	925.02
Modoc	3301.41	1433.99	2973.74	1130.23	2172.36
Mohawk	1351.75	2311.84	1588.60	3575.18	1585.03
Montagnais	2761.77	3312.34	2992.55	4092.10	2502.94
Munsee	1085.80	2360.51	1371.03	3739.63	1706.88
Nanaimo	3577.70	1613.17	3301.32	313.86	2119.13
Navajo	2211.64	1032.67	1850.04	2156.75	1769.77
Nez Perce	2995.39	1031.24	2706.02	761.08	1649.01
Nisqually	3449.90	1485.79	3158.29	541.19	2070.20
Nivkhi	9283.44	7562.07	9133.25	5978.10	7611.06
N. Hill Yokut	3174.47	1533.14	2821.65	1689.69	2337.18
N. Paiute	3205.36	1366.61	2873.62	1219.63	2124.55
N. Pomo	3488.53	1692.57	3147.86	1390.44	2457.59
Ojibwa1*	1264.16	1841.63	1396.05	3105.25	1104.41
Ojibwa2*	1811.02	1119.47	1734.00	2134.17	337.14
Okanagan	3247.17	1284.04	2973.51	439.14	1799.65
Omaha	1324.94	646.96	1072.80	2267.03	650.20
Oneida	874.94	1821.08	1035.37	3241.52	1200.24
Osage	1121.41	1048.31	768.55	2687.03	1251.99
Pawnee	1423.45	554.37	1136.35	2204.08	787.21
Piegan	2740.79	793.76	2479.54	857.52	1289.84
Ponca	1696.25	270.50	1421.10	1916.14	713.45
Potawatomi	806.98	1468.73	825.16	2959.36	940.23
Pueblo	2121.17	1044.20	1757.93	2240.28	1752.81
Puyallup	3420.71	1455.86	3130.54	528.99	2036.10
Queets	3540.84	1575.45	3251.39	497.36	2143.46
Quillayute	3589.11	1622.77	3302.83	451.16	2173.29
Quinault	3572.25	1607.48	3281.34	517.43	2179.79
Reindeer					
Chukchi	6884.86	5144.66	6721.05	3583.07	5208.96
Reindeer Even	7227.32	5524.45	7076.85	3982.71	5554.15
Reindeer					
Koryak	7491.75	5750.70	7329.68	4177.37	5816.11
San Luis Rey	2999.61	1638.91	2634.94	2141.70	2441.19
Sarcee	3014.41	1157.66	2788.99	630.32	1421.01
Sauk	1040.65	1003.62	713.16	2654.71	1100.32
Seneca	1004.14	2050.40	1221.71	3426.39	1391.24
Serano	2961.93	1552.04	2599.01	2048.63	2356.92
Shawnee	1166.82	1151.38	802.00	2770.08	1407.88
Shoshoni	2584.25	689.01	2272.12	1261.26	1455.59
Shuswap	3368.05	1423.29	3110.07	233.20	1852.01
Sioux(Santee)	1395.11	717.74	1208.93	2213.81	369.70

Matrix 2F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa(MN)
Sioux(Teton)	1814.70	252.34	1570.02	1772.53	560.31
Sioux (Yankton)	1431.34	550.29	1184.10	2157.94	584.19
S. Miwok	3164.74	1503.69	2813.52	1646.40	2305.96
Stalo	3423.20	1460.61	3150.14	315.57	1960.58
Stockbridge	1054.68	1251.72	1007.06	2694.86	667.38
Tahltan	4267.76	2412.54	4053.12	844.29	2626.88
Taos	1939.56	866.32	1581.41	2202.69	1539.72
Tenino	3310.53	1370.08	3002.92	804.04	2034.71
Thompson	3439.24	1485.61	3175.18	213.47	1940.79
Tonkawa	1323.61	1369.38	959.76	2931.62	1708.79
Tsimshian	4094.53	2172.33	3850.94	523.82	2510.70
Tundra Evenk	7414.31	5827.08	7299.22	4367.36	5762.45
Tuscarora	993.24	2006.88	1199.76	3384.85	1348.86
Tututni	3550.16	1657.68	3225.74	1062.05	2366.88
Umatilla	3111.72	1156.06	2813.65	766.98	1800.22
Ute	2334.97	631.24	2003.64	1616.85	1440.00
Wasco	3311.41	1358.96	3009.93	716.85	1998.12
Washo	3209.93	1449.00	2867.65	1428.56	2233.29
W. Mono	3096.52	1476.00	2743.01	1713.44	2282.58
Winnebago	1167.73	1045.88	1056.57	2507.76	509.88
Yakut	8762.46	7251.96	8674.83	5808.74	7139.22
Yokuts	3332.23	1592.05	2986.49	1503.03	2377.84
Yukaghir	7813.48	6168.12	7683.06	4654.37	6150.18
Yuki	3456.91	1644.49	3118.75	1332.28	2404.20
Yurok	3476.76	1611.93	3147.03	1159.61	2344.36
Zuni	2245.71	1084.48	1882.84	2183.02	1822.79

Matrix 2F. cont.

	Chippewa(WI)	Choctaw	Chuvantsy	Clallum	C. Miwok
Achomawi	2555.95	2981.97	4922.44	776.18	388.16
Agua Caliente	2666.94	2553.45	5893.28	1743.43	600.13
Aiwan	5839.49	7140.11	91.63	4131.10	5206.33
Aleut	5422.53	6467.10	1734.08	3166.87	4039.27
Apache	2237.15	1983.48	6177.52	1963.16	996.09
Arapaho	1540.49	2067.53	5345.02	1258.90	1085.15
Assiniboin	974.04	1986.66	5225.71	1556.52	1767.94
Atsugewi	2588.64	2971.30	4991.10	857.80	309.52
Bannock	1792.26	2324.63	5171.32	1020.34	869.34
Bella Coola	2736.33	3704.99	3705.14	527.62	1685.24
Big Meadow	2597.53	2960.53	5025.21	895.06	273.06
Blood	1788.49	2727.14	4565.53	750.40	1383.65
Caddo	1616.43	602.63	6993.49	2938.61	2309.41
Carrier	2452.35	3469.32	3856.02	542.50	1678.84
Catawba	1435.57	783.40	7335.00	3758.92	3467.67
Cherokee	1297.79	536.16	7188.28	3521.62	3196.53
Cheyenne	1125.50	1800.90	5468.48	1555.10	1496.75
Chickasaw	1227.03	266.90	7032.23	3237.62	2848.23
Chilcotin	2481.91	3452.06	3915.34	422.79	1569.35
Chippewa(MN)	441.22	1748.49	5513.60	2099.79	2293.44
Chippewa(WI)	0	1469.11	5900.63	2528.34	2618.59
Choctaw	1469.11	0	7209.26	3323.34	2837.17
Chuvantsy	5900.63	7209.26	0	4214.81	5293.43
Clallum	2528.34	3323.34	4214.81	0	1163.32
C. Miwok	2618.59	2837.17	5293.43	1163.32	0
Coahuilla	2600.05	2482.90	5909.35	1743.43	617.89
Coeur d'Alene	2029.71	2804.28	4622.88	526.21	1056.36
Comanche	1542.07	1061.60	6526.12	2419.48	1785.31
Concow	2622.51	2988.47	5008.63	889.11	286.19
Creek	1495.46	496.35	7378.02	3661.35	3278.64
Crow	1358.92	2118.20	5175.97	1241.02	1335.45
E. Mono	2527.95	2708.38	5394.95	1233.98	133.04
Eskimo(EC)	2276.20	3450.71	5634.84	4045.88	4625.88
Eskimo(WC)	3497.99	4834.80	2402.94	2239.82	3402.43
Even	6567.45	7938.15	908.79	5073.95	6175.32
Evenk	6540.93	7855.59	646.46	4839.14	5897.50
Flathead	1827.02	2625.42	4743.11	722.82	1138.77
Haida	3094.69	4104.30	3321.67	893.14	2010.57
Hoopa	2752.65	3177.55	4833.16	787.34	466.19
Itelman1	7005.90	8276.68	1130.73	5155.50	6158.50
Itelman2	6858.95	8128.21	992.27	5009.78	6017.25
Kalapuya	2605.81	3245.19	4473.70	341.11	844.41
Kiowa	1446.46	883.45	6610.92	2544.66	1956.84
Klamath	2532.40	3039.19	4778.11	619.46	544.45
Klickitat**	2365.53	3075.87	4491.97	278.58	933.14
Koryak	6333.16	7638.32	432.54	4611.45	5670.14
Kutenai	1952.56	2873.70	4449.66	592.43	1340.48
Kwakiutl	2771.42	3711.27	3735.63	482.50	1629.16
Lillooet	2466.24	3367.55	4057.01	248.09	1391.94

Matrix 2F. cont.

	Chippewa(WI)	Choctaw	Chuvantsy	Clallum	C. Miwok
Makah	2612.25	3415.27	4138.14	91.93	1215.18
Malecite	1555.13	2351.78	6460.12	3919.69	4167.64
Maritime Chukchi	5817.24	7115.62	120.74	4102.98	5177.50
Menomini	154.85	1347.30	6054.26	2659.06	2699.06
Micmac	1989.25	2631.74	6770.60	4368.74	4606.83
Mississagua	528.69	1577.73	6152.58	3023.09	3146.07
Modoc	2546.94	3002.52	4869.76	719.29	444.90
Mohawk	1188.91	1840.46	6577.75	3677.18	3797.36
Montagnais	2271.28	3248.63	6170.07	4329.13	4783.59
Munsee	1276.32	1604.59	6877.99	3804.12	3813.14
Nanaimo	2552.57	3394.92	4103.60	120.09	1283.32
Navajo	1946.78	1806.50	6066.36	1861.83	1052.25
Nez Perce	2059.70	2789.47	4674.82	533.88	973.04
Nisqually	2492.14	3235.80	4341.02	130.45	1034.87
Nivkhi	7991.23	9310.73	2101.57	6244.42	7256.44
N. Hill Yokut	2647.56	2799.15	5410.64	1284.83	121.79
N. Paiute	2487.31	2896.10	4988.16	818.45	350.65
N. Pomo	2816.08	3151.73	4990.17	968.11	347.22
Ojibwa1*	716.13	1662.49	6240.10	3198.24	3333.64
Ojibwa2*	514.55	1967.75	5399.04	2254.56	2574.57
Okanagan	2229.63	3072.09	4352.35	300.97	1194.19
Omaha	680.60	1223.96	5986.32	2199.51	2039.18
Oneida	760.18	1298.42	6545.99	3283.62	3274.23
Osage	1169.88	791.57	6511.64	2537.49	2079.68
Pawnee	868.23	1250.75	5984.15	2103.29	1869.06
Piegan	1714.73	2594.60	4714.62	814.34	1296.05
Ponca	939.47	1539.22	5704.07	1825.42	1691.26
Potawatomi	515.83	1089.68	6413.42	2968.64	2902.67
Pueblo	1906.99	1707.79	6153.05	1954.16	1157.20
Puyallup	2458.52	3209.90	4349.56	134.76	1042.14
Queets	2568.77	3330.84	4251.33	78.37	1102.90
Quillayute	2601.49	3385.59	4184.07	73.72	1166.58
Quinault	2604.64	3358.91	4242.15	108.71	1099.31
Reindeer Chukchi	5602.13	6893.87	334.80	3880.29	4959.31
Reindeer Even	5936.98	7257.11	104.44	4288.14	5373.73
Reindeer Koryak	6206.97	7502.57	318.43	4461.84	5517.97
San Luis Rey	2684.75	2568.54	5895.70	1750.05	603.30
Sarcee	1862.22	2932.42	4310.99	822.30	1657.62
Sauk	992.23	797.35	6438.04	2533.65	2160.30
Seneca	960.05	1476.54	6628.11	3487.88	3513.08
Serrano	2609.45	2542.44	5819.47	1660.59	526.76
Shawnee	1327.89	770.63	6619.85	2598.95	2067.84
Shoshoni	1809.37	2330.86	5176.60	1019.24	849.46
Shuswap	2290.29	3223.23	4143.91	360.48	1412.49
Sioux(Santee)	429.38	1402.09	5823.56	2203.41	2198.43
Sioux(Teton)	879.08	1713.04	5506.58	1727.78	1748.30

Matrix 2F. cont.

	Chippewa(WI)	Choctaw	Chuvantsy	Clallum	C. Miwok
Sioux (Yankton)	686.69	1335.29	5875.60	2097.25	1977.76
S. Miwok	2620.71	2795.35	5375.53	1242.63	82.30
Stalo	2393.66	3248.14	4202.22	172.43	1257.05
Stockbridge	245.47	1258.84	6146.08	2718.09	2720.46
Tahltan	3059.52	4198.03	3081.76	1203.98	2362.64
Taos	1683.53	1555.85	6116.57	1952.15	1281.69
Tenino	2437.55	3061.39	4607.87	406.00	765.31
Thompson	2377.77	3282.07	4122.95	269.99	1369.34
Tonkawa	1637.26	840.64	6818.42	2721.60	2058.07
Tsimshian	2951.49	3973.15	3415.19	808.64	1952.12
Tundra Evenk	6116.53	7498.48	735.41	4706.06	5828.33
Tuscarora	916.99	1456.78	6598.73	3445.00	3470.16
Tututni	2756.18	3258.23	4671.95	639.81	622.57
Umatilla	2206.48	2885.82	4657.27	458.64	864.83
Ute	1726.71	2035.49	5532.14	1364.89	906.41
Wasco	2407.65	3076.36	4541.85	329.67	853.05
Washo	2574.43	2869.97	5163.97	1022.66	140.89
W. Mono	2585.59	2719.09	5462.76	1315.39	171.62
Winnebago	202.42	1288.76	6020.59	2519.30	2518.47
Yakut	7469.83	8885.67	1999.81	6144.74	7258.57
Yokuts	2717.26	2980.48	5172.71	1087.13	150.69
Yukaghir	6516.81	7873.73	776.93	4969.04	6061.55
Yuki	2766.48	3127.77	4957.37	910.56	354.41
Yurok	2722.79	3171.22	4798.72	737.20	495.90
Zuni	1998.22	1832.95	6089.36	1880.85	1040.03

Matrix 2F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Achomawi	989.46	747.59	1964.77	120.64	3392.46
Agua Caliente	72.11	1538.75	1499.67	885.91	3030.03
Aiwan	5822.53	4542.50	6449.02	4921.71	7313.93
Aleut	4646.17	3670.66	5585.05	3774.81	6759.38
Apache	502.41	1613.01	936.12	1242.05	2463.24
Arapaho	1218.24	751.96	1187.90	1086.49	2427.66
Assiniboin	1918.26	1056.13	1442.76	1715.34	2217.96
Atsugewi	918.49	821.75	1944.16	41.34	3389.23
Bannock	1124.24	548.49	1399.85	830.84	2695.45
Bella Coola	2270.91	933.85	2867.94	1405.70	4000.63
Big Meadow	884.15	852.10	1929.50	27.99	3381.61
Blood	1789.47	350.95	1961.26	1208.77	3012.14
Caddo	1905.78	2441.87	534.18	2489.29	1098.53
Carrier	2227.46	773.80	2677.91	1416.33	3746.10
Catawba	3188.25	3233.23	1764.39	3578.34	312.06
Cherokee	2911.66	2995.41	1487.90	3312.56	203.16
Cheyenne	1561.83	1028.89	1098.73	1499.47	2108.73
Chickasaw	2547.24	2713.01	1121.49	2975.82	434.30
Chilcotin	2127.26	707.64	2632.64	1303.08	3743.39
Chippewa(MN)	2361.57	1612.55	1538.62	2263.99	1864.42
Chippewa(WI)	2600.05	2029.71	1542.07	2622.51	1495.46
Choctaw	2482.90	2804.28	1061.60	2988.47	496.35
Chuvantsy	5909.35	4622.88	6526.12	5008.63	7378.02
Clallum	1743.43	526.21	2419.48	889.11	3661.35
C. Miwok	617.89	1056.36	1785.31	286.19	3278.64
Coahuilla	0	1517.54	1428.29	900.93	2958.79
Coeur d'Alene	1517.54	0	1934.52	862.93	3135.70
Comanche	1428.29	1934.52	0	1957.08	1530.69
Concow	900.93	862.93	1957.08	0	3409.60
Creek	2958.79	3135.70	1530.69	3409.60	0
Crow	1525.44	715.61	1359.11	1285.35	2426.86
E. Mono	515.94	1070.06	1654.66	390.35	3152.84
Eskimo(EC)	4770.45	3717.15	3814.98	4530.64	3183.03
Eskimo(WC)	3964.29	2485.29	4251.71	3128.45	4979.75
Even	6788.51	5455.79	7326.10	5889.54	8061.21
Evenk	6515.01	5258.11	7167.81	5614.35	8021.33
Flathead	1531.60	203.15	1790.43	985.04	2945.50
Haida	2614.08	1335.67	3270.17	1725.11	4391.87
Hoopa	1083.42	882.50	2152.64	201.75	3592.00
Itelman1	6775.24	5604.56	7533.61	5880.98	8471.01
Itelman2	6634.29	5457.41	7385.96	5739.12	8323.16
Kalapuya	1445.13	590.33	2281.08	561.87	3618.48
Kiowa	1610.10	2047.80	181.91	2120.06	1349.12
Klamath	1139.36	636.52	2041.71	272.28	3435.72
Klickitat**	1487.86	338.28	2151.06	679.37	3429.55
Koryak	6287.59	5031.61	6943.17	5386.87	7810.07
Kutenai	1793.08	284.46	2078.13	1139.15	3167.73
Kwakiutl	2220.97	923.68	2857.38	1347.43	4015.76
Lillooet	1954.50	580.15	2514.67	1124.87	3677.77

Matrix 2F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Makah	1805.21	617.42	2509.28	935.60	3752.90
Malecite	4146.11	3472.23	2943.94	4152.74	2014.17
Maritime Chukchi	5793.75	4515.15	6422.46	4892.91	7290.82
Menomini	2646.63	2154.34	1516.79	2717.09	1347.98
Micmac	4565.14	3922.32	3319.20	4597.80	2238.74
Mississagua	3106.45	2537.16	1944.16	3150.86	1428.25
Modoc	1043.81	705.67	1992.16	174.50	3408.02
Mohawk	3722.51	3197.43	2465.57	3810.64	1514.39
Montagnais	4854.07	3951.06	3762.93	4721.42	2918.02
Munsee	3678.44	3305.36	2350.44	3853.93	1226.20
Nanaimo	1862.85	590.64	2509.24	1008.40	3721.88
Navajo	708.21	1454.85	745.11	1252.14	2269.37
Nez Perce	1437.59	83.42	1898.90	782.82	3131.47
Nisqually	1612.99	465.59	2314.37	763.24	3584.87
Nivkhi	7873.28	6683.94	8605.92	6978.57	9474.93
N. Hill Yokut	505.77	1162.31	1741.21	406.58	3249.36
N. Paiute	930.55	731.63	1878.35	142.86	3307.86
N. Pomo	946.22	1025.25	2109.87	193.85	3580.86
Ojibwa1*	3289.69	2716.85	2104.51	3337.89	1458.41
Ojibwa2*	2680.48	1803.20	1864.94	2520.73	2009.51
Okanagan	1716.22	276.78	2211.30	954.43	3392.61
Omaha	1945.16	1673.66	898.95	2092.23	1476.42
Oneida	3156.01	2778.21	1871.33	3313.50	1067.78
Osage	1801.58	2022.63	425.52	2211.50	1200.00
Pawnee	1756.70	1577.79	753.20	1936.04	1558.08
Piegan	1667.16	333.09	1811.58	1146.11	2892.10
Ponca	1669.85	1299.22	934.00	1724.59	1838.40
Potawatomi	2777.11	2453.82	1509.97	2950.65	1009.42
Pueblo	791.70	1535.53	646.28	1357.17	2174.36
Puyallup	1614.18	433.29	2293.67	774.11	3556.58
Queets	1690.90	549.96	2411.44	825.04	3677.24
Quillayute	1756.91	594.33	2472.70	887.13	3727.50
Quinault	1692.29	583.70	2434.34	818.98	3707.74
Reindeer Chukchi	5575.02	4290.70	6197.74	4674.38	7072.77
Reindeer Even	5988.92	4689.88	6586.94	5088.55	7418.24
Reindeer Koryak	6135.49	4884.73	6798.97	5234.84	7680.24
San Luis Rey	89.03	1549.95	1515.37	889.37	3045.58
Sarcee	2091.59	601.41	2229.41	1457.60	3181.45
Sauk	1924.91	2011.64	595.58	2271.95	1146.35
Seneca	3400.78	2989.28	2110.44	3546.72	1179.52
Serrano	92.65	1451.03	1483.93	810.85	3014.30
Shawnee	1745.27	2092.18	324.21	2218.52	1219.79
Shoshoni	1105.59	553.83	1400.30	813.35	2704.21
Shuswap	1943.53	480.45	2399.70	1162.58	3521.62
Sioux(Santee)	2171.39	1687.03	1195.33	2216.23	1570.46
Sioux(Teton)	1802.86	1206.48	1165.09	1743.44	1971.62

Matrix 2F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Sioux (Yankton)	1915.98	1572.05	954.47	2018.25	1585.55
S. Miwok	536.70	1117.90	1739.45	368.46	3242.33
Stalo	1811.75	447.64	2379.13	996.01	3569.11
Stockbridge	2645.87	2208.89	1476.28	2748.28	1253.68
Tahltan	2947.17	1546.92	3447.21	2082.18	4439.85
Taos	991.35	1495.40	508.55	1448.54	2006.16
Tenino	1337.46	450.52	2102.41	504.32	3434.31
Thompson	1917.84	504.17	2437.32	1110.21	3589.87
Tonkawa	1652.99	2235.35	302.13	2242.82	1331.80
Tsimshian	2546.84	1220.80	3153.05	1668.91	4255.24
Tundra Evenk	6436.18	5066.14	6912.92	5542.15	7611.36
Tuscarora	3359.99	2946.04	2074.46	3503.31	1172.53
Tututni	1240.35	812.65	2249.66	342.49	3659.90
Umatilla	1373.36	223.49	1962.71	649.66	3242.22
Ute	939.35	909.26	1060.58	979.43	2437.93
Wasco	1417.87	394.22	2133.99	594.56	3439.66
Washo	745.43	929.42	1828.82	157.60	3300.32
W. Mono	447.07	1159.86	1660.80	454.14	3170.26
Winnebago	2459.64	2007.41	1349.04	2543.07	1358.66
Yakut	7869.46	6507.35	8343.02	6972.48	8962.93
Yokuts	750.37	1049.70	1931.44	201.04	3417.96
Yukaghir	6676.14	5360.07	7241.73	5776.14	8008.27
Yuki	966.26	961.70	2091.11	146.81	3552.27
Yurok	1113.75	836.04	2152.08	218.50	3581.32
Zuni	668.82	1483.66	771.54	1249.16	2299.71

Matrix 2F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even
Achomawi	1207.58	473.55	4430.68	3015.95	5799.36
Agua Caliente	1575.74	509.87	4830.37	3971.60	6775.41
Aiwan	5100.52	5308.39	5609.87	2343.37	1000.29
Aleut	4349.75	4160.79	5940.21	2375.17	2593.17
Apache	1383.80	866.09	4473.45	4097.56	7035.53
Arapaho	311.37	1006.89	3578.56	3118.86	6158.62
Assiniboin	433.37	1703.02	2871.32	2871.67	5974.87
Atsugewi	1248.68	404.22	4490.36	3097.61	5870.25
Bannock	466.53	813.25	3758.63	3005.22	6001.97
Bella Coola	1586.86	1760.34	3947.76	1728.54	4555.33
Big Meadow	1262.35	371.18	4512.14	3134.86	5905.05
Blood	616.97	1381.42	3371.68	2324.72	5368.23
Caddo	1819.30	2177.58	3805.64	4676.35	7771.72
Carrier	1356.65	1733.77	3672.95	1737.20	4682.82
Catawba	2517.91	3345.63	2920.73	4932.07	7986.43
Cherokee	2282.21	3073.61	3007.38	4788.18	7865.07
Cheyenne	319.17	1412.43	3208.84	3159.08	6247.18
Chickasaw	2009.23	2723.38	3185.79	4645.32	7743.06
Chilcotin	1334.10	1628.60	3769.18	1837.92	4751.76
Chippewa(MN)	979.60	2216.17	2414.54	3116.54	6207.68
Chippewa(WI)	1358.92	2527.95	2276.20	3497.99	6567.45
Choctaw	2118.20	2708.38	3450.71	4834.80	7938.15
Chuvantsy	5175.97	5394.95	5634.84	2402.94	908.79
Clallum	1241.02	1233.98	4045.88	2239.82	5073.95
C. Miwok	1335.45	133.04	4625.88	3402.43	6175.32
Coahuilla	1525.44	515.94	4770.45	3964.29	6788.51
Coeur d'Alene	715.61	1070.06	3717.15	2485.29	5455.79
Comanche	1359.11	1654.66	3814.98	4251.71	7326.10
Concow	1285.35	390.35	4530.64	3128.45	5889.54
Creek	2426.86	3152.84	3183.03	4979.75	8061.21
Crow	0	1274.03	3296.44	2895.96	5967.67
E. Mono	1274.03	0	4570.29	3466.11	6272.84
Eskimo(EC)	3296.44	4570.29	0	3571.37	5979.67
Eskimo(WC)	2895.96	3466.11	3571.37	0	3105.02
Even	5967.67	6272.84	5979.67	3105.02	0
Evenk	5819.81	6002.84	6177.55	3043.13	546.85
Flathead	519.63	1129.31	3556.59	2548.15	5562.00
Haida	1986.27	2098.61	4134.87	1495.72	4183.47
Hoopa	1399.66	583.48	4592.41	3009.12	5718.74
Itelman1	6203.66	6271.33	6739.83	3515.98	999.35
Itelman2	6055.41	6129.46	6613.28	3370.46	958.79
Kalapuya	1259.19	929.51	4279.03	2570.57	5346.43
Kiowa	1434.97	1827.10	3706.59	4310.43	7398.04
Klamath	1174.32	624.01	4345.94	2859.24	5652.05
Klickitat**	1033.71	987.98	4024.02	2478.65	5348.50
Koryak	5596.57	5775.27	6026.94	2835.46	676.19
Kutenai	756.35	1353.98	3494.37	2248.23	5263.77
Kwakiutl	1595.01	1708.23	4019.00	1794.97	4591.90
Lillooet	1253.34	1453.11	3861.22	2013.02	4902.12

Matrix 2F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even
Makah	1331.59	1292.50	4097.18	2195.16	5000.98
Malecite	2869.27	4080.58	1228.38	4171.59	6934.32
Maritime Chukchi	5074.40	5279.65	5598.32	2321.82	1029.50
Menomini	1470.02	2603.41	2301.08	3651.47	6717.79
Micmac	3315.78	4517.19	1290.42	4532.61	7195.85
Mississagua	1882.36	3053.84	1911.82	3759.94	6761.39
Modoc	1193.82	527.91	4400.02	2959.07	5745.65
Mohawk	2545.58	3701.20	1679.96	4223.44	7118.12
Montagnais	3449.45	4713.72	540.90	4064.69	6520.49
Munsee	2622.84	3708.42	2009.36	4506.42	7438.39
Nanaimo	1295.70	1353.91	4002.90	2120.18	4959.78
Navajo	1128.22	919.75	4179.14	3920.92	6908.51
Nez Perce	725.34	986.92	3784.30	2556.18	5512.71
Nisqually	1177.53	1103.89	4080.40	2367.61	5202.13
Nivkhi	7264.79	7368.91	7469.10	4495.31	1494.53
N. Hill Yokut	1393.97	121.03	4689.91	3523.62	6293.85
N. Paiute	1145.28	416.58	4388.04	3054.72	5862.11
N. Pomo	1478.68	478.09	4714.68	3189.78	5879.37
Ojibwa1*	2067.59	3241.22	1794.42	3857.36	6827.32
Ojibwa2*	1241.27	2505.84	2090.10	2996.31	6055.65
Okanagan	965.80	1234.59	3775.95	2253.50	5190.86
Omaha	958.62	1934.49	2949.24	3620.47	6725.48
Oneida	2088.00	3170.70	2153.45	4149.68	7160.86
Osage	1356.68	1954.98	3423.68	4176.34	7276.84
Pawnee	873.52	1760.89	3130.37	3639.46	6741.65
Piegan	477.38	1281.80	3397.77	2476.49	5519.52
Ponca	588.62	1594.59	3124.39	3371.01	6469.32
Potawatomi	1750.19	2797.19	2402.78	4010.50	7070.44
Pueblo	1167.93	1024.59	4154.12	3990.86	6991.21
Puyallup	1146.54	1107.45	4046.84	2360.74	5208.36
Queets	1264.89	1178.60	4115.46	2303.76	5115.12
Quillayute	1309.86	1244.03	4112.92	2243.18	5047.88
Quinault	1297.89	1178.55	4151.34	2312.12	5108.31
Reindeer Chukchi	4849.97	5060.49	5435.01	2110.28	1231.05
Reindeer Even	5234.35	5474.03	5624.78	2439.34	815.51
Reindeer Koryak	5454.33	5623.38	5948.77	2711.22	803.15
San Luis Rey	1591.97	516.11	4847.71	3979.62	6778.54
Sarcee	870.42	1666.97	3224.07	2032.24	5097.32
Sauk	1320.88	2039.67	3242.84	4084.44	7188.76
Seneca	2308.72	3410.89	2004.18	4243.37	7214.42
Serrano	1496.81	428.94	4760.02	3886.39	6699.68
Shawnee	1449.78	1939.82	3576.13	4298.46	7394.65
Shoshoni	486.22	793.03	3778.75	3015.76	6008.70
Shuswap	1105.08	1458.21	3696.42	2025.49	4975.35
Sioux(Santee)	984.78	2104.47	2667.26	3437.43	6538.12
Sioux(Teton)	497.97	1664.75	2968.86	3158.94	6261.12

Matrix 2F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even
Sioux (Yankton)	856.44	1877.24	2933.44	3511.89	6616.85
S. Miwok	1358.45	94.22	4653.58	3480.91	6257.59
Stalo	1142.25	1313.59	3874.26	2153.42	5048.63
Stockbridge	1515.88	2621.58	2351.70	3743.46	6811.49
Tahltan	2108.25	2437.68	3847.84	1070.93	3908.93
Taos	1034.47	1152.54	3934.68	3906.12	6939.89
Tenino	1084.75	829.30	4165.68	2638.65	5472.85
Thompson	1166.48	1423.18	3796.01	2046.45	4962.88
Tonkawa	1644.77	1925.95	3878.75	4528.40	7611.68
Tsimshian	1856.27	2033.46	4009.08	1497.10	4267.35
Tundra Evenk	5553.85	5920.39	5526.23	2673.13	462.70
Tuscarora	2265.17	3368.19	2014.17	4212.09	7189.22
Tututni	1397.31	732.74	4529.34	2848.68	5556.13
Umatilla	860.25	895.94	3939.36	2594.93	5506.80
Ute	603.42	805.13	3836.87	3355.35	6362.43
Wasco	1063.85	913.11	4098.58	2553.24	5403.05
Washo	1262.88	232.82	4539.66	3261.58	6043.47
W. Mono	1349.57	89.80	4645.84	3550.30	6343.25
Winnebago	1311.12	2421.15	2466.02	3621.20	6705.24
Yakut	6984.92	7353.52	6577.61	4092.88	1093.04
Yokuts	1407.49	283.54	4681.83	3324.94	6058.57
Yukaghir	5884.73	6160.91	5993.32	3039.01	156.17
Yuki	1424.78	479.99	4653.87	3137.20	5844.39
Yurok	1367.40	607.68	4548.54	2961.80	5682.65
Zuni	1174.89	907.08	4231.98	3954.93	6934.44

Matrix 2F. cont.

	Evenk	Flathead	Haida	Hoopa	Itelman1
Achomawi	5532.23	878.16	1626.29	202.81	5808.31
Agua Caliente	6495.89	1561.76	2606.71	1061.79	6749.68
Aiwan	719.31	4664.48	3238.00	4745.61	1178.10
Aleut	2131.41	3842.81	2367.97	3577.45	2207.06
Apache	6799.05	1561.62	2856.08	1442.25	7095.56
Arapaho	5984.80	603.12	2085.08	1232.04	6345.77
Assiniboin	5872.16	853.87	2185.39	1821.03	6290.18
Atsugewi	5598.62	943.88	1701.48	208.64	5869.23
Bannock	5806.55	458.38	1877.63	965.22	6150.03
Bella Coola	4335.26	1087.32	403.04	1280.58	4671.86
Big Meadow	5631.99	969.77	1737.59	227.49	5900.74
Blood	5208.19	257.89	1381.19	1233.35	5587.31
Caddo	7638.05	2285.57	3774.17	2685.70	8021.31
Carrier	4494.29	888.36	648.68	1328.48	4856.99
Catawba	7974.14	3036.84	4446.02	3753.47	8441.47
Cherokee	7830.77	2801.83	4232.54	3490.04	8284.91
Cheyenne	6113.60	836.77	2303.51	1638.28	6506.60
Chickasaw	7677.75	2525.72	3985.62	3157.80	8111.91
Chilcotin	4550.52	843.99	652.24	1209.92	4901.45
Chippewa(MN)	6157.06	1411.80	2653.79	2377.96	6608.92
Chippewa(WI)	6540.93	1827.02	3094.69	2752.65	7005.90
Choctaw	7855.59	2625.42	4104.30	3177.55	8276.68
Chuvantsy	646.46	4743.11	3321.67	4833.16	1130.73
Clallum	4839.14	722.82	893.14	787.34	5155.50
C. Miwok	5897.50	1138.77	2010.57	466.19	6158.50
Coahuilla	6515.01	1531.60	2614.08	1083.42	6775.24
Coeur d'Alene	5258.11	203.15	1335.67	882.50	5604.56
Comanche	7167.81	1790.43	3270.17	2152.64	7533.61
Concow	5614.35	985.04	1725.11	201.75	5880.98
Creek	8021.33	2945.50	4391.87	3592.00	8471.01
Crow	5819.81	519.63	1986.27	1399.66	6203.66
E. Mono	6002.84	1129.31	2098.61	583.48	6271.33
Eskimo(EC)	6177.55	3556.59	4134.87	4592.41	6739.83
Eskimo(WC)	3043.13	2548.15	1495.72	3009.12	3515.98
Even	546.85	5562.00	4183.47	5718.74	999.35
Evenk	0	5382.26	3946.81	5434.13	576.12
Flathead	5382.26	0	1490.12	1036.14	5743.26
Haida	3946.81	1490.12	0	1573.99	4273.43
Hoopa	5434.13	1036.14	1573.99	0	5692.33
Itelman1	576.12	5743.26	4273.43	5692.33	0
Itelman2	479.61	5595.58	4126.86	5551.13	148.50
Kalapuya	5088.13	786.13	1169.11	446.32	5378.17
Kiowa	7254.59	1893.03	3380.73	2313.50	7632.18
Klamath	5390.84	790.18	1474.73	246.78	5674.60
Klickitat**	5117.18	539.05	1170.60	630.35	5433.83
Koryak	227.85	5156.75	3719.22	5206.94	714.74
Kutenai	5090.25	300.97	1230.74	1139.32	5459.30
Kwakiutl	4362.69	1087.50	417.24	1215.87	4690.37
Lillooet	4688.60	742.73	755.61	1033.36	5026.81

Matrix 2F. cont.

	Evenk	Flathead	Haida	Hoopa	Itelman1
Makah	4760.43	812.81	817.68	817.27	5072.12
Malecite	7053.53	3278.00	4285.65	4267.13	7589.49
Maritime Chukchi	745.49	4637.56	3209.90	4716.69	1197.48
Menomini	6694.22	1951.23	3241.75	2854.07	7160.23
Micmac	7347.77	3727.96	4719.02	4714.55	7894.94
Mississagua	6782.66	2335.88	3529.23	3279.19	7274.03
Modoc	5480.59	844.41	1571.02	205.91	5759.38
Mohawk	7191.55	2996.83	4142.99	3941.45	7707.66
Montagnais	6716.79	3774.79	4513.44	4805.37	7277.94
Munsee	7497.62	3102.45	4331.66	3998.61	8006.03
Nanaimo	4729.83	776.41	783.06	901.73	5052.16
Navajo	6696.13	1372.77	2750.51	1452.94	7016.84
Nez Perce	5308.20	240.36	1375.36	810.29	5648.01
Nisqually	4963.91	668.44	1019.75	672.61	5275.52
Nivkhi	1455.55	6816.38	5358.13	6790.28	1098.12
N. Hill Yokut	6013.02	1233.40	2131.60	579.06	6269.64
N. Paiute	5600.41	845.32	1683.81	284.69	5881.52
N. Pomo	5586.14	1161.92	1748.51	181.41	5833.11
Ojibwa1*	6865.42	2516.21	3684.16	3465.28	7365.36
Ojibwa2*	6037.29	1610.86	2708.67	2618.29	6509.71
Okanagan	4986.02	447.87	1058.91	913.61	5328.81
Omaha	6632.74	1478.04	2916.16	2248.88	7053.10
Oneida	7177.82	2575.07	3849.84	3458.82	7665.29
Osage	7157.43	1850.26	3337.88	2396.50	7554.75
Pawnee	6630.40	1389.38	2856.11	2099.46	7037.14
Piegan	5356.77	161.07	1509.75	1194.64	5732.32
Ponca	6350.05	1107.17	2568.03	1875.28	6752.50
Potawatomi	7052.70	2251.22	3584.73	3101.21	7520.60
Pueblo	6784.38	1444.15	2840.52	1557.83	7109.66
Puyallup	4973.80	635.83	1027.89	691.42	5288.88
Queets	4872.75	751.21	931.67	715.11	5181.33
Quillayute	4805.63	792.81	864.42	770.42	5115.11
Quinault	4862.01	785.53	925.22	701.21	5166.80
Reindeer Chukchi	970.12	4412.82	2987.16	4499.44	1405.72
Reindeer Even	604.08	4806.98	3395.23	4914.58	1122.51
Reindeer Koryak	379.53	5011.48	3569.99	5054.61	813.00
San Luis Rey	6497.51	1574.68	2611.45	1063.41	6749.63
Sarcee	4955.98	562.88	1234.29	1451.46	5352.35
Sauk	7084.42	1829.85	3306.95	2450.37	7493.63
Seneca	7253.76	2786.42	4022.51	3688.64	7752.94
Serrano	6424.24	1474.51	2527.48	991.71	6683.13
Shawnee	7264.88	1928.09	3418.21	2408.73	7653.44
Shoshoni	5811.34	470.34	1880.13	949.70	6153.03
Shuswap	4780.34	610.81	882.31	1100.29	5134.13
Sioux(Santee)	6468.95	1484.58	2851.01	2355.78	6906.76
Sioux(Teton)	6152.97	1005.57	2420.26	1875.48	6565.08

Matrix 2F. cont.

	Evenk	Flathead	Haida	Hoopa	Itelman1
Sioux (Yankton)	6522.04	1374.89	2806.44	2169.83	6941.57
S. Miwok	5979.24	1190.31	2092.52	546.75	6238.91
Stalo	4832.98	624.49	894.33	919.33	5167.56
Stockbridge	6786.39	2005.77	3316.27	2890.00	7251.03
Tahltan	3721.35	1661.35	438.32	1950.20	4095.42
Taos	6753.07	1377.89	2823.64	1644.40	7096.87
Tenino	5227.71	632.99	1289.38	457.37	5529.59
Thompson	4756.48	658.74	833.69	1033.95	5100.39
Tonkawa	7461.09	2088.46	3570.81	2440.38	7831.52
Tsimshian	4045.12	1367.01	143.99	1529.55	4383.78
Tundra Evenk	765.91	5163.32	3822.58	5378.44	1326.73
Tuscarora	7225.32	2743.16	3982.08	3645.11	7722.91
Tututni	5274.96	986.22	1409.14	164.94	5538.65
Umatilla	5285.77	396.74	1340.16	659.16	5610.48
Ute	6167.06	808.44	2234.26	1155.25	6507.60
Wasco	5164.25	587.84	1220.71	543.35	5473.09
Washo	5770.77	1024.63	1873.98	354.34	6038.55
W. Mono	6067.94	1217.93	2173.72	637.80	6330.09
Winnebago	6663.32	1804.42	3135.37	2684.14	7118.05
Yakut	1504.05	6602.74	5258.33	6804.49	1625.80
Yokuts	5772.55	1156.83	1908.27	339.83	6025.73
Yukaghir	398.11	5470.75	4077.01	5603.10	891.55
Yuki	5556.28	1099.93	1703.32	129.47	5809.31
Yurok	5401.70	993.19	1531.66	51.31	5664.27
Zuni	6717.79	1407.19	2771.29	1450.57	7034.29

Matrix 2F. cont.

	Itelman2	Kalapuya	Kiowa	Klamath	Klickitat**
Achomawi	5665.64	457.69	2122.59	156.72	559.44
Agua Caliente	6609.31	1437.85	1681.52	1133.09	1493.14
Aiwan	1036.05	4388.03	6535.32	4692.20	4408.51
Aleut	2082.05	3324.74	5711.40	3601.02	3434.07
Apache	6951.71	1717.46	1117.82	1422.57	1687.25
Arapaho	6198.16	1191.23	1296.10	1035.11	1008.49
Assiniboin	6141.72	1636.59	1465.45	1588.52	1392.87
Atsugewi	5727.03	534.94	2105.53	238.79	642.58
Bannock	6003.12	923.60	1524.87	762.52	756.99
Bella Coola	4524.94	844.58	2977.73	1140.98	794.99
Big Meadow	5758.72	571.70	2092.30	276.01	678.88
Blood	5439.11	913.71	2047.42	987.47	656.33
Caddo	7873.18	2811.82	394.27	2575.62	2674.06
Carrier	4709.12	883.02	2775.66	1144.04	746.60
Catawba	8294.51	3744.41	1582.97	3582.47	3541.30
Cherokee	8137.26	3494.19	1306.57	3323.96	3297.11
Cheyenne	6358.21	1549.82	1151.88	1429.89	1336.65
Chickasaw	7963.63	3187.16	939.90	3001.77	3001.76
Chilcotin	4753.98	763.85	2737.01	1031.02	640.77
Chippewa(MN)	6461.32	2196.74	1492.43	2148.20	1950.48
Chippewa(WI)	6858.95	2605.81	1446.46	2532.40	2365.53
Choctaw	8128.21	3245.19	883.45	3039.19	3075.87
Chuvantsy	992.27	4473.70	6610.92	4778.11	4491.97
Clallum	5009.78	341.11	2544.66	619.46	278.58
C. Miwok	6017.25	844.41	1956.84	544.45	933.14
Coahuilla	6634.29	1445.13	1610.10	1139.36	1487.86
Coeur d'Alene	5457.41	590.33	2047.80	636.52	338.28
Comanche	7385.96	2281.08	181.91	2041.71	2151.06
Concow	5739.12	561.87	2120.06	272.28	679.37
Creek	8323.16	3618.48	1349.12	3435.72	3429.55
Crow	6055.41	1259.19	1434.97	1174.32	1033.71
E. Mono	6129.46	929.51	1827.10	624.01	987.98
Eskimo(EC)	6613.28	4279.03	3706.59	4345.94	4024.02
Eskimo(WC)	3370.46	2570.57	4310.43	2859.24	2478.65
Even	958.79	5346.43	7398.04	5652.05	5348.50
Evenk	479.61	5088.13	7254.59	5390.84	5117.18
Flathead	5595.58	786.13	1893.03	790.18	539.05
Haida	4126.86	1169.11	3380.73	1474.73	1170.60
Hoopa	5551.13	446.32	2313.50	246.78	630.35
Itelman1	148.50	5378.17	7632.18	5674.60	5433.83
Itelman2	0	5234.26	7484.18	5531.27	5288.17
Kalapuya	5234.26	0	2422.75	305.91	257.54
Kiowa	7484.18	2422.75	0	2193.05	2280.90
Klamath	5531.27	305.91	2193.05	0	410.38
Klickitat**	5288.17	257.54	2280.90	410.38	0
Koryak	586.83	4860.30	7031.10	5163.06	4889.53
Kutenai	5311.33	784.75	2172.92	898.22	531.54
Kwakiutl	4543.88	785.56	2971.33	1086.08	756.99
Lillooet	4879.90	587.96	2626.88	852.86	466.64

Matrix 2F. cont.

	Itelman2	Kalapuya	Kiowa	Klamath	Klickitat**
Makah	4926.65	375.42	2635.38	671.18	362.76
Malecite	7452.39	4062.42	2800.45	4035.21	3809.08
Maritime Chukchi	1054.59	4359.48	6509.14	4663.61	4380.44
Menomini	7013.33	2724.60	1405.72	2638.92	2488.13
Micmac	7761.21	4512.50	3166.54	4483.57	4259.18
Mississagua	7129.26	3119.50	1817.35	3056.68	2874.84
Modoc	5616.47	402.02	2147.67	99.83	504.97
Mohawk	7566.24	3781.42	2314.92	3719.85	3535.47
Montagnais	7150.59	4531.26	3633.57	4562.10	4273.77
Munsee	7863.30	3877.90	2186.75	3788.24	3640.33
Nanaimo	4906.06	455.82	2629.94	739.29	388.82
Navajo	6871.33	1656.92	923.58	1382.80	1583.30
Nez Perce	5501.18	547.72	2017.70	563.57	308.81
Nisqually	5130.12	232.61	2443.94	492.13	163.30
Nivkhi	1239.51	6472.90	8698.11	6770.44	6522.97
N. Hill Yokut	6128.83	966.06	1916.19	666.17	1052.25
N. Paiute	5738.48	515.75	2036.20	210.13	582.49
N. Pomo	5693.00	627.31	2277.12	395.70	799.32
Ojibwa1*	7221.57	3300.85	1970.93	3241.86	3054.86
Ojibwa2*	6363.33	2393.53	1807.98	2380.44	2139.56
Okanagan	5181.77	513.99	2323.95	690.07	283.27
Omaha	6904.64	2193.63	842.48	2055.61	1983.55
Oneida	7520.05	3345.58	1719.48	3249.85	3111.18
Osage	7406.35	2453.62	284.09	2250.53	2286.46
Pawnee	6888.64	2072.16	727.19	1915.83	1873.97
Piegan	5584.21	923.08	1900.57	948.19	668.81
Ponca	6604.02	1812.41	952.47	1677.18	1604.23
Potawatomi	7373.78	3009.09	1366.54	2898.19	2781.69
Pueblo	6963.89	1755.97	826.28	1484.67	1675.91
Puyallup	5143.27	257.36	2421.71	502.03	145.15
Queets	5036.08	269.25	2540.82	558.51	260.37
Quillayute	4969.79	327.42	2600.53	622.58	322.78
Quinault	5021.80	258.46	2565.23	555.90	284.57
Reindeer Chukchi	1260.28	4138.95	6284.64	4443.41	4157.56
Reindeer Even	990.03	4550.97	6669.22	4855.84	4564.74
Reindeer Koryak	673.84	4709.16	6888.40	5011.69	4740.04
San Luis Rey	6609.42	1442.86	1697.24	1138.47	1501.01
Sarcee	5203.89	1073.12	2302.75	1213.25	830.51
Sauk	7345.14	2474.51	464.57	2289.67	2292.65
Seneca	7608.99	3562.61	1955.51	3476.20	3324.45
Serrano	6542.26	1358.37	1665.24	1052.95	1408.31
Shawnee	7505.18	2494.93	150.23	2276.91	2340.87
Shoshoni	6006.20	915.83	1527.15	749.39	753.88
Shuswap	4986.61	669.62	2503.83	892.69	483.22
Sioux(Santee)	6758.63	2243.94	1134.08	2144.25	2014.89
Sioux(Teton)	6416.59	1757.06	1179.45	1659.70	1530.45

Matrix 2F. cont.

	Itelman2	Kalapuya	Kiowa	Klamath	Klickitat**
Sioux (Yankton)	6793.11	2100.01	915.80	1971.05	1885.72
S. Miwok	6097.81	925.78	1913.16	624.59	1008.49
Stalo	5020.86	481.86	2494.85	723.87	325.62
Stockbridge	7104.03	2773.81	1357.00	2678.87	2540.63
Tahltan	3947.16	1520.42	3538.94	1818.52	1464.29
Taos	6950.10	1789.18	675.52	1539.51	1677.79
Tenino	5384.90	184.26	2241.97	233.82	176.84
Thompson	4953.25	594.73	2547.06	838.22	436.41
Tonkawa	7683.75	2580.85	224.75	2337.30	2453.07
Tsimshian	4236.69	1107.72	3259.83	1410.39	1081.24
Tundra Evenk	1244.33	4991.08	6978.93	5296.93	4977.17
Tuscarora	7578.77	3519.17	1920.77	3432.62	3281.13
Tututni	5396.90	301.46	2405.07	228.70	520.98
Umatilla	5464.41	399.84	2091.15	413.59	190.48
Ute	6360.89	1223.46	1199.29	1003.71	1092.77
Wasco	5327.93	198.62	2268.78	324.22	87.30
Washo	5896.66	706.09	1995.52	404.27	793.07
W. Mono	6188.80	1005.13	1836.01	701.11	1073.28
Winnebago	6970.53	2569.68	1247.88	2472.95	2337.92
Yakut	1685.62	6425.16	8403.23	6731.05	6416.87
Yokuts	5885.13	754.96	2101.69	472.99	880.25
Yukaghir	834.99	5236.40	7317.47	5541.63	5244.69
Yuki	5668.62	570.57	2256.27	331.91	736.58
Yurok	5522.67	396.41	2310.90	203.06	579.46
Zuni	6889.05	1668.06	951.66	1389.39	1602.28

Matrix 2F. cont.

	Koryak	Kutenai	Kwakiutl	Lillooet	Makah
Achomawi	5304.55	1021.40	1241.27	1008.68	827.02
Agua Caliente	6268.66	1817.00	2218.07	1959.49	1802.36
Aiwan	498.26	4371.81	3652.53	3975.28	4053.95
Aleut	1934.65	3596.86	2755.89	3100.11	3076.42
Apache	6571.22	1855.62	2444.19	2137.01	2039.45
Arapaho	5759.47	895.96	1675.26	1330.79	1350.61
Assiniboin	5653.68	991.64	1831.12	1510.34	1641.78
Atsugewi	5371.04	1098.32	1320.04	1091.47	906.79
Bannock	5580.02	757.01	1462.02	1123.22	1110.74
Bella Coola	4108.07	833.77	81.85	354.98	470.22
Big Meadow	5404.46	1130.03	1356.96	1128.61	943.88
Blood	4984.23	164.24	1007.85	682.42	829.29
Caddo	7415.27	2562.99	3365.29	3020.71	3029.24
Carrier	4268.62	603.27	352.89	295.13	533.23
Catawba	7767.53	3237.39	4085.12	3754.15	3849.44
Cherokee	7620.55	3014.03	3862.76	3527.69	3612.72
Cheyenne	5891.53	1072.83	1914.01	1572.51	1646.22
Chickasaw	7462.93	2757.05	3602.82	3262.40	3329.37
Chilcotin	4324.09	578.57	290.65	178.23	410.88
Chippewa(MN)	5945.66	1518.15	2331.05	2028.90	2181.97
Chippewa(WI)	6333.16	1952.56	2771.42	2466.24	2612.25
Choctaw	7638.32	2873.70	3711.27	3367.55	3415.27
Chuvantsy	432.54	4449.66	3735.63	4057.01	4138.14
Clallum	4611.45	592.43	482.50	248.09	91.93
C. Miwok	5670.14	1340.48	1629.16	1391.94	1215.18
Coahuilla	6287.59	1793.08	2220.97	1954.50	1805.21
Coeur d'Alene	5031.61	284.46	923.68	580.15	617.42
Comanche	6943.17	2078.13	2857.38	2514.67	2509.28
Concow	5386.87	1139.15	1347.43	1124.87	935.60
Creek	7810.07	3167.73	4015.76	3677.77	3752.90
Crow	5596.57	756.35	1595.01	1253.34	1331.59
E. Mono	5775.27	1353.98	1708.23	1453.11	1292.50
Eskimo(EC)	6026.94	3494.37	4019.00	3861.22	4097.18
Eskimo(WC)	2835.46	2248.23	1794.97	2013.02	2195.16
Even	676.19	5263.77	4591.90	4902.12	5000.98
Evenk	227.85	5090.25	4362.69	4688.60	4760.43
Flathead	5156.75	300.97	1087.50	742.73	812.81
Haida	3719.22	1230.74	417.24	755.61	817.68
Hoopa	5206.94	1139.32	1215.87	1033.36	817.27
Itelman1	714.74	5459.30	4690.37	5026.81	5072.12
Itelman2	586.83	5311.33	4543.88	4879.90	4926.65
Kalapuya	4860.30	784.75	785.56	587.96	375.42
Kiowa	7031.10	2172.92	2971.33	2626.88	2635.38
Klamath	5163.06	898.22	1086.08	852.86	671.18
Klickitat**	4889.53	531.54	756.99	466.64	362.76
Koryak	0	4865.30	4135.20	4461.56	4532.65
Kutenai	4865.30	0	848.74	519.06	668.55
Kwakiutl	4135.20	848.74	0	345.22	415.80
Lillooet	4461.56	519.06	345.22	0	253.19

Matrix 2F. cont.

	Koryak	Kutenai	Kwakiutl	Lillooet	Makah
Makah	4532.65	668.55	415.80	253.19	0
Malecite	6877.48	3327.40	4049.60	3799.81	3992.77
Maritime Chukchi	523.21	4345.09	3624.56	3947.62	4025.73
Menomini	6486.80	2088.53	2913.52	2604.36	2744.14
Micmac	7180.54	3776.58	4491.79	4246.39	4441.33
Mississagua	6583.65	2437.75	3231.87	2942.29	3104.18
Modoc	5252.87	975.93	1184.81	952.14	770.35
Mohawk	7003.61	3088.58	3865.18	3586.40	3756.66
Montagnais	6564.56	3754.50	4357.09	4165.43	4388.99
Munsee	7305.98	3225.00	4030.24	3734.83	3887.46
Nanaimo	4502.25	601.09	368.19	151.99	101.21
Navajo	6468.76	1672.96	2333.83	2009.57	1944.72
Nez Perce	5081.37	367.88	959.91	621.40	625.80
Nisqually	4736.15	594.36	611.84	363.14	203.74
Nivkhi	1672.81	6528.09	5775.37	6108.66	6162.16
N. Hill Yokut	5785.78	1446.77	1750.92	1512.50	1336.96
N. Paiute	5372.65	1011.72	1291.66	1042.64	875.92
N. Pomo	5359.36	1292.78	1395.83	1213.50	998.66
Ojibwa1*	6669.86	2610.74	3395.71	3111.57	3278.32
Ojibwa2*	5831.52	1662.33	2424.10	2149.57	2330.24
Okanagan	4759.26	294.15	647.39	303.38	382.63
Omaha	6414.94	1691.45	2539.81	2203.23	2290.19
Oneida	6977.49	2711.59	3531.25	3226.16	3368.58
Osage	6936.26	2111.69	2937.73	2592.76	2629.32
Pawnee	6410.40	1625.52	2468.33	2126.84	2194.86
Piegan	5132.51	279.13	1123.78	786.97	899.97
Ponca	6129.32	1337.66	2181.86	1841.34	1916.61
Potawatomi	6845.95	2410.92	3246.27	2929.43	3055.85
Pueblo	6557.17	1745.05	2423.46	2096.16	2038.06
Puyallup	4746.10	559.75	616.57	350.83	217.67
Queets	4644.95	647.81	530.08	324.87	114.59
Quillayute	4577.83	665.93	464.21	286.46	48.60
Quinault	4634.17	685.03	530.18	348.66	116.96
Reindeer Chukchi	746.87	4120.34	3401.38	3723.65	3803.47
Reindeer Even	409.28	4512.27	3807.94	4126.62	4212.45
Reindeer Koryak	152.98	4720.87	3986.26	4313.67	4382.69
San Luis Rey	6270.34	1828.68	2223.92	1967.18	1808.30
Sarcee	4733.88	318.79	920.54	661.44	878.54
Sauk	6864.94	2076.38	2914.58	2571.27	2625.57
Seneca	7058.00	2909.22	3716.90	3419.72	3571.30
Serrano	6196.87	1729.25	2136.57	1874.84	1720.77
Shawnee	7042.62	2199.14	3013.08	2667.90	2690.35
Shoshoni	5584.71	767.80	1464.10	1126.39	1109.31
Shuswap	4554.16	354.05	494.74	180.09	401.06
Sioux(Santee)	6254.46	1654.02	2497.04	2173.04	2291.23
Sioux(Teton)	5933.62	1199.58	2048.25	1715.12	1816.98

Matrix 2F. cont.

	Koryak	Kutenai	Kwakiutl	Lillooet	Makah
Sioux (Yankton)	6304.06	1583.23	2431.87	2096.37	2187.60
S. Miwok	5751.91	1402.36	1710.08	1469.35	1295.69
Stalo	4605.82	442.97	478.65	146.87	230.39
Stockbridge	6578.61	2152.72	2982.85	2670.03	2804.10
Tahltan	3496.24	1369.13	735.40	1002.82	1147.47
Taos	6526.74	1676.78	2407.11	2070.36	2039.79
Tenino	4999.87	686.78	885.97	626.70	472.20
Thompson	4529.73	429.81	429.23	89.25	302.52
Tonkawa	7236.93	2373.62	3158.57	2815.48	2811.40
Tsimshian	3817.94	1099.93	326.50	644.28	741.72
Tundra Evenk	754.15	4863.43	4223.69	4523.35	4636.84
Tuscarora	7028.90	2866.70	3675.32	3377.52	3528.52
Tututni	5047.62	1048.26	1054.23	887.72	661.84
Umatilla	5058.34	489.81	923.32	605.69	547.11
Ute	5940.44	1109.38	1817.67	1481.52	1453.40
Wasco	4936.47	610.55	812.13	540.31	403.86
Washo	5543.24	1212.38	1489.87	1251.10	1075.37
W. Mono	5840.52	1443.78	1787.03	1537.38	1371.68
Winnebago	6452.84	1958.97	2794.36	2477.37	2605.98
Yakut	1703.71	6302.48	5662.24	5964.29	6074.29
Yokuts	5545.47	1329.72	1538.97	1324.80	1130.21
Yukaghir	520.25	5173.71	4487.72	4802.01	4894.67
Yuki	5329.25	1228.90	1344.65	1154.94	943.86
Yurok	5174.37	1090.46	1169.54	982.85	768.67
Zuni	6490.30	1706.70	2355.10	2033.59	1962.66

Matrix 2F. cont.

	Malecite	Maritime Chukchi	Menomini	Micmac	Mississagua
Achomawi	4076.80	4807.41	2655.34	4523.32	3083.26
Agua Caliente	4214.29	5777.21	2714.95	4634.21	3174.69
Aiwan	6419.95	29.32	5993.37	6735.37	6097.83
Aleut	6423.88	1622.77	5573.99	6820.34	5813.28
Apache	3754.82	6065.18	2262.40	4159.52	2719.57
Arapaho	3083.91	5239.92	1631.06	3524.94	2069.15
Assiniboin	2446.78	5130.67	1102.54	2895.05	1482.92
Atsugewi	4116.88	4875.67	2684.38	4562.28	3116.81
Bannock	3323.50	5063.64	1889.90	3767.74	2320.36
Bella Coola	3995.20	3595.13	2880.05	4436.06	3190.09
Big Meadow	4128.96	4909.67	2691.54	4573.78	3125.97
Blood	3172.82	4462.70	1924.30	3622.42	2275.26
Caddo	2802.52	6892.80	1540.64	3129.21	1893.83
Carrier	3700.30	3749.86	2597.85	4141.44	2899.44
Catawba	1730.07	7252.37	1281.32	1934.35	1261.19
Cherokee	1858.37	7102.15	1148.82	2110.31	1227.64
Cheyenne	2670.90	5368.69	1217.75	3110.87	1654.17
Chickasaw	2099.77	6941.34	1097.83	2395.69	1311.24
Chilcotin	3764.72	3807.51	2624.69	4208.19	2941.22
Chippewa(MN)	1889.70	5426.61	588.61	2336.60	925.02
Chippewa(WI)	1555.13	5817.24	154.85	1989.25	528.69
Choctaw	2351.78	7115.62	1347.30	2631.74	1577.73
Chuvantsy	6460.12	120.74	6054.26	6770.60	6152.58
Clallum	3919.69	4102.98	2659.06	4368.74	3023.09
C. Miwok	4167.64	5177.50	2699.06	4606.83	3146.07
Coahuilla	4146.11	5793.75	2646.63	4565.14	3106.45
Coeur d'Alene	3472.23	4515.15	2154.34	3922.32	2537.16
Comanche	2943.94	6422.46	1516.79	3319.20	1944.16
Concow	4152.74	4892.91	2717.09	4597.80	3150.86
Creek	2014.17	7290.82	1347.98	2238.74	1428.25
Crow	2869.27	5074.40	1470.02	3315.78	1882.36
E. Mono	4080.58	5279.65	2603.41	4517.19	3053.84
Eskimo(EC)	1228.38	5598.32	2301.08	1290.42	1911.82
Eskimo(WC)	4171.59	2321.82	3651.47	4532.61	3759.94
Even	6934.32	1029.50	6717.79	7195.85	6761.39
Evenk	7053.53	745.49	6694.22	7347.77	6782.66
Flathead	3278.00	4637.56	1951.23	3727.96	2335.88
Haida	4285.65	3209.90	3241.75	4719.02	3529.23
Hoopa	4267.13	4716.69	2854.07	4714.55	3279.19
Itelman1	7589.49	1197.48	7160.23	7894.94	7274.03
Itelman2	7452.39	1054.59	7013.33	7761.21	7129.26
Kalapuya	4062.42	4359.48	2724.60	4512.50	3119.50
Kiowa	2800.45	6509.14	1405.72	3166.54	1817.35
Klamath	4035.21	4663.61	2638.92	4483.57	3056.68
Klickitat**	3809.08	4380.44	2488.13	4259.18	2874.84
Koryak	6877.48	523.21	6486.80	7180.54	6583.65
Kutenai	3327.40	4345.09	2088.53	3776.58	2437.75
Kwakiutl	4049.60	3624.56	2913.52	4491.79	3231.87

Matrix 2F. cont.

	Malecite	Maritime Chukchi	Menomini	Micmac	Mississagua
Lillooet	3799.81	3947.62	2604.36	4246.39	2942.29
Makah	3992.77	4025.73	2744.14	4441.33	3104.18
Malecite	0	6403.77	1499.55	450.10	1039.68
Maritime Chukchi	6403.77	0	5971.18	6720.64	6077.38
Menomini	1499.55	5971.18	0	1922.27	459.87
Micmac	450.10	6720.64	1922.27	0	1465.26
Mississagua	1039.68	6077.38	459.87	1465.26	0
Modoc	4061.70	4754.90	2648.95	4508.96	3073.35
Mohawk	511.39	6511.83	1098.30	854.46	663.39
Montagnais	904.02	6131.65	2258.65	813.01	1818.77
Munsee	798.22	6808.81	1153.37	1027.15	802.60
Nanaimo	3915.38	3992.32	2686.99	4363.26	3038.63
Navajo	3472.34	5956.50	1976.38	3881.88	2434.89
Nez Perce	3518.22	4566.25	2180.75	3968.16	2571.95
Nisqually	3911.88	4228.81	2618.57	4361.71	2995.18
Nivkhi	8426.83	2195.93	8144.00	8690.32	8218.08
N. Hill Yokut	4200.65	5294.47	2721.88	4636.80	3173.05
N. Paiute	4013.84	4873.59	2584.26	4459.47	3015.27
N. Pomo	4346.49	4873.07	2909.98	4791.63	3344.49
Ojibwa1*	858.01	6167.91	643.74	1278.94	187.59
Ojibwa2*	1669.74	5317.80	662.37	2119.81	824.29
Okanagan	3620.84	4243.87	2361.79	4070.17	2722.47
Omaha	2202.57	5892.10	703.89	2620.15	1163.35
Oneida	1091.28	6469.43	624.58	1447.91	400.27
Osage	2521.52	6413.16	1123.45	2893.88	1533.39
Pawnee	2392.31	5887.19	894.05	2808.46	1353.34
Piegan	3140.27	4611.33	1844.72	3590.37	2214.74
Ponca	2494.47	5606.15	1008.82	2926.15	1461.10
Potawatomi	1434.50	6330.90	361.00	1814.63	495.52
Pueblo	3420.06	6043.78	1928.92	3824.58	2385.44
Puyallup	3877.07	4237.73	2585.30	4326.90	2961.05
Queets	3974.03	4138.71	2697.23	4423.48	3067.92
Quillayute	3993.02	4071.47	2731.87	4442.01	3096.70
Quinault	4011.19	4129.12	2732.74	4460.65	3104.34
Reindeer Chukchi	6214.90	224.75	5756.27	6539.21	5869.05
Reindeer Even	6468.27	220.31	6090.21	6772.49	6179.95
Reindeer Koryak	6778.55	389.74	6360.90	7088.56	6465.39
San Luis Rey	4232.10	5779.51	2732.76	4651.99	3192.49
Sarcee	3141.64	4211.04	2008.16	3587.18	2312.33
Sauk	2348.39	6341.76	942.80	2726.69	1353.91
Seneca	878.80	6555.55	838.71	1211.53	499.28
Serrano	4159.75	5703.72	2661.31	4582.40	3120.63
Shawnee	2654.77	6519.88	1277.77	3018.05	1679.57
Shoshoni	3341.71	5068.69	1906.25	3785.75	2337.59
Shuswap	3620.12	4036.75	2429.60	4066.90	2763.55

Matrix 2F. cont.

	Malecite	Maritime Chukchi	Menomini	Micmac	Mississagua
Sioux(Santee)	1983.39	5733.16	501.65	2414.66	949.78
Sioux(Teton)	2419.68	5410.46	979.35	2860.63	1407.46
Sioux (Yankton)	2231.26	5781.17	733.75	2656.03	1192.32
S. Miwok	4172.81	5259.56	2696.92	4609.91	3146.90
Stalo	3763.08	4092.53	2527.95	4211.47	2880.72
Stockbridge	1505.89	6062.63	94.34	1919.27	473.30
Tahltan	4116.56	2976.40	3212.04	4535.82	3448.25
Taos	3196.89	6009.58	1705.00	3602.90	2161.72
Tenino	3909.53	4494.91	2553.46	4359.32	2954.69
Thompson	3717.86	4014.39	2515.59	4164.95	2855.22
Tonkawa	2930.38	6715.61	1583.94	3278.76	1975.61
Tsimshian	4144.28	3305.05	3098.82	4578.51	3385.24
Tundra Evenk	6472.26	842.83	6266.14	6736.36	6302.88
Tuscarora	904.00	6525.61	795.18	1245.77	462.14
Tututni	4250.88	4555.76	2864.50	4699.90	3279.15
Umatilla	3673.27	4546.82	2324.78	4123.09	2721.57
Ute	3281.40	5424.34	1798.72	3715.34	2250.75
Wasco	3865.06	4429.53	2527.13	4315.10	2920.92
Washo	4116.29	5048.45	2661.75	4558.47	3103.02
W. Mono	4139.78	5347.02	2657.26	4574.47	3109.92
Winnebago	1686.56	5934.44	187.02	2108.49	646.89
Yakut	7641.80	2120.25	7615.27	7847.00	7606.11
Yokuts	4260.28	5056.15	2803.26	4702.14	3245.75
Yukaghir	6925.21	896.89	6668.10	7196.68	6724.08
Yuki	4293.61	4840.64	2862.23	4739.31	3294.61
Yurok	4232.80	4682.55	2826.02	4680.66	3248.58
Zuni	3521.86	5979.04	2026.66	3930.30	2484.88

Matrix 2F. cont.

	Modoc	Mohawk	Montagnais	Munsee	Nanaimo
Achomawi	56.89	3744.85	4630.30	3798.19	896.01
Agua Caliente	1035.83	3792.31	4918.42	3749.67	1863.27
Aiwan	4783.56	6530.20	6143.67	6827.93	4020.34
Aleut	3675.16	6378.80	6420.85	6609.87	3082.91
Apache	1342.00	3308.32	4508.26	3237.00	2076.07
Arapaho	1030.01	2726.46	3707.51	2768.59	1337.78
Assiniboin	1616.03	2145.00	3016.20	2250.26	1586.38
Atsugewi	139.34	3777.07	4682.55	3822.84	977.45
Bannock	761.29	2980.88	3915.92	3033.41	1109.62
Bella Coola	1240.35	3819.17	4290.66	3989.99	408.94
Big Meadow	176.47	3785.48	4700.54	3827.71	1014.70
Blood	1055.33	2927.44	3617.62	3061.37	764.53
Caddo	2526.32	2297.65	3673.73	2113.65	3024.20
Carrier	1242.70	3525.77	4005.45	3700.31	435.81
Catawba	3562.74	1241.87	2631.44	934.10	3810.49
Cherokee	3301.41	1351.75	2761.77	1085.80	3577.70
Cheyenne	1433.99	2311.84	3312.34	2360.51	1613.17
Chickasaw	2973.74	1588.60	2992.55	1371.03	3301.32
Chilcotin	1130.23	3575.18	4092.10	3739.63	313.86
Chippewa(MN)	2172.36	1585.03	2502.94	1706.88	2119.13
Chippewa(WI)	2546.94	1188.91	2271.28	1276.32	2552.57
Choctaw	3002.52	1840.46	3248.63	1604.59	3394.92
Chuvantsy	4869.76	6577.75	6170.07	6877.99	4103.60
Clallum	719.29	3677.18	4329.13	3804.12	120.09
C. Miwok	444.90	3797.36	4783.59	3813.14	1283.32
Coahuilla	1043.81	3722.51	4854.07	3678.44	1862.85
Coeur d'Alene	705.67	3197.43	3951.06	3305.36	590.64
Comanche	1992.16	2465.57	3762.93	2350.44	2509.24
Concow	174.50	3810.64	4721.42	3853.93	1008.40
Creek	3408.02	1514.39	2918.02	1226.20	3721.88
Crow	1193.82	2545.58	3449.45	2622.84	1295.70
E. Mono	527.91	3701.20	4713.72	3708.42	1353.91
Eskimo(EC)	4400.02	1679.96	540.90	2009.36	4002.90
Eskimo(WC)	2959.07	4223.44	4064.69	4506.42	2120.18
Even	5745.65	7118.12	6520.49	7438.39	4959.78
Evenk	5480.59	7191.55	6716.79	7497.62	4729.83
Flathead	844.41	2996.83	3774.79	3102.45	776.41
Haida	1571.02	4142.99	4513.44	4331.66	783.06
Hoopa	205.91	3941.45	4805.37	3998.61	901.73
Itelman1	5759.38	7707.66	7277.94	8006.03	5052.16
Itelman2	5616.47	7566.24	7150.59	7863.30	4906.06
Kalapuya	402.02	3781.42	4531.26	3877.90	455.82
Kiowa	2147.67	2314.92	3633.57	2186.75	2629.94
Klamath	99.83	3719.85	4562.10	3788.24	739.29
Klickitat**	504.97	3535.47	4273.77	3640.33	388.82
Koryak	5252.87	7003.61	6564.56	7305.98	4502.25
Kutenai	975.93	3088.58	3754.50	3225.00	601.09
Kwakiutl	1184.81	3865.18	4357.09	4030.24	368.19
Lillooet	952.14	3586.40	4165.43	3734.83	151.99

Matrix 2F. cont.

	Modoc	Mohawk	Montagnais	Munsee	Nanaimo
Makah	770.35	3756.66	4388.99	3887.46	101.21
Malecite	4061.70	511.39	904.02	798.22	3915.38
Maritime Chukchi	4754.90	6511.83	6131.65	6808.81	3992.32
Menomini	2648.95	1098.30	2258.65	1153.37	2686.99
Micmac	4508.96	854.46	813.01	1027.15	4363.26
Mississagua	3073.35	663.39	1818.77	802.60	3038.63
Modoc	0	3735.69	4605.65	3794.50	839.11
Mohawk	3735.69	0	1411.13	348.33	3688.12
Montagnais	4605.65	1411.13	0	1697.49	4299.63
Munsee	3794.50	348.33	1697.49	0	3825.90
Nanaimo	839.11	3688.12	4299.63	3825.90	0
Navajo	1316.75	3033.29	4217.17	2975.65	1967.80
Nez Perce	628.49	3233.73	4010.95	3333.47	612.35
Nisqually	591.87	3653.20	4348.42	3768.35	250.06
Nivkhi	6855.87	8599.56	8009.58	8914.75	6139.28
N. Hill Yokut	566.67	3819.35	4834.69	3823.43	1404.85
N. Paiute	123.27	3675.97	4578.83	3724.54	938.51
N. Pomo	319.86	4004.04	4911.34	4045.25	1082.95
Ojibwa1*	3259.41	480.62	1663.40	660.94	3210.96
Ojibwa2*	2414.86	1441.09	2209.03	1626.11	2256.92
Okanagan	781.28	3376.23	4044.88	3504.86	331.27
Omaha	2048.94	1781.60	2950.41	1774.16	2253.21
Oneida	3254.94	595.51	1965.94	540.45	3310.80
Osage	2216.91	2040.52	3350.16	1927.32	2612.69
Pawnee	1902.76	1967.50	3139.15	1949.13	2165.19
Piegan	1004.63	2872.76	3621.54	2990.93	848.23
Ponca	1673.63	2106.78	3184.63	2130.08	1883.59
Potawatomi	2898.71	960.34	2276.20	911.40	3004.16
Pueblo	1419.94	2973.60	4178.20	2906.02	2058.56
Puyallup	601.33	3618.89	4313.97	3734.77	250.15
Queets	658.01	3724.07	4393.97	3845.05	186.63
Quillayute	721.75	3750.89	4399.30	3877.37	137.45
Quinault	654.71	3760.71	4430.76	3880.95	203.80
Reindeer Chuckchi	4535.14	6312.40	5965.35	6605.99	3769.27
Reindeer Even	4948.10	6595.36	6161.50	6898.81	4176.08
Reindeer Koryak	5101.29	6894.75	6484.75	7193.88	4353.04
San Luis Rey	1040.87	3810.03	4936.13	3767.13	1869.95
Sarcee	1293.22	2944.86	3510.58	3112.05	789.55
Sauk	2263.63	1872.42	3171.57	1773.62	2601.90
Seneca	3484.08	369.39	1772.09	316.28	3510.02
Serrano	956.55	3743.35	4854.95	3708.07	1780.28
Shawnee	2236.64	2167.15	3493.07	2036.58	2679.41
Shoshoni	746.24	2997.85	3935.52	3048.95	1110.04
Shuswap	988.14	3406.75	3993.00	3557.12	307.12
Sioux(Santee)	2151.18	1599.36	2692.06	1644.03	2242.05
Sioux(Teton)	1670.10	2067.60	3062.37	2129.35	1773.38

Matrix 2F. cont.

	Modoc	Mohawk	Montagnais	Munsee	Nanaimo
Sioux (Yankton)	1968.18	1826.47	2955.85	1838.10	2148.80
S. Miwok	525.36	3794.83	4801.74	3802.63	1362.69
Stalo	821.94	3531.16	4160.74	3667.24	159.04
Stockbridge	2685.58	1082.27	2288.93	1109.38	2749.23
Tahltan	1917.81	4027.42	4259.12	4247.01	1084.36
Taos	1486.59	2752.83	3954.63	2691.68	2049.15
Tenino	329.85	3617.54	4401.30	3706.76	525.43
Thompson	935.99	3500.44	4093.35	3647.03	207.02
Tonkawa	2284.97	2434.33	3782.00	2278.17	2811.19
Tsimshian	1508.62	3999.29	4381.36	4187.68	692.78
Tundra Evenk	5392.49	6655.68	6067.13	6976.45	4589.74
Tuscarora	3440.54	398.11	1792.80	359.36	3467.44
Tututni	257.52	3942.51	4760.33	4014.82	750.38
Umatilla	486.60	3384.02	4168.18	3478.09	558.35
Ute	970.45	2896.21	3942.57	2906.73	1460.25
Wasco	420.06	3582.81	4342.14	3680.30	446.97
Washo	305.07	3758.95	4711.45	3788.10	1142.68
W. Mono	603.19	3753.92	4782.77	3753.70	1435.45
Winnebago	2479.67	1280.16	2439.54	1315.32	2553.07
Yakut	6825.73	7889.45	7109.20	8224.71	6028.97
Yokuts	375.52	3900.88	4855.82	3926.68	1205.88
Yukaghir	5634.43	7095.89	6534.18	7412.39	4855.87
Yuki	256.70	3954.95	4853.19	4000.15	1026.37
Yurok	178.63	3911.27	4764.89	3972.40	852.12
Zuni	1320.45	3081.06	4268.87	3020.37	1988.25

Matrix 2F. cont.

	Navajo	Nez Perce	Nisqually	Nivkhi	N. Hill Yokut
Achomawi	1280.34	668.71	648.69	6905.11	509.94
Agua Caliente	780.25	1457.77	1613.20	7847.80	482.91
Aiwan	5984.27	4593.76	4257.00	2171.05	5323.34
Aleut	4980.57	3695.06	3270.78	3286.81	4142.80
Apache	294.34	1544.93	1836.50	8190.32	914.11
Arapaho	836.68	726.25	1168.30	7419.50	1127.93
Assiniboin	1425.50	1089.04	1518.11	7326.45	1823.51
Atsugewi	1245.74	741.55	730.88	6966.53	431.12
Bannock	916.64	502.27	919.62	7231.16	931.91
Bella Coola	2361.37	976.36	658.06	5753.81	1807.02
Big Meadow	1225.65	771.29	768.12	6998.20	394.48
Blood	1604.01	426.96	740.49	6650.70	1482.50
Caddo	1259.21	2411.97	2837.19	9084.07	2258.60
Carrier	2228.59	835.14	657.42	5928.23	1798.50
Catawba	2487.78	3237.07	3691.68	9422.22	3447.49
Cherokee	2211.64	2995.39	3449.90	9283.44	3174.47
Cheyenne	1032.67	1031.24	1485.79	7562.07	1533.14
Chickasaw	1850.04	2706.02	3158.29	9133.25	2821.65
Chilcotin	2156.75	761.08	541.19	5978.10	1689.69
Chippewa(MN)	1769.77	1649.01	2070.20	7611.06	2337.18
Chippewa(WI)	1946.78	2059.70	2492.14	7991.23	2647.56
Choctaw	1806.50	2789.47	3235.80	9310.73	2799.15
Chuvantsy	6066.36	4674.82	4341.02	2101.57	5410.64
Clallum	1861.83	533.88	130.45	6244.42	1284.83
C. Miwok	1052.25	973.04	1034.87	7256.44	121.79
Coahuilla	708.21	1437.59	1612.99	7873.28	505.77
Coeur d'Alene	1454.85	83.42	465.59	6683.94	1162.31
Comanche	745.11	1898.90	2314.37	8605.92	1741.21
Concow	1252.14	782.82	763.24	6978.57	406.58
Creek	2269.37	3131.47	3584.87	9474.93	3249.36
Crow	1128.22	725.34	1177.53	7264.79	1393.97
E. Mono	919.75	986.92	1103.89	7368.91	121.03
Eskimo(EC)	4179.14	3784.30	4080.40	7469.10	4689.91
Eskimo(WC)	3920.92	2556.18	2367.61	4495.31	3523.62
Even	6908.51	5512.71	5202.13	1494.53	6293.85
Evenk	6696.13	5308.20	4963.91	1455.55	6013.02
Flathead	1372.77	240.36	668.44	6816.38	1233.40
Haida	2750.51	1375.36	1019.75	5358.13	2131.60
Hoopa	1452.94	810.29	672.61	6790.28	579.06
Itelman1	7016.84	5648.01	5275.52	1098.12	6269.64
Itelman2	6871.33	5501.18	5130.12	1239.51	6128.83
Kalapuya	1656.92	547.72	232.61	6472.90	966.06
Kiowa	923.58	2017.70	2443.94	8698.11	1916.19
Klamath	1382.80	563.57	492.13	6770.44	666.17
Klickitat**	1583.30	308.81	163.30	6522.97	1052.25
Koryak	6468.76	5081.37	4736.15	1672.81	5785.78
Kutenai	1672.96	367.88	594.36	6528.09	1446.77
Kwakiutl	2333.83	959.91	611.84	5775.37	1750.92
Lillooet	2009.57	621.40	363.14	6108.66	1512.50

Matrix 2F. cont.

	Navajo	Nez Perce	Nisqually	Nivkhi	N. Hill Yokut
Makah	1944.72	625.80	203.74	6162.16	1336.96
Malecite	3472.34	3518.22	3911.88	8426.83	4200.65
Maritime Chukchi	5956.50	4566.25	4228.81	2195.93	5294.47
Menomini	1976.38	2180.75	2618.57	8144.00	2721.88
Micmac	3881.88	3968.16	4361.71	8690.32	4636.80
Mississagua	2434.89	2571.95	2995.18	8218.08	3173.05
Modoc	1316.75	628.49	591.87	6855.87	566.67
Mohawk	3033.29	3233.73	3653.20	8599.56	3819.35
Montagnais	4217.17	4010.95	4348.42	8009.58	4834.69
Munsee	2975.65	3333.47	3768.35	8914.75	3823.43
Nanaimo	1967.80	612.35	250.06	6139.28	1404.85
Navajo	0	1395.86	1741.38	8106.24	999.55
Nez Perce	1395.86	0	454.67	6730.02	1078.89
Nisqually	1741.38	454.67	0	6365.80	1156.19
Nivkhi	8106.24	6730.02	6365.80	0	7367.72
N. Hill Yokut	999.55	1078.89	1156.19	7367.72	0
N. Paiute	1195.82	650.04	688.77	6977.81	470.17
N. Pomo	1387.94	948.35	851.75	6931.23	442.59
Ojibwa1*	2614.35	2753.15	3173.05	8293.26	3360.37
Ojibwa2*	2103.37	1851.21	2242.84	7485.20	2626.70
Okanagan	1717.68	322.51	304.67	6409.32	1310.07
Omaha	1273.00	1678.09	2132.52	8087.56	2050.07
Oneida	2458.54	2803.30	3242.78	8615.45	3286.34
Osage	1095.63	2003.90	2447.14	8607.84	2054.07
Pawnee	1082.77	1573.82	2027.80	8082.93	1874.91
Piegan	1455.22	389.47	780.53	6797.89	1388.20
Ponca	1056.45	1300.15	1754.82	7801.41	1713.13
Potawatomi	2080.31	2472.89	2919.41	8501.41	2912.05
Pueblo	105.38	1479.29	1835.11	8197.82	1102.98
Puyallup	1728.10	425.36	34.86	6378.28	1163.06
Queets	1835.96	545.80	97.07	6272.23	1224.65
Quillayute	1901.92	597.08	160.81	6205.73	1288.36
Quinault	1851.69	576.86	123.19	6258.56	1221.09
Reindeer Chukchi	5732.75	4342.01	4006.40	2418.87	5076.67
Reindeer Even	6136.18	4743.02	4414.95	2057.05	5491.39
Reindeer Koryak	6320.02	4933.87	4586.26	1811.50	5633.49
San Luis Rey	797.21	1468.79	1619.90	7847.75	485.06
Sarcee	1908.80	684.63	860.59	6404.63	1762.37
Sauk	1216.75	2000.42	2450.55	8537.66	2143.92
Seneca	2703.42	3017.79	3452.13	8681.43	3527.04
Serrano	751.34	1370.10	1530.24	7781.19	413.50
Shawnee	1049.86	2067.65	2503.08	8712.59	2032.98
Shoshoni	907.22	505.03	916.81	7234.84	911.72
Shuswap	1934.55	540.28	437.53	6209.86	1529.99
Sioux(Santee)	1525.94	1706.11	2152.59	7924.40	2223.48
Sioux(Teton)	1236.56	1221.70	1671.23	7606.39	1785.48

Matrix 2F. cont.

	Navajo	Nez Perce	Nisqually	Nivkhi	N. Hill Yokut
Sioux (Yankton)	1261.33	1579.03	2032.86	7976.73	1994.47
S. Miwok	1000.67	1034.48	1113.74	7336.90	44.63
Stalo	1864.14	481.28	249.28	6250.89	1376.79
Stockbridge	1966.58	2232.41	2674.03	8236.59	2739.08
Tahltan	3000.09	1604.28	1334.34	5159.65	2484.43
Taos	284.17	1448.99	1840.35	8178.70	1244.58
Tenino	1493.13	392.92	275.55	6622.30	885.80
Thompson	1946.03	551.88	362.63	6180.18	1488.64
Tonkawa	1006.73	2200.56	2616.37	8901.61	2005.69
Tsimshian	2651.46	1265.51	938.25	5464.53	2073.78
Tundra Evenk	6520.98	5126.25	4835.51	1955.23	5948.31
Tuscarora	2663.33	2974.42	3408.99	8654.55	3484.42
Tututni	1569.51	749.47	533.73	6636.31	738.71
Umatilla	1410.52	157.35	352.89	6697.51	977.19
Ute	568.25	860.16	1255.92	7590.17	923.18
Wasco	1544.74	349.11	200.98	6564.23	973.03
Washo	1111.64	846.54	894.06	7136.11	262.17
W. Mono	918.87	1076.71	1185.67	7428.01	80.72
Winnebago	1790.12	2029.44	2472.86	8116.48	2539.20
Yakut	7962.20	6567.64	6273.86	1233.20	7377.78
Yokuts	1201.28	967.91	962.49	7123.83	244.93
Yukaghir	6810.54	5415.41	5096.57	1504.09	6179.49
Yuki	1376.47	885.06	792.51	6907.40	460.49
Yurok	1460.18	765.03	621.71	6762.03	611.92
Zuni	53.04	1422.83	1759.05	8124.82	981.89

Matrix 2F. cont.

	N. Paiute	N. Pomo	Ojibwa1*	Ojibwa2*	Okanagan
Achomawi	86.43	284.12	3269.73	2435.17	833.81
Agua Caliente	926.44	916.87	3358.22	2740.82	1728.82
Aiwan	4902.20	4902.08	6187.69	5339.57	4271.36
Aleut	3798.35	3700.47	5949.88	4991.01	3398.24
Apache	1218.82	1343.29	2897.30	2397.05	1859.30
Arapaho	955.95	1279.04	2256.62	1501.46	1027.87
Assiniboin	1574.23	1908.03	1664.53	807.92	1259.67
Atsugewi	103.86	230.08	3303.73	2482.78	916.09
Bannock	695.09	1024.64	2507.27	1707.43	821.84
Bella Coola	1344.06	1461.27	3351.86	2378.36	657.35
Big Meadow	124.69	218.56	3313.06	2498.82	951.42
Blood	1073.72	1375.16	2449.04	1505.29	449.60
Caddo	2412.29	2638.81	2022.19	2043.39	2717.90
Carrier	1328.39	1508.53	3059.73	2085.40	519.94
Catawba	3468.83	3756.06	1256.20	1937.10	3479.30
Cherokee	3205.36	3488.53	1264.16	1811.02	3247.17
Cheyenne	1366.61	1692.57	1841.63	1119.47	1284.04
Chickasaw	2873.62	3147.86	1396.05	1734.00	2973.51
Chilcotin	1219.63	1390.44	3105.25	2134.17	439.14
Chippewa(MN)	2124.55	2457.59	1104.41	337.14	1799.65
Chippewa(WI)	2487.31	2816.08	716.13	514.55	2229.63
Choctaw	2896.10	3151.73	1662.49	1967.75	3072.09
Chuvantsy	4988.16	4990.17	6240.10	5399.04	4352.35
Clallum	818.45	968.11	3198.24	2254.56	300.97
C. Miwok	350.65	347.22	3333.64	2574.57	1194.19
Coahuilla	930.55	946.22	3289.69	2680.48	1716.22
Coeur d'Alene	731.63	1025.25	2716.85	1803.20	276.78
Comanche	1878.35	2109.87	2104.51	1864.94	2211.30
Concow	142.86	193.85	3337.89	2520.73	954.43
Creek	3307.86	3580.86	1458.41	2009.51	3392.61
Crow	1145.28	1478.68	2067.59	1241.27	965.80
E. Mono	416.58	478.09	3241.22	2505.84	1234.59
Eskimo(EC)	4388.04	4714.68	1794.42	2090.10	3775.95
Eskimo(WC)	3054.72	3189.78	3857.36	2996.31	2253.50
Even	5862.11	5879.37	6827.32	6055.65	5190.86
Evenk	5600.41	5586.14	6865.42	6037.29	4986.02
Flathead	845.32	1161.92	2516.21	1610.86	447.87
Haida	1683.81	1748.51	3684.16	2708.67	1058.91
Hoopa	284.69	181.41	3465.28	2618.29	913.61
Itelman1	5881.52	5833.11	7365.36	6509.71	5328.81
Itelman2	5738.48	5693.00	7221.57	6363.33	5181.77
Kalapuya	515.75	627.31	3300.85	2393.53	513.99
Kiowa	2036.20	2277.12	1970.93	1807.98	2323.95
Klamath	210.13	395.70	3241.86	2380.44	690.07
Klickitat**	582.49	799.32	3054.86	2139.56	283.27
Koryak	5372.65	5359.36	6669.86	5831.52	4759.26
Kutenai	1011.72	1292.78	2610.74	1662.33	294.15
Kwakiutl	1291.66	1395.83	3395.71	2424.10	647.39
Lillooet	1042.64	1213.50	3111.57	2149.57	303.38

Matrix 2F. cont.

	N. Paiute	N. Pomo	Ojibwa1*	Ojibwa2*	Okanagan
Makah	875.92	998.66	3278.32	2330.24	382.63
Malecite	4013.84	4346.49	858.01	1669.74	3620.84
Maritime Chukchi	4873.59	4873.07	6167.91	5317.80	4243.87
Menomini	2584.26	2909.98	643.74	662.37	2361.79
Micmac	4459.47	4791.63	1278.94	2119.81	4070.17
Mississagua	3015.27	3344.49	187.59	824.29	2722.47
Modoc	123.27	319.86	3259.41	2414.86	781.28
Mohawk	3675.97	4004.04	480.62	1441.09	3376.23
Montagnais	4578.83	4911.34	1663.40	2209.03	4044.88
Munsee	3724.54	4045.25	660.94	1626.11	3504.86
Nanaimo	938.51	1082.95	3210.96	2256.92	331.27
Navajo	1195.82	1387.94	2614.35	2103.37	1717.68
Nez Perce	650.04	948.35	2753.15	1851.21	322.51
Nisqually	688.77	851.75	3173.05	2242.84	304.67
Nivkhi	6977.81	6931.23	8293.26	7485.20	6409.32
N. Hill Yokut	470.17	442.59	3360.37	2626.70	1310.07
N. Paiute	0	333.81	3202.07	2378.93	846.19
N. Pomo	333.81	0	3531.56	2712.63	1081.94
Ojibwa1*	3202.07	3531.56	0	975.59	2897.36
Ojibwa2*	2378.93	2712.63	975.59	0	1954.47
Okanagan	846.19	1081.94	2897.36	1954.47	0
Omaha	1968.52	2280.89	1345.09	968.05	1922.45
Oneida	3184.28	3504.80	390.93	1178.47	2986.16
Osage	2113.31	2381.16	1688.05	1555.05	2293.88
Pawnee	1816.70	2122.15	1534.61	1117.98	1837.16
Piegan	1006.30	1322.62	2392.54	1470.81	518.75
Ponca	1597.34	1915.37	1648.09	1048.25	1554.22
Potawatomi	2823.86	3140.74	616.26	1016.40	2675.44
Pueblo	1299.40	1493.29	2562.69	2088.59	1801.70
Puyallup	694.04	869.31	3138.79	2208.07	270.90
Queets	762.07	896.32	3244.45	2306.76	353.68
Quillayute	827.45	951.83	3271.92	2328.16	374.69
Quinault	762.11	882.62	3281.02	2343.85	390.90
Reindeer Chukchi	4653.46	4657.09	5962.36	5104.49	4019.60
Reindeer Even	5065.95	5072.89	6264.27	5433.21	4420.51
Reindeer Koryak	5221.20	5206.76	6554.60	5707.36	4611.92
San Luis Rey	932.48	916.54	3376.02	2758.22	1738.22
Sarcee	1330.51	1608.66	2475.24	1503.88	559.66
Sauk	2165.77	2448.11	1510.56	1392.59	2277.19
Seneca	3416.07	3738.65	388.38	1322.56	3188.69
Serrano	845.10	853.58	3304.98	2671.47	1642.14
Shawnee	2128.35	2381.11	1829.74	1713.46	2366.49
Shoshoni	678.25	1007.09	2524.58	1726.93	825.79
Shuswap	1062.48	1275.35	2932.28	1969.55	228.06
Sioux(Santee)	2084.18	2408.91	1136.95	673.91	1912.12
Sioux(Teton)	1608.37	1937.04	1594.60	879.10	1442.16

Matrix 2F. cont.

	N. Paiute	N. Pomo	Ojibwa1*	Ojibwa2*	Okanagan
Sioux (Yankton)	1891.65	2208.55	1377.36	913.50	1817.74
S. Miwok	426.78	419.03	3334.32	2593.24	1265.64
Stalo	906.64	1096.96	3053.58	2101.96	176.63
Stockbridge	2617.34	2940.45	648.13	756.37	2422.35
Tahltan	2021.56	2129.44	3588.52	2625.07	1283.19
Taos	1371.45	1602.28	2339.33	1876.43	1769.40
Tenino	416.11	623.29	3137.31	2243.61	458.65
Thompson	1018.72	1211.80	3025.08	2064.77	229.53
Tonkawa	2169.44	2389.44	2119.51	2019.37	2512.11
Tsimshian	1616.98	1707.64	3540.21	2564.71	945.12
Tundra Evenk	5506.29	5544.16	6367.04	5603.79	4806.04
Tuscarora	3372.60	3695.28	361.92	1284.00	3145.90
Tututni	374.28	341.88	3463.79	2590.69	799.39
Umatilla	525.54	804.92	2903.60	2007.21	342.87
Ute	870.65	1160.96	2437.90	1749.41	1181.45
Wasco	502.87	712.03	3102.23	2196.67	370.44
Washo	210.94	281.79	3290.53	2504.10	1056.61
W. Mono	496.94	512.58	3297.05	2576.44	1322.64
Winnebago	2411.78	2735.40	830.43	679.11	2224.94
Yakut	6940.83	6966.95	7650.03	6955.30	6247.44
Yokuts	318.13	199.08	3433.29	2648.67	1154.07
Yukaghir	5751.76	5761.95	6794.78	6006.69	6657.38
Yuki	279.85	63.88	3481.50	2656.33	1018.92
Yurok	275.18	230.92	3434.36	2581.03	862.67
Zuni	1198.61	1379.26	2663.93	2156.41	1743.89

Matrix 2F. cont.

	Omaha	Oneida	Osage	Pawnee	Piegan
Achomawi	2046.33	3258.18	2198.62	1896.66	1039.00
Agua Caliente	2014.08	3226.71	1873.68	1825.93	1700.73
Aiwan	5916.69	6490.19	6438.66	5912.36	4637.79
Aleut	5284.06	6162.73	5692.11	5222.02	3875.21
Apache	1560.59	2727.74	1328.21	1370.70	1663.24
Arapaho	1020.57	2228.33	1279.20	884.35	643.26
Assiniboin	762.93	1727.11	1306.28	768.16	742.18
Atsugewi	2063.42	3282.47	2192.16	1908.94	1104.95
Bannock	1293.19	2493.71	1533.54	1157.19	561.84
Bella Coola	2524.21	3495.36	2936.06	2458.62	1111.83
Big Meadow	2065.34	3287.27	2183.51	1908.76	1130.78
Blood	1535.80	2547.41	1973.04	1476.91	152.17
Caddo	1117.02	1712.40	512.92	1048.23	2289.00
Carrier	2271.73	3209.97	2713.26	2218.85	879.97
Catawba	1559.63	871.04	1396.07	1672.46	2967.76
Cherokee	1324.94	874.94	1121.41	1423.45	2740.79
Cheyenne	646.96	1821.08	1048.31	554.37	793.76
Chickasaw	1072.80	1035.37	768.55	1136.35	2479.54
Chilcotin	2267.03	3241.52	2687.03	2204.08	857.52
Chippewa(MN)	650.20	1200.24	1251.99	787.21	1289.84
Chippewa(WI)	680.60	760.18	1169.88	868.23	1714.73
Choctaw	1223.96	1298.42	791.57	1250.75	2594.60
Chuvantsy	5986.32	6545.99	6511.64	5984.15	4714.62
Clallum	2199.51	3283.62	2537.49	2103.29	814.34
C. Miwok	2039.18	3274.23	2079.68	1869.06	1296.05
Coahuilla	1945.16	3156.01	1801.58	1756.70	1667.16
Coeur d'Alene	1673.66	2778.21	2022.63	1577.79	333.09
Comanche	898.95	1871.33	425.52	753.20	1811.58
Concow	2092.23	3313.50	2211.50	1936.04	1146.11
Creek	1476.42	1067.78	1200.00	1558.08	2892.10
Crow	958.62	2088.00	1356.68	873.52	477.38
E. Mono	1934.49	3170.70	1954.98	1760.89	1281.80
Eskimo(EC)	2949.24	2153.45	3423.68	3130.37	3397.77
Eskimo(WC)	3620.47	4149.68	4176.34	3639.46	2476.49
Even	6725.48	7160.86	7276.84	6741.65	5519.52
Evenk	6632.74	7177.82	7157.43	6630.40	5356.77
Flathead	1478.04	2575.07	1850.26	1389.38	161.07
Haida	2916.16	3849.84	3337.88	2856.11	1509.75
Hoopa	2248.88	3458.82	2396.50	2099.46	1194.64
Itelman1	7053.10	7665.29	7554.75	7037.14	5732.32
Itelman2	6904.64	7520.05	7406.35	6888.64	5584.21
Kalapuya	2193.63	3345.58	2453.62	2072.16	923.08
Kiowa	842.48	1719.48	284.09	727.19	1900.57
Klamath	2055.61	3249.85	2250.53	1915.83	948.19
Klickitat**	1983.55	3111.18	2286.46	1873.97	668.81
Koryak	6414.94	6977.49	6936.26	6410.40	5132.51
Kutenai	1691.45	2711.59	2111.69	1625.52	279.13
Kwakiutl	2539.81	3531.25	2937.73	2468.33	1123.78
Lillooet	2203.23	3226.16	2592.76	2126.84	786.97

Matrix 2F. cont.

	Omaha	Oneida	Osage	Pawnee	Piegan
Makah	2290.19	3368.58	2629.32	2194.86	899.97
Malecite	2202.57	1091.28	2521.52	2392.31	3140.27
Maritime Chukchi	5892.10	6469.43	6413.16	5887.19	4611.33
Menomini	703.89	624.58	1123.45	894.05	1844.72
Micmac	2620.15	1447.91	2893.88	2808.46	3590.37
Mississagua	1163.35	400.27	1533.39	1353.34	2214.74
Modoc	2048.94	3254.94	2216.91	1902.76	1004.63
Mohawk	1781.60	595.51	2040.52	1967.50	2872.76
Montagnais	2950.41	1965.94	3350.16	3139.15	3621.54
Munsee	1774.16	540.45	1927.32	1949.13	2990.93
Nanaimo	2253.21	3310.80	2612.69	2165.19	848.23
Navajo	1273.00	2458.54	1095.63	1082.77	1455.22
Nez Perce	1678.09	2803.30	2003.90	1573.82	389.47
Nisqually	2132.52	3242.78	2447.14	2027.80	780.53
Nivkhi	8087.56	8615.45	8607.84	8082.93	6797.89
N. Hill Yokut	2050.07	3286.34	2054.07	1874.91	1388.20
N. Paiute	1968.52	3184.28	2113.31	1816.70	1006.30
N. Pomo	2280.89	3504.80	2381.16	2122.15	1322.62
Ojibwa1*	1345.09	390.93	1688.05	1534.61	2392.54
Ojibwa2*	968.05	1178.47	1555.05	1117.98	1470.81
Okanagan	1922.45	2986.16	2293.88	1837.16	518.75
Omaha	0	1236.28	607.34	190.24	1416.62
Oneida	1236.28	0	1445.97	1414.22	2469.29
Osage	607.34	1445.97	0	538.66	1833.45
Pawnee	190.24	1414.22	538.66	0	1346.85
Piegan	1416.62	2469.29	1833.45	1346.85	0
Ponca	381.31	1589.67	808.38	288.53	1059.29
Potawatomi	863.53	378.93	1087.01	1037.85	2156.69
Pueblo	1228.50	2394.09	1010.26	1039.16	1518.67
Puyallup	2102.37	3209.58	2421.87	1999.12	746.33
Queets	2221.66	3321.74	2542.65	2119.62	854.29
Quillayute	2267.97	3356.45	2598.46	2169.47	887.18
Quinault	2253.98	3357.21	2570.11	2150.47	890.39
Reindeer Chukchi	5670.16	6259.77	6189.48	5664.06	4386.65
Reindeer Even	6035.19	6574.68	6565.67	6036.40	4775.43
Reindeer Koryak	6278.82	6857.93	6796.35	6271.87	4989.00
San Luis Rey	2031.86	3244.30	1890.28	1843.69	1714.25
Sarcee	1716.78	2619.74	2203.72	1685.85	453.80
Sauk	473.78	1279.87	180.85	456.87	1797.27
Seneca	1477.31	244.89	1684.92	1656.97	2674.65
Serrano	1962.80	3182.08	1846.95	1775.87	1614.08
Shawnee	760.28	1571.63	159.38	673.87	1923.02
Shoshoni	1306.25	2509.12	1539.53	1168.51	577.31
Shuswap	2045.43	3050.42	2455.61	1977.07	630.56
Sioux(Santee)	296.39	1105.90	885.15	464.69	1393.82
Sioux(Teton)	497.31	1592.51	1017.93	480.58	928.61

Matrix 2F. cont.

	Omaha	Oneida	Osage	Pawnee	Piegan
Sioux (Yankton)	111.80	1298.00	697.78	204.67	1309.45
S. Miwok	2028.68	3264.88	2045.36	1855.10	1345.54
Stalo	2098.36	3151.79	2468.92	2013.79	689.98
Stockbridge	701.10	572.15	1073.23	889.21	1904.13
Tahltan	2981.85	3796.32	3460.81	2949.97	1638.40
Taos	1004.65	2175.83	819.28	815.48	1430.66
Tenino	2012.38	3172.70	2269.83	1888.98	780.58
Thompson	2114.96	3137.60	2508.96	2039.99	698.45
Tonkawa	1058.77	1840.64	468.93	950.80	2104.43
Tsimshian	2780.30	3706.28	3210.51	2723.72	1379.02
Tundra Evenk	6290.64	6702.61	6849.42	6312.57	5113.40
Tuscarora	1434.87	205.23	1648.96	1614.97	2631.66
Tututni	2284.31	3476.85	2471.40	2144.06	1138.94
Umatilla	1802.14	2945.79	2096.17	1688.27	546.64
Ute	1132.87	2367.89	1247.29	965.34	887.00
Wasco	2004.55	3148.64	2285.43	1888.11	727.30
Washo	2017.87	3247.97	2100.43	1854.41	1184.02
W. Mono	1981.38	3217.40	1975.76	1804.66	1369.73
Winnebago	517.26	777.52	969.54	707.49	1706.26
Yakut	7692.37	8005.76	8263.08	7724.71	6549.86
Yokuts	2154.76	3386.80	2218.18	1988.88	1317.18
Yukaghir	6657.38	7122.72	7202.31	6668.75	5432.40
Yuki	2239.02	3459.74	2353.39	2082.74	1260.48
Yurok	2227.52	3432.98	2387.86	2080.76	1150.92
Zuni	1323.59	2504.90	1132.82	1133.41	1493.38

Matrix 2F. cont.

	Ponca	Potawatomi	Pueblo	Puyallup	Queets
Achomawi	1673.31	2899.53	1384.17	657.90	714.81
Agua Caliente	1734.99	2847.79	863.76	1615.97	1688.47
Aiwan	5631.52	6352.98	6071.44	4265.85	4166.97
Aleut	4934.46	5926.01	5080.42	3291.43	3173.70
Apache	1350.64	2351.14	334.99	1828.46	1926.58
Arapaho	643.64	1869.17	888.20	1142.72	1263.57
Assiniboin	513.13	1419.29	1439.05	1484.51	1595.27
Atsugewi	1694.26	2920.65	1350.44	740.64	795.27
Bannock	914.78	2137.93	991.98	896.91	1016.33
Bella Coola	2171.11	3216.28	2449.12	659.02	582.54
Big Meadow	1698.17	2924.08	1330.62	777.79	832.46
Blood	1188.43	2247.09	1668.97	705.63	801.50
Caddo	1305.70	1406.47	1155.66	2815.25	2934.14
Carrier	1930.33	2938.23	2309.09	642.96	618.06
Catawba	1937.15	921.58	2397.63	3661.75	3781.20
Cherokee	1696.25	806.98	2121.17	3420.71	3540.84
Cheyenne	270.50	1468.73	1044.20	1455.86	1575.45
Chickasaw	1421.10	825.16	1757.93	3130.54	3251.39
Chilcotin	1916.14	2959.36	2240.28	528.99	497.36
Chippewa(MN)	713.45	940.23	1752.81	2036.10	2143.46
Chippewa(WI)	939.47	515.83	1906.99	2458.52	2568.77
Choctaw	1539.22	1089.68	1707.79	3209.90	3330.84
Chuvantsy	5704.07	6413.42	6153.05	4349.56	4251.33
Clallum	1825.42	2968.64	1954.16	134.76	78.37
C. Miwok	1691.26	2902.67	1157.20	1042.14	1102.90
Coahuilla	1669.85	2777.11	791.70	1614.18	1690.90
Coeur d'Alene	1299.22	2453.82	1535.53	433.29	549.96
Comanche	934.00	1509.97	646.28	2293.67	2411.44
Concow	1724.59	2950.65	1357.17	774.11	825.04
Creek	1838.40	1009.42	2174.36	3556.58	3677.24
Crow	588.62	1750.19	1167.93	1146.54	1264.89
E. Mono	1594.59	2797.19	1024.59	1107.45	1178.60
Eskimo(EC)	3124.39	2402.78	4154.12	4046.84	4115.46
Eskimo(WC)	3371.01	4010.50	3990.86	2360.74	2303.76
Even	6469.32	7070.44	6991.21	5208.36	5115.12
Evenk	6350.05	7052.70	6784.38	4973.80	4872.75
Flathead	1107.17	2251.22	1444.15	635.83	751.21
Haida	2568.03	3584.73	2840.52	1027.89	931.67
Hoopa	1875.28	3101.21	1557.83	691.42	715.11
Itelman1	6752.50	7520.60	7109.66	5288.88	5181.33
Itelman2	6604.02	7373.78	6963.89	5143.27	5036.08
Kalapuya	1812.41	3009.09	1755.97	257.36	269.25
Kiowa	952.47	1366.54	826.28	2421.71	2540.82
Klamath	1677.18	2898.19	1484.67	502.03	558.51
Klickitat**	1604.23	2781.69	1675.91	145.15	260.37
Koryak	6129.32	6845.95	6557.17	4746.10	4644.95
Kutenai	1337.66	2410.92	1745.05	559.75	647.81
Kwakiutl	2181.86	3246.27	2423.46	616.57	530.08
Lillooet	1841.34	2929.43	2096.16	350.83	324.87

Matrix 2F. cont.

	Ponca	Potawatomi	Pueblo	Puyallup	Queets
Makah	1916.61	3055.85	2038.06	217.67	114.59
Malecite	2494.47	1434.50	3420.06	3877.07	3974.03
Maritime Chukchi	5606.15	6330.90	6043.78	4237.73	4138.71
Menomini	1008.82	361.00	1928.92	2585.30	2697.23
Micmac	2926.15	1814.63	3824.58	4326.90	4423.48
Mississagua	1461.10	495.52	2385.44	2961.05	3067.92
Modoc	1673.63	2898.71	1419.94	601.33	658.01
Mohawk	2106.78	960.34	2973.60	3618.89	3724.07
Montagnais	3184.63	2276.20	4178.20	4313.97	4393.97
Munsee	2130.08	911.40	2906.02	3734.77	3845.05
Nanaimo	1883.59	3004.16	2058.56	250.15	186.63
Navajo	1056.45	2080.31	105.38	1728.10	1835.96
Nez Perce	1300.15	2472.89	1479.29	425.36	545.80
Nisqually	1754.82	2919.41	1835.11	34.86	97.07
Nivkhi	7801.41	8501.41	8197.82	6378.28	6272.23
N. Hill Yokut	1713.13	2912.05	1102.98	1163.06	1224.65
N. Paiute	1597.34	2823.86	1299.40	694.04	762.07
N. Pomo	1915.37	3140.74	1493.29	869.31	896.32
Ojibwa1*	1648.09	616.26	2562.69	3138.79	3244.45
Ojibwa2*	1048.25	1016.40	2088.59	2208.07	2306.76
Okanagan	1554.22	2675.44	1801.70	270.90	353.68
Omaha	381.31	863.53	1228.50	2102.37	2221.66
Oneida	1589.67	378.93	2394.09	3209.58	3321.74
Osage	808.38	1087.01	1010.26	2421.87	2542.65
Pawnee	288.53	1037.85	1039.16	1999.12	2119.62
Piegan	1059.29	2156.69	1518.67	746.33	854.29
Ponca	0	1226.53	1040.57	1725.19	1845.04
Potawatomi	1226.53	0	2017.02	2887.01	3001.97
Pueblo	1040.57	2017.02	0	1820.94	1930.23
Puyallup	1725.19	2887.01	1820.94	0	121.00
Queets	1845.04	3001.97	1930.23	121.00	0
Quillayute	1892.88	3040.50	1995.84	179.03	67.29
Quinault	1876.80	3036.62	1946.80	151.62	37.22
Reindeer Chukchi	5382.69	6116.36	5819.79	4015.05	3916.62
Reindeer Even	5757.59	6448.64	6221.97	4422.87	4325.95
Reindeer Koryak	5990.03	6720.60	6408.83	4596.45	4494.81
San Luis Rey	1752.75	2865.38	880.24	1623.02	1694.54
Sarcee	1400.23	2350.49	1970.96	828.09	891.40
Sauk	744.09	914.80	1139.24	2423.52	2544.51
Seneca	1825.20	623.68	2638.73	3418.54	3528.78
Serrano	1674.26	2803.23	841.08	1532.39	1606.66
Shawnee	927.72	1222.03	956.30	2479.34	2599.47
Shoshoni	928.54	2152.56	983.97	894.69	1013.68
Shuswap	1689.77	2757.55	2015.92	412.71	436.95
Sioux(Santee)	511.53	766.94	1491.87	2120.28	2235.59
Sioux(Teton)	231.12	1252.22	1233.32	1639.50	1756.33

Matrix 2F. cont.

	Ponca	Potawatomi	Pueblo	Puyallup	Queets
Sioux (Yankton)	294.57	932.42	1225.61	2002.29	2121.07
S. Miwok	1688.11	2891.40	1104.87	1120.22	1183.08
Stalo	1730.75	2845.35	1951.42	227.92	246.78
Stockbridge	1029.59	273.69	1914.59	2641.09	2754.31
Tahltan	2663.03	3567.07	3082.29	1333.24	1260.16
Taos	831.29	1797.99	223.96	1822.35	1937.11
Tenino	1631.07	2832.82	1590.20	278.24	357.81
Thompson	1754.07	2840.27	2030.71	342.58	348.03
Tonkawa	1176.27	1506.00	902.74	2595.75	2713.44
Tsimshian	2435.36	3442.49	2739.26	942.27	856.19
Tundra Evenk	6043.54	6617.38	6600.65	4839.59	4751.40
Tuscarora	1781.99	583.13	2599.22	3375.41	3485.75
Tututni	1905.82	3126.24	1673.34	556.76	564.77
Umatilla	1421.72	2610.44	1500.46	330.98	449.68
Ute	790.08	1996.39	635.77	1236.52	1352.95
Wasco	1623.80	2814.03	1639.72	196.92	292.05
Washo	1659.09	2880.31	1216.99	901.25	962.77
W. Mono	1649.06	2842.32	1022.27	1190.32	1258.26
Winnebago	827.22	452.14	1743.78	2440.13	2554.12
Yakut	7461.12	7957.46	8041.49	6278.57	6188.75
Yokuts	1798.97	3017.87	1306.39	974.24	1021.25
Yukaghir	6394.11	7022.67	6894.64	5103.65	5008.50
Yuki	1871.07	3097.25	1481.82	809.23	839.81
Yurok	1852.25	3077.21	1564.67	640.28	665.49
Zuni	1109.45	2126.96	125.39	1746.71	1852.97

Matrix 2F. cont.

	Quillayute	Quinault	Reindeer Chukchi	Reindeer Even	Reindeer Koryak
Achomawi	778.43	711.25	4587.89	5001.11	5152.87
Agua Caliente	1753.88	1688.26	5559.24	5973.78	6116.36
Aiwan	4099.73	4157.46	251.80	192.46	367.88
Aleut	3112.39	3151.43	1500.09	1838.46	1793.92
Apache	1993.78	1937.06	5842.88	6251.27	6420.85
Arapaho	1319.30	1291.40	5015.17	5408.09	5614.38
Assiniboin	1629.34	1630.98	4908.40	5275.83	5516.94
Atsugewi	858.23	790.56	4656.70	5070.47	5219.16
Bannock	1075.67	1041.56	4839.18	5238.08	5433.03
Bella Coola	518.78	586.72	3371.40	3775.81	3959.88
Big Meadow	895.33	827.60	4690.87	5104.80	5252.51
Blood	824.12	838.61	4238.08	4625.76	4841.13
Caddo	2994.14	2958.24	6668.51	7050.25	7273.43
Carrier	573.21	639.05	3525.16	3921.05	4123.17
Catawba	3827.56	3813.37	7037.59	7370.07	7642.08
Cherokee	3589.11	3572.25	6884.86	7227.32	7491.75
Cheyenne	1622.77	1607.48	5144.66	5524.45	5750.70
Chickasaw	3302.83	3281.34	6721.05	7076.85	7329.68
Chilcotin	451.16	517.43	3583.07	3982.71	4177.37
Chippewa(MN)	2173.29	2179.79	5208.96	5554.15	5816.11
Chippewa(WI)	2601.49	2604.64	5602.13	5936.98	6206.97
Choctaw	3385.59	3358.91	6893.87	7257.11	7502.57
Chuvantsy	4184.07	4242.15	334.80	104.44	318.43
Clallum	73.72	108.71	3880.29	4288.14	4461.84
C. Miwok	1166.58	1099.31	4959.31	5373.73	5517.97
Coahuilla	1756.91	1692.29	5575.02	5988.92	6135.49
Coeur d'Alene	594.33	583.70	4290.70	4689.88	4884.73
Comanche	2472.70	2434.34	6197.74	6586.94	6798.97
Concow	887.13	818.98	4674.38	5088.55	5234.84
Creek	3727.50	3707.74	7072.77	7418.24	7680.24
Crow	1309.86	1297.89	4849.97	5234.35	5454.33
E. Mono	1244.03	1178.55	5060.49	5474.03	5623.38
Eskimo(EC)	4112.92	4151.34	5435.01	5624.78	5948.77
Eskimo(WC)	2243.18	2312.12	2110.28	2439.34	2711.22
Even	5047.88	5108.31	1231.05	815.51	803.15
Evenk	4805.63	4862.01	970.12	604.08	379.53
Flathead	792.81	785.53	4412.82	4806.98	5011.48
Haida	864.42	925.22	2987.16	3395.23	3569.99
Hoopa	770.42	701.21	4499.44	4914.58	5054.61
Itelman1	5115.11	5166.80	1405.72	1122.51	813.00
Itelman2	4969.79	5021.80	1260.28	990.03	673.84
Kalapuya	327.42	258.46	4138.95	4550.97	4709.16
Kiowa	2600.53	2565.23	6284.64	6669.22	6888.40
Klamath	622.58	555.90	4443.41	4855.84	5011.69
Klickitat**	322.78	284.57	4157.56	4564.74	4740.04
Koryak	4577.83	4634.17	746.87	409.28	152.98
Kutenai	665.93	685.03	4120.34	4512.27	4720.87
Kwakiutl	464.21	530.18	3401.38	3807.94	3986.26

Matrix 2F. cont.

	Quillayute	Quinault	Reindeer Chukchi	Reindeer Even	Reindeer Koryak
Lillooet	286.46	348.66	3723.65	4126.62	4313.67
Makah	48.60	116.96	3803.47	4212.45	4382.69
Malecite	3993.02	4011.19	6214.90	6468.27	6778.55
Maritime Chukchi	4071.47	4129.12	224.75	220.31	389.74
Menomini	2731.87	2732.74	5756.27	6090.21	6360.90
Micmac	4442.01	4460.65	6539.21	6772.49	7088.56
Mississagua	3096.70	3104.34	5869.05	6179.95	6465.39
Modoc	721.75	654.71	4535.14	4948.10	5101.29
Mohawk	3750.89	3760.71	6312.40	6595.36	6894.75
Montagnais	4399.30	4430.76	5965.35	6161.50	6484.75
Munsee	3877.37	3880.95	6605.99	6898.81	7193.88
Nanaimo	137.45	203.80	3769.27	4176.08	4353.04
Navajo	1901.92	1851.69	5732.75	6136.18	6320.02
Nez Perce	597.08	576.86	4342.01	4743.02	4933.87
Nisqually	160.81	123.19	4006.40	4414.95	4586.26
Nivkhi	6205.73	6258.56	2418.87	2057.05	1811.50
N. Hill Yokut	1288.36	1221.09	5076.67	5491.39	5633.49
N. Paiute	827.45	762.11	4653.46	5065.95	5221.20
N. Pomo	951.83	882.62	4657.09	5072.89	5206.76
Ojibwa1*	3271.92	3281.02	5962.36	6264.27	6554.60
Ojibwa2*	2328.16	2343.85	5104.49	5433.21	5707.36
Okanagan	374.69	390.90	4019.60	4420.51	4611.92
Omaha	2267.97	2253.98	5670.16	6035.19	6278.82
Oneida	3356.45	3357.21	6259.77	6574.68	6857.93
Osage	2598.46	2570.11	6189.48	6565.67	6796.35
Pawnee	2169.47	2150.47	5664.06	6036.40	6271.87
Piegan	887.18	890.39	4386.65	4775.43	4989.00
Ponca	1892.88	1876.80	5382.69	5757.59	5990.03
Potawatomi	3040.50	3036.62	6116.36	6448.64	6720.60
Pueblo	1995.84	1946.80	5819.79	6221.97	6408.83
Puyallup	179.03	151.62	4015.05	4422.87	4596.45
Queets	67.29	37.22	3916.62	4325.95	4494.81
Quillayute	0	69.24	3849.36	4258.67	4427.73
Quinault	69.24	0	3907.38	4317.43	4483.80
Reindeer Chukchi	3849.36	3907.38	0	416.73	608.76
Reindeer Even	4258.67	4317.43	416.73	0	328.26
Reindeer Koryak	4427.73	4483.80	608.76	328.26	0
San Luis Rey	1759.79	1693.96	5561.73	5976.42	6117.99
Sarcee	890.63	927.28	3987.01	4367.58	4593.19
Sauk	2597.46	2573.72	6118.87	6489.33	6726.93
Seneca	3561.12	3564.67	6349.53	6652.53	6942.43
Serrano	1672.36	1607.20	5485.23	5899.35	6044.71
Shawnee	2657.39	2625.39	6295.76	6675.75	6901.43
Shoshoni	1073.62	1038.37	4844.28	5243.70	5437.55
Shuswap	420.74	469.19	3812.17	4210.25	4407.85

Matrix 2F. cont.

	Quillayute	Quinault	Reindeer Chukchi	Reindeer Even	Reindeer Koryak
Sioux(Santee)	2274.94	2270.09	5513.30	5867.93	6121.78
Sioux(Teton)	1798.26	1790.18	5187.70	5557.94	5795.90
Sioux (Yankton)	2166.29	2153.79	5559.13	5924.78	6167.75
S. Miwok	1247.08	1180.05	5041.44	5455.91	5599.71
Stalo	239.04	280.35	3868.68	4272.24	4457.66
Stockbridge	2790.55	2789.49	5847.42	6182.43	6452.36
Tahltan	1196.07	1263.52	2751.64	3146.12	3351.76
Taos	2000.55	1957.46	5785.00	6182.13	6380.05
Tenino	425.00	365.80	4273.11	4682.97	4849.43
Thompson	325.24	378.04	3790.13	4191.32	4382.40
Tonkawa	2774.78	2736.23	6490.97	6878.03	7093.37
Tsimshian	789.94	854.91	3081.37	3486.18	3669.78
Tundra Evenk	4684.47	4746.97	988.26	631.49	808.09
Tuscarora	3518.22	3521.62	6319.07	6623.75	6912.76
Tututni	616.17	547.44	4338.03	4752.86	4895.42
Umatilla	510.01	474.95	4323.32	4728.32	4909.52
Ute	1415.30	1374.90	5199.91	5599.00	5793.28
Wasco	358.86	307.09	4207.20	4615.89	4786.45
Washo	1026.77	959.79	4829.62	5243.49	5391.29
W. Mono	1323.12	1256.90	5128.52	5542.66	5688.41
Winnebago	2591.46	2589.07	5717.29	6060.01	6324.05
Yakut	6121.68	6183.45	2324.09	1908.25	1850.34
Yokuts	1081.99	1013.28	4839.08	5254.30	5393.05
Yukaghir	4941.22	5000.79	1106.04	689.43	649.55
Yuki	896.60	827.37	4623.90	5039.31	5176.80
Yurok	721.55	652.32	4464.79	4879.58	5022.17
Zuni	1919.27	1867.77	5755.49	6159.89	6341.25

Matrix 2F. cont.

	San Luis Rey	Sarcee	Sauk	Seneca	Serrano
Achomawi	985.25	1339.47	2249.68	3488.81	901.70
Agua Caliente	17.81	2119.24	1996.92	3471.44	87.75
Aiwan	5808.39	4236.80	6366.79	6575.41	5732.53
Aleut	4610.94	3586.57	5670.20	6312.51	4553.53
Apache	586.03	2115.26	1466.16	2972.23	571.53
Arapaho	1287.16	1089.04	1285.82	2460.47	1193.65
Assiniboin	1990.50	963.62	1214.67	1934.03	1898.83
Atsugewi	910.52	1416.84	2249.82	3515.06	829.43
Bannock	1179.67	1010.98	1550.94	2723.50	1080.67
Bella Coola	2276.43	877.94	2907.72	3677.57	2187.69
Big Meadow	874.91	1448.72	2244.03	3520.71	794.69
Blood	1832.41	309.06	1930.46	2745.50	1732.26
Caddo	1989.26	2682.71	653.36	1928.60	1971.10
Carrier	2244.69	590.24	2672.75	3388.75	2150.48
Catawba	3276.23	3219.17	1308.48	932.94	3238.28
Cherokee	2999.61	3014.41	1040.65	1004.14	2961.93
Cheyenne	1638.91	1157.66	1003.62	2050.40	1552.04
Chickasaw	2634.94	2788.99	713.16	1221.71	2599.01
Chilcotin	2141.70	630.32	2654.71	3426.39	2048.63
Chippewa(MN)	2441.19	1421.01	1100.32	1391.24	2356.92
Chippewa(WI)	2684.75	1862.22	992.23	960.05	2609.45
Choctaw	2568.54	2932.42	797.35	1476.54	2542.44
Chuvantsy	5895.70	4310.99	6438.04	6628.11	5819.47
Clallum	1750.05	822.30	2533.65	3487.88	1660.59
C. Miwok	603.30	1657.62	2160.30	3513.08	526.76
Coahuilla	89.03	2091.59	1924.91	3400.78	92.65
Coeur d'Alene	1549.95	601.41	2011.64	2989.28	1451.03
Comanche	1515.37	2229.41	595.58	2110.44	1483.93
Concow	889.37	1457.60	2271.95	3546.72	810.85
Creek	3045.58	3181.45	1146.35	1179.52	3014.30
Crow	1591.97	870.42	1320.88	2308.72	1496.81
E. Mono	516.11	1666.97	2039.67	3410.89	428.94
Eskimo(EC)	4847.71	3224.07	3242.84	2004.18	4760.02
Eskimo(WC)	3979.62	2032.24	4084.44	4243.37	3886.39
Even	6778.54	5097.32	7188.76	7214.42	6699.68
Evenk	6497.51	4955.98	7084.42	7253.76	6424.24
Flathead	1574.68	562.88	1829.85	2786.42	1474.51
Haida	2611.45	1234.29	3306.95	4022.51	2527.48
Hoopa	1063.41	1451.46	2450.37	3688.64	991.71
Itelman1	6749.63	5352.35	7493.63	7752.94	6683.13
Itelman2	6609.42	5203.89	7345.14	7608.99	6542.26
Kalapuya	1442.86	1073.12	2474.51	3562.61	1358.37
Kiowa	1697.24	2302.75	464.57	1955.51	1665.24
Klamath	1138.47	1213.25	2289.67	3476.20	1052.95
Klickitat**	1501.01	830.51	2292.65	3324.45	1408.31
Koryak	6270.34	4733.88	6864.94	7058.00	6196.87
Kutenai	1828.68	318.79	2076.38	2909.22	1729.25
Kwakiutl	2223.92	920.54	2914.58	3716.90	2136.57

Matrix 2F. cont.

	San Luis Rey	Sarcee	Sauk	Seneca	Serrano
Lillooet	1967.18	661.44	2571.27	3419.72	1874.84
Makah	1808.30	878.54	2625.57	3571.30	1720.77
Malecite	4232.10	3141.64	2348.39	878.80	4159.75
Maritime Chukchi	5779.51	4211.04	6341.76	6555.55	5703.72
Menomini	2732.76	2008.16	942.80	838.71	2661.31
Micmac	4651.99	3587.18	2726.69	1211.53	4582.40
Mississagua	3192.49	2312.33	1353.91	499.28	3120.63
Modoc	1040.87	1293.22	2263.63	3484.08	956.55
Mohawk	3810.03	2944.86	1872.42	369.39	3743.35
Montagnais	4936.13	3510.58	3171.57	1772.09	4854.95
Munsee	3767.13	3112.05	1773.62	316.28	3708.07
Nanaimo	1869.95	789.55	2601.90	3510.02	1780.28
Navajo	797.21	1908.80	1216.75	2703.42	751.34
Nez Perce	1468.79	684.63	2000.42	3017.79	1370.10
Nisqually	1619.90	860.59	2450.55	3452.13	1530.24
Nivkhi	7847.75	6404.63	8537.66	8681.43	7781.19
N. Hill Yokut	485.06	1762.37	2143.92	3527.04	413.50
N. Paiute	932.48	1330.51	2165.77	3416.07	845.10
N. Pomo	916.54	1608.66	2448.11	3738.65	853.58
Ojibwa1*	3376.02	2475.24	1510.56	388.38	3304.98
Ojibwa2*	2758.22	1503.88	1392.59	1322.56	2671.47
Okanagan	1738.22	559.66	2277.19	3188.69	1642.14
Omaha	2031.86	1716.78	473.78	1477.31	1962.80
Oneida	3244.30	2619.74	1279.87	244.89	3182.08
Osage	1890.28	2203.72	180.85	1684.92	1846.95
Pawnee	1843.69	1685.85	456.87	1656.97	1775.87
Piegan	1714.25	453.80	1797.27	2674.65	1614.08
Ponca	1752.75	1400.23	744.09	1825.20	1674.26
Potawatomi	2865.38	2350.49	914.80	623.68	2803.23
Pueblo	880.24	1970.96	1139.24	2638.73	841.08
Puyallup	1623.02	828.09	2423.52	3418.54	1532.39
Queets	1694.54	891.40	2544.51	3528.78	1606.66
Qullayute	1759.79	890.63	2597.46	3561.12	1672.36
Quinault	1693.96	927.28	2573.72	3564.67	1607.20
Reindeer Chukchi	5561.73	3987.01	6118.87	6349.53	5485.23
Reindeer Even	5976.42	4367.58	6489.33	6652.53	5899.35
Reindeer Koryak	6117.99	4593.19	6726.93	6942.43	6044.71
San Luis Rey	0	2131.61	2013.93	3489.04	100.20
Sarcee	2131.61	0	2142.70	2799.76	2031.66
Sauk	2013.93	2142.70	0	1521.23	1964.29
Seneca	3489.04	2799.76	1521.23	0	3426.53
Serrano	100.20	2031.66	1964.29	3426.53	0
Shawnee	1833.04	2308.91	336.08	1806.75	1797.32
Shoshoni	1160.57	1025.20	1559.15	2739.34	1061.48
Shuswap	1964.38	484.35	2425.95	3242.27	1868.76

Matrix 2F. cont.

	San Luis Rey	Sarcee	Sauk	Seneca	Serrano
Sioux(Santee)	2255.82	1623.58	730.74	1332.90	2180.14
Sioux(Teton)	1881.76	1220.90	931.47	1816.62	1796.86
Sioux (Yankton)	2001.43	1605.18	576.41	1535.48	1928.49
S. Miwok	521.01	1718.12	2131.88	3505.02	445.20
Stalo	1826.23	651.59	2453.54	3351.32	1733.06
Stockbridge	2732.76	2082.05	892.47	798.77	2663.89
Tahltan	2953.79	1265.80	3406.75	3947.26	2864.57
Taos	1080.38	1875.02	933.94	2420.66	1030.82
Tenino	1345.04	995.37	2290.26	3392.04	1254.91
Thompson	1934.30	584.40	2485.46	3331.79	1840.33
Tonkawa	1736.92	2514.60	645.05	2068.73	1717.57
Tsimshian	2548.78	1092.02	3175.95	3878.58	2462.06
Tundra Evenk	6431.12	4683.84	6756.61	6753.87	6348.94
Tuscarora	3448.20	2758.54	1484.12	43.58	3385.34
Tututni	1223.76	1351.46	2514.40	3702.31	1149.33
Umatilla	1396.02	807.99	2103.74	3162.86	1299.60
Ute	1012.89	1340.67	1295.13	2607.10	923.36
Wasco	1427.96	914.13	2298.64	3364.88	1336.64
Washo	737.59	1530.61	2170.01	3484.27	656.20
W. Mono	437.75	1756.68	2067.37	3458.68	356.71
Winnebago	2545.80	1901.62	791.06	1004.52	2474.56
Yakut	7861.84	6116.29	8162.46	8030.28	7781.39
Yokuts	725.38	1648.51	2293.88	3623.87	657.92
Yukaghir	6664.46	5015.03	7118.04	7182.59	6586.81
Yuki	941.98	1544.78	2416.26	3692.62	873.96
Yurok	1096.98	1401.83	2438.04	3661.68	1022.63
Zuni	757.62	1947.16	1257.98	2749.74	716.25

Matrix 2F. cont.

	Shawnee	Shoshoni	Shuswap	Sioux (Santee)	Sioux (Teton)
Achomawi	2214.46	749.48	1042.65	2156.20	1677.71
Agua Caliente	1817.02	1145.80	1955.22	2238.02	1864.25
Aiwan	6545.68	5096.07	4063.97	5756.94	5435.45
Aleut	5762.21	4185.68	3244.99	5210.12	4787.85
Apache	1257.76	1091.79	2083.78	1818.33	1527.73
Arapaho	1341.63	285.73	1211.81	1129.87	664.36
Assiniboin	1434.94	919.32	1339.69	666.57	288.76
Atsugewi	2201.92	779.27	1125.76	2183.85	1709.58
Bannock	1584.08	20.24	1027.91	1390.75	913.28
Bella Coola	3015.39	1481.36	481.78	2471.95	2030.25
Big Meadow	2190.61	788.70	1161.98	2190.55	1718.51
Blood	2066.41	716.14	513.68	1491.34	1041.58
Caddo	377.98	1920.57	2896.29	1384.04	1523.51
Carrier	2802.30	1325.90	294.88	2202.33	1774.91
Catawba	1443.46	2839.00	3590.70	1595.81	2039.16
Cherokee	1166.82	2584.25	3368.05	1395.11	1814.70
Cheyenne	1151.38	689.01	1423.29	717.74	252.34
Chickasaw	802.00	2272.12	3110.07	1208.93	1570.02
Chilcotin	2770.08	1261.26	233.20	2213.81	1772.53
Chippewa(MN)	1407.88	1455.59	1852.01	369.70	560.31
Chippewa(WI)	1327.89	1809.37	2290.29	429.38	879.08
Choctaw	770.63	2330.86	3223.23	1402.09	1713.04
Chuvantsy	6619.85	5176.60	4143.91	5823.56	5506.58
Clallum	2598.95	1019.24	360.48	2203.41	1727.78
C. Miwok	2067.84	849.46	1412.49	2198.43	1748.30
Coahuilla	1745.27	1105.59	1943.53	2171.39	1802.86
Coeur d'Alene	2092.18	553.83	480.45	1687.03	1206.48
Comanche	324.21	1400.30	2399.70	1195.33	1165.09
Concow	2218.52	813.35	1162.58	2216.23	1743.44
Creek	1219.79	2704.21	3521.62	1570.46	1971.62
Crow	1449.78	486.22	1105.08	984.78	497.97
E. Mono	1939.82	793.03	1458.21	2104.47	1664.75
Eskimo(EC)	3576.13	3778.75	3696.42	2667.26	2968.86
Eskimo(WC)	4298.46	3015.76	2025.49	3437.43	3158.94
Even	7394.65	6008.70	4975.35	6538.12	6261.12
Evenk	7264.88	5811.34	4780.34	6468.95	6152.97
Flathead	1928.09	470.34	610.81	1484.58	1005.57
Haida	3418.21	1880.13	882.31	2851.01	2420.26
Hoopa	2408.73	949.70	1100.29	2355.78	1875.48
Itelman1	7653.44	6153.03	5134.13	6906.76	6565.08
Itelman2	7505.18	6006.20	4986.61	6758.63	6416.59
Kalapuya	2494.93	915.83	669.62	2243.94	1757.06
Kiowa	150.23	1527.15	2503.83	1134.08	1179.45
Klamath	2276.91	749.39	892.69	2144.25	1659.70
Klickitat**	2340.87	753.88	483.22	2014.89	1530.45
Koryak	7042.62	5584.71	4554.16	6254.46	5933.62
Kutenai	2199.14	767.80	354.05	1654.02	1199.58
Kwakiutl	3013.08	1464.10	494.74	2497.04	2048.25

Matrix 2F. cont.

	Shawnee	Shoshoni	Shuswap	Sioux (Santee)	Sioux (Teton)
Lillooet	2667.90	1126.39	180.09	2173.04	1715.12
Makah	2690.35	1109.31	401.06	2291.23	1816.98
Malecite	2654.77	3341.71	3620.12	1983.39	2419.68
Maritime Chukchi	6519.88	5068.69	4036.75	5733.16	5410.46
Menomini	1277.77	1906.25	2429.60	501.65	979.35
Micmac	3018.05	3785.75	4066.90	2414.66	2860.63
Mississagua	1679.57	2337.59	2763.55	949.78	1407.46
Modoc	2236.64	746.24	988.14	2151.18	1670.10
Mohawk	2167.15	2997.85	3406.75	1599.36	2067.60
Montagnais	3493.07	3935.52	3993.00	2692.06	3062.37
Munsee	2036.58	3048.95	3557.12	1644.03	2129.35
Nanaimo	2679.41	1110.04	307.12	2242.05	1773.38
Navajo	1049.86	907.22	1934.55	1525.94	1236.56
Nez Perce	2067.65	505.03	540.28	1706.11	1221.70
Nisqually	2503.08	916.81	437.53	2152.59	1671.23
Nivkhi	8712.59	7234.84	6209.86	7924.40	7606.39
N. Hill Yokut	2032.98	911.72	1529.99	2223.48	1785.48
N. Paiute	2128.35	678.25	1062.48	2084.18	1608.37
N. Pomo	2381.11	1007.09	1275.35	2408.91	1937.04
Ojibwa1*	1829.74	2524.58	2932.28	1136.95	1594.60
Ojibwa2*	1713.46	1726.93	1969.55	673.91	879.10
Okanagan	2366.49	825.79	228.06	1912.12	1442.16
Omaha	760.28	1306.25	2045.43	296.39	497.31
Oneida	1571.63	2509.12	3050.42	1105.90	1592.51
Osage	159.38	1539.53	2455.61	885.15	1017.93
Pawnee	673.87	1168.51	1977.07	464.69	480.58
Piegan	1923.02	577.31	630.56	1393.82	928.61
Ponca	927.72	928.54	1689.77	511.53	231.12
Potawatomi	1222.03	2152.56	2757.55	766.94	1252.22
Pueblo	956.30	983.97	2015.92	1491.87	1233.32
Puyallup	2479.34	894.69	412.71	2120.28	1639.50
Queets	2599.47	1013.68	436.95	2235.59	1756.33
Qullayute	2657.39	1073.62	420.74	2274.94	1798.26
Quinault	2625.39	1038.37	469.19	2270.09	1790.18
Reindeer Chukchi	6295.76	4844.28	3812.17	5513.30	5187.70
Reindeer Even	6675.75	5243.70	4210.25	5867.93	5557.94
Reindeer Koryak	6901.43	5437.55	4407.85	6121.78	5795.90
San Luis Rey	1833.04	1160.57	1964.38	2255.82	1881.76
Sarcee	2308.91	1025.20	484.35	1623.58	1220.90
Sauk	336.08	1559.15	2425.95	730.74	931.47
Seneca	1806.75	2739.34	3242.27	1332.90	1816.62
Serrano	1797.32	1061.48	1868.76	2180.14	1796.86
Shawnee	0	1588.14	2537.45	1042.38	1146.26
Shoshoni	1588.14	0	1033.90	1406.74	930.31
Shuswap	2537.45	1033.90	0	2004.52	1553.51

Matrix 2F. cont.

	Shawnee	Shoshoni	Shuswap	Sioux (Santee)	Sioux (Teton)
Sioux(Santee)	1042.38	1406.74	2004.52	0	487.37
Sioux(Teton)	1146.26	930.31	1553.51	487.37	0
Sioux (Yankton)	845.75	1222.85	1937.28	266.57	386.56
S. Miwok	2027.75	874.87	1485.79	2197.70	1755.93
Stalo	2539.78	985.81	191.41	2083.66	1616.45
Stockbridge	1224.50	1940.60	2496.51	534.65	1020.52
Tahltan	3558.02	2100.19	1066.48	2872.68	2486.60
Taos	788.40	943.98	1972.84	1270.10	1034.71
Tenino	2312.41	731.61	658.91	2069.07	1581.75
Thompson	2585.93	1055.23	100.35	2083.79	1626.30
Tonkawa	309.78	1702.42	2698.53	1346.47	1403.85
Tsimshian	3293.86	1770.33	756.51	2710.87	2283.79
Tundra Evenk	6970.56	5616.71	4586.60	6096.99	5832.07
Tuscarora	1772.33	2695.83	3200.18	1289.36	1773.05
Tututni	2493.23	978.08	969.42	2371.04	1885.69
Umatilla	2150.44	564.00	570.48	1844.74	1358.23
Ute	1275.22	355.73	1388.83	1300.98	880.20
Wasco	2334.01	746.49	568.50	2048.20	1561.82
Washo	2099.34	778.52	1273.42	2160.11	1697.99
W. Mono	1953.36	872.14	1545.62	2160.14	1728.24
Winnebago	1127.01	1734.82	2305.41	328.71	815.01
Yakut	8388.82	7057.52	6027.93	7484.58	7245.28
Yokuts	2210.43	923.21	1363.47	2301.70	1841.53
Yukaghir	7317.55	5913.61	4879.73	6476.03	6188.58
Yuki	2357.36	957.13	1213.79	2361.63	1887.43
Yurok	2403.53	924.67	1048.99	2328.81	1846.88
Zuni	1081.40	939.51	1962.46	1577.97	1289.39

Matrix 2F. cont.

	Sioux (Yankton)	S. Miwok	Stalo	Stockbridge	Tahltan
Achomawi	1967.83	468.81	877.85	2690.06	1974.49
Agua Caliente	1983.61	517.90	1818.19	2714.99	2947.32
Aiwan	5805.80	5288.40	4120.25	6084.90	3003.24
Aleut	5174.20	4116.57	3223.52	5653.88	2366.54
Apache	1553.01	928.27	1990.14	2249.17	3138.58
Arapaho	938.17	1096.34	1199.43	1661.88	2263.52
Assiniboin	651.40	1788.94	1427.38	1162.90	2224.04
Atsugewi	1988.24	391.17	961.06	2716.45	2054.08
Bannock	1208.89	895.01	983.48	1924.82	2093.85
Bella Coola	2415.36	1765.57	497.79	2951.05	677.63
Big Meadow	1991.71	354.93	997.93	2722.36	2091.12
Blood	1426.71	1438.87	605.95	1988.55	1492.17
Caddo	1210.31	2259.75	2889.02	1472.66	3926.58
Carrier	2161.44	1754.87	421.79	2670.88	775.14
Catawba	1662.01	3437.13	3654.48	1190.51	4460.85
Cherokee	1431.34	3164.74	3423.20	1054.68	4267.76
Cheyenne	550.29	1503.69	1460.61	1251.72	2412.54
Chickasaw	1184.10	2813.52	3150.14	1007.06	4053.12
Chilcotin	2157.94	1646.40	315.57	2694.86	844.29
Chippewa(MN)	584.19	2305.96	1960.58	667.38	2626.88
Chippewa(WI)	686.69	2620.71	2393.66	245.47	3059.52
Choctaw	1335.29	2795.35	3248.14	1258.84	4198.03
Chuvantsy	5875.60	5375.53	4202.22	6146.08	3081.76
Clallum	2097.25	1242.63	172.43	2718.09	1203.98
C. Miwok	1977.76	82.30	1257.05	2720.46	2362.64
Coahuilla	1915.98	536.70	1811.75	2645.87	2947.17
Coeur d'Alene	1572.05	1117.90	447.64	2208.89	1546.92
Comanche	954.47	1739.45	2379.13	1476.28	3447.21
Concow	2018.25	368.46	996.01	2748.28	2082.18
Creek	1585.55	3242.33	3569.11	1253.68	4439.85
Crow	856.44	1358.45	1142.25	1515.88	2108.25
E. Mono	1877.24	94.22	1313.59	2621.58	2437.68
Eskimo(EC)	2933.44	4653.58	3874.26	2351.70	3847.84
Eskimo(WC)	3511.89	3480.91	2153.42	3743.46	1070.93
Even	6616.85	6257.59	5048.63	6811.49	3908.93
Evenk	6522.04	5979.24	4832.98	6786.39	3721.35
Flathead	1374.89	1190.31	624.49	2005.77	1661.35
Haida	2806.44	2092.52	894.33	3316.27	438.32
Hoopa	2169.83	546.75	919.33	2890.00	1950.20
Itelman1	6941.57	6238.91	5167.56	7251.03	4095.42
Itelman2	6793.11	6097.81	5020.86	7104.03	3947.16
Kalapuya	2100.01	925.78	481.86	2773.81	1520.42
Kiowa	915.80	1913.16	2494.85	1357.00	3538.94
Klamath	1971.05	624.59	723.87	2678.87	1818.52
Klickitat**	1885.72	1008.49	325.62	2540.63	1464.29
Koryak	6304.06	5751.91	4605.82	6578.61	3496.24
Kutenai	1583.23	1402.36	442.97	2152.72	1369.13
Kwakiutl	2431.87	1710.08	478.65	2982.85	735.40

Matrix 2F. cont.

	Sioux (Yankton)	S. Miwok	Stalo	Stockbridge	Tahltan
Lillooet	2096.37	1469.35	146.87	2670.03	1002.82
Makah	2187.60	1295.69	230.39	2804.10	1147.47
Malecite	2231.26	4172.81	3763.08	1505.89	4116.56
Maritime Chukchi	5781.17	5259.56	4092.53	6062.63	2976.40
Menomini	733.75	2696.92	2527.95	94.34	3212.04
Micmac	2656.03	4609.91	4211.47	1919.27	4535.82
Mississagua	1192.32	3146.90	2880.72	473.30	3448.25
Modoc	1968.18	525.36	821.94	2685.58	1917.81
Mohawk	1826.47	3794.83	3531.16	1082.27	4027.42
Montagnais	2955.85	4801.74	4160.74	2288.93	4259.12
Munsee	1838.10	3802.63	3667.24	1109.38	4247.01
Nanaimo	2148.80	1362.69	159.04	2749.23	1084.36
Navajo	1261.33	1000.67	1864.14	1966.58	3000.09
Nez Perce	1579.03	1034.48	481.28	2232.41	1604.28
Nisqually	2032.86	1113.74	249.28	2674.03	1334.34
Nivkhi	7976.73	7336.90	6250.89	8236.59	5159.65
N. Hill Yokut	1994.47	44.63	1376.79	2739.08	2484.43
N. Paiute	1891.65	426.78	906.64	2617.34	2021.56
N. Pomo	2208.55	419.03	1096.96	2940.45	2129.44
Ojibwa1*	1377.36	3334.32	3053.58	648.13	3588.52
Ojibwa2*	913.50	2593.24	2101.96	756.37	2625.07
Okanagan	1817.74	1265.64	176.63	2422.35	1283.19
Omaha	111.80	2028.68	2098.36	701.10	2981.85
Oneida	1298.00	3264.88	3151.79	572.15	3796.32
Osage	697.78	2045.36	2468.92	1073.23	3460.81
Pawnee	204.67	1855.10	2013.79	889.21	2949.97
Piegan	1309.45	1345.54	689.98	1904.13	1638.40
Ponca	294.57	1688.11	1730.75	1029.59	2663.03
Potawatomi	932.42	2891.40	2845.35	273.69	3567.07
Pueblo	1225.61	1104.87	1951.42	1914.59	3082.29
Puyallup	2002.29	1120.22	227.92	2641.09	1333.24
Queets	2121.07	1183.08	246.78	2754.31	1260.16
Quillayute	2166.29	1247.08	239.04	2790.55	1196.07
Quinault	2153.79	1180.05	280.35	2789.49	1263.52
Reindeer Chukchi	5559.13	5041.44	3868.68	5847.42	2751.64
Reindeer Even	5924.78	5455.91	4272.24	6182.43	3146.12
Reindeer Koryak	6167.75	5599.71	4457.66	6452.36	3351.76
San Luis Rey	2001.43	521.01	1826.23	2732.76	2953.79
Sarcee	1605.18	1718.12	651.59	2082.05	1265.80
Sauk	576.41	2131.88	2453.54	892.47	3406.75
Seneca	1535.48	3505.02	3351.32	798.77	3947.26
Serrano	1928.49	445.20	1733.06	2663.89	2864.57
Shawnee	845.75	2027.75	2539.78	1224.50	3558.02
Shoshoni	1222.85	874.87	985.81	1940.60	2100.19
Shuswap	1937.28	1485.79	191.41	2496.51	1066.48

Matrix 2F. cont.

	Sioux (Yankton)	S. Miwok	Stalo	Stockbridge	Tahltan
Sioux(Santee)	266.57	2197.70	2083.66	534.65	2872.68
Sioux(Teton)	386.56	1755.93	1616.45	1020.52	2486.60
Sioux (Yankton)	0	1971.20	1993.30	744.80	2870.14
S. Miwok	1971.20	0	1333.22	2715.44	2443.10
Stalo	1993.30	1333.22	0	2590.21	1149.50
Stockbridge	744.80	2715.44	2590.21	0	3293.91
Tahltan	2870.14	2443.10	1149.50	3293.91	0
Taos	1003.60	1239.72	1929.35	1691.20	3036.15
Tenino	1919.85	842.69	492.94	2600.60	1609.79
Thompson	2007.90	1444.89	114.93	2581.05	1056.96
Tonkawa	1136.46	2007.40	2680.50	1527.58	3742.05
Tsimshian	2670.23	2033.40	787.89	3173.69	426.40
Tundra Evenk	6182.83	5910.58	4670.21	6360.03	3523.10
Tuscarora	1492.49	3462.30	3308.71	755.28	3909.00
Tututni	2199.62	704.29	782.98	2905.53	1787.57
Umatilla	1706.18	932.57	458.83	2374.08	1607.69
Ute	1072.41	898.96	1340.04	1816.48	2454.66
Wasco	1909.20	929.63	404.09	2577.09	1529.96
Washo	1950.00	220.33	1116.53	2687.92	2222.78
W. Mono	1927.98	93.56	1398.86	2672.78	2518.22
Winnebago	547.87	2514.84	2394.18	205.95	3128.79
Yakut	7586.49	7340.87	6111.14	7709.60	4964.46
Yokuts	2088.85	219.95	1196.86	2828.32	2274.35
Yukaghir	6548.10	6143.76	4948.18	6761.47	3813.48
Yuki	2164.84	431.81	1036.57	2894.07	2079.26
Yurok	2146.79	577.54	868.19	2863.33	1904.39
Zuni	1313.11	985.28	1887.69	2016.00	3026.95

Matrix 2F. cont.

	Taos	Tenino	Thompson	Tonkawa	Tsimshian
Achomawi	1457.81	385.25	991.71	2255.74	1564.83
Agua Caliente	1063.28	1338.14	1925.92	1722.43	2543.16
Aiwan	6036.80	4523.23	4041.89	6742.00	3332.84
Aleut	5107.22	3494.64	3185.12	5887.10	2504.16
Apache	557.98	1571.44	2082.21	1150.92	2768.19
Arapaho	787.48	1007.28	1251.43	1486.97	1965.91
Assiniboin	1259.10	1473.13	1421.14	1689.38	2045.83
Atsugewi	1435.85	468.51	1074.96	2231.73	1642.66
Bannock	947.56	739.34	1051.09	1701.91	1766.80
Bella Coola	2425.34	933.59	430.81	3168.34	290.15
Big Meadow	1420.97	505.23	1111.74	2215.49	1679.39
Blood	1582.80	794.38	593.21	2252.95	1247.20
Caddo	1041.36	2631.99	2940.58	253.99	3652.57
Carrier	2261.09	914.46	310.59	2974.80	509.46
Catawba	2214.89	3561.39	3665.23	1594.83	4306.31
Cherokee	1939.56	3310.53	3439.24	1323.61	4094.53
Cheyenne	866.32	1370.08	1485.61	1369.38	2172.33
Chickasaw	1581.41	3002.92	3175.18	959.76	3850.94
Chilcotin	2202.69	804.04	213.47	2931.62	523.82
Chippewa(MN)	1539.72	2034.71	1940.79	1708.79	2510.70
Chippewa(WI)	1683.53	2437.55	2377.77	1637.26	2951.49
Choctaw	1555.85	3061.39	3282.07	840.64	3973.15
Chuvantsy	6116.57	4607.87	4122.95	6818.42	3415.19
Clallum	1952.15	406.00	269.99	2721.60	808.64
C. Miwok	1281.69	765.31	1369.34	2058.07	1952.12
Coahuilla	991.35	1337.46	1917.84	1652.99	2546.84
Coeur d'Alene	1495.40	450.52	504.17	2235.35	1220.80
Comanche	508.55	2102.41	2437.32	302.13	3153.05
Concow	1448.54	504.32	1110.21	2242.82	1668.91
Creek	2006.16	3434.31	3589.87	1331.80	4255.24
Crow	1034.47	1084.75	1166.48	1644.77	1856.27
E. Mono	1152.54	829.30	1423.18	1925.95	2033.46
Eskimo(EC)	3934.68	4165.68	3796.01	3878.75	4009.08
Eskimo(WC)	3906.12	2638.65	2046.45	4528.40	1497.10
Even	6939.89	5472.85	4962.88	7611.68	4267.35
Evenk	6753.07	5227.71	4756.48	7461.09	4045.12
Flathead	1377.89	632.99	658.74	2088.46	1367.01
Haida	2823.64	1289.38	833.69	3570.81	143.99
Hoopa	1644.40	457.37	1033.95	2440.38	1529.55
Itelman1	7096.87	5529.59	5100.39	7831.52	4383.78
Itelman2	6950.10	5384.90	4953.25	7683.75	4236.69
Kalapuya	1789.18	184.26	594.73	2580.85	1107.72
Kiowa	675.52	2241.97	2547.06	224.75	3259.83
Klamath	1539.51	233.82	838.22	2337.30	1410.39
Klickitat**	1677.79	176.84	436.41	2453.07	1081.24
Koryak	6526.74	4999.87	4529.73	7236.93	3817.94
Kutenai	1676.78	686.78	429.81	2373.62	1099.93
Kwakiutl	2407.11	885.97	429.23	3158.57	326.50
Lillooet	2070.36	626.70	89.25	2815.48	644.28

Matrix 2F. cont.

	Taos	Tenino	Thompson	Tonkawa	Tsimshian
Makah	2039.79	472.20	302.52	2811.40	741.72
Malecite	3196.89	3909.53	3717.86	2930.38	4144.28
Maritime Chukchi	6009.58	4494.91	4014.39	6715.61	3305.05
Menomini	1705.00	2553.46	2515.59	1583.94	3098.82
Micmac	3602.90	4359.32	4164.95	3278.76	4578.51
Mississagua	2161.72	2954.69	2855.22	1975.61	3385.24
Modoc	1486.59	329.85	935.99	2284.97	1508.62
Mohawk	2752.83	3617.54	3500.44	2434.33	3999.29
Montagnais	3954.63	4401.30	4093.35	3782.00	4381.36
Munsee	2691.68	3706.76	3647.03	2278.17	4187.68
Nanaimo	2049.15	525.43	207.02	2811.19	692.78
Navajo	284.17	1493.13	1946.03	1006.73	2651.46
Nez Perce	1448.99	392.92	551.88	2200.56	1265.51
Nisqually	1840.35	275.55	362.63	2616.37	938.25
Nivkhi	8178.70	6622.30	6180.18	8901.61	5464.53
N. Hill Yokut	1244.58	885.80	1488.64	2005.69	2073.78
N. Paiute	1371.45	416.11	1018.72	2169.44	1616.98
N. Pomo	1602.28	623.29	1211.80	2389.44	1707.64
Ojibwa1*	2339.33	3137.31	3025.08	2119.51	3540.21
Ojibwa2*	1876.43	2243.61	2064.77	2019.37	2564.71
Okanagan	1769.40	458.65	229.53	2512.11	945.12
Omaha	1004.65	2012.38	2114.96	1058.77	2780.30
Oneida	2175.83	3172.70	3137.60	1840.64	3706.28
Osage	819.28	2269.83	2508.96	468.93	3210.51
Pawnee	815.48	1888.98	2039.99	950.80	2723.72
Piegan	1430.66	780.58	698.45	2104.43	1379.02
Ponca	831.29	1631.07	1754.07	1176.27	2435.36
Potawatomi	1797.99	2832.82	2840.27	1506.00	3442.49
Pueblo	223.96	1590.20	2030.71	902.74	2739.26
Puyallup	1822.35	278.24	342.58	2595.75	942.27
Queets	1937.11	357.81	348.03	2713.44	856.19
Quillayute	2000.55	425.00	325.24	2774.78	789.94
Quinault	1957.46	365.80	378.04	2736.23	854.91
Reindeer Chukchi	5785.00	4273.11	3790.13	6490.97	3081.37
Reindeer Even	6182.13	4682.97	4191.32	6878.03	3486.18
Reindeer Koryak	6380.05	4849.43	4382.40	7093.37	3669.78
San Luis Rey	1080.38	1345.04	1934.30	1736.92	2548.78
Sarcee	1875.02	995.37	584.40	2514.60	1092.02
Sauk	933.94	2290.26	2485.46	645.05	3175.95
Seneca	2420.66	3392.04	3331.79	2068.73	3878.58
Serrano	1030.82	1254.91	1840.33	1717.57	2462.06
Shawnee	788.40	2312.41	2585.93	309.78	3293.86
Shoshoni	943.98	731.61	1055.23	1702.42	1770.33
Shuswap	1972.84	658.91	100.35	2698.53	756.51
Sioux(Santee)	1270.10	2069.07	2083.79	1346.47	2710.87
Sioux(Teton)	1034.71	1581.75	1626.30	1403.85	2283.79

Matrix 2F. cont.

	Taos	Tenino	Thompson	Tonkawa	Tsimshian
Sioux (Yankton)	1003.60	1919.85	2007.90	1136.46	2670.23
S. Miwok	1239.72	842.69	1444.89	2007.40	2033.40
Stalo	1929.35	492.94	114.93	2680.50	787.89
Stockbridge	1691.20	2600.60	2581.05	1527.58	3173.69
Tahltan	3036.15	1609.79	1056.96	3742.05	426.40
Taos	0	1614.18	1998.63	798.40	2714.25
Tenino	1614.18	0	606.53	2402.88	1212.47
Thompson	1998.63	606.53	0	2737.60	716.64
Tonkawa	798.40	2402.88	2737.60	0	3452.81
Tsimshian	2714.25	1212.47	716.64	3452.81	0
Tundra Evenk	6539.95	5108.88	4580.01	7194.83	3897.43
Tuscarora	2380.78	3348.54	3289.54	2036.74	3838.17
Tututni	1743.88	364.07	896.15	2542.21	1365.93
Umatilla	1493.56	236.41	553.70	2264.80	1242.18
Ute	589.44	1043.06	1410.92	1362.00	2125.67
Wasco	1652.74	90.41	517.10	2435.45	1138.30
Washo	1320.92	624.52	1229.05	2109.93	1813.46
W. Mono	1164.98	912.09	1509.10	1924.97	2111.50
Winnebago	1519.82	2395.86	2388.22	1436.07	2993.52
Yakut	7978.28	6546.48	6021.34	8621.24	5336.31
Yokuts	1426.18	705.36	1311.14	2206.29	1857.83
Yukaghir	6848.15	5365.96	4864.53	7529.46	4164.34
Yuki	1582.76	560.29	1151.48	2373.79	1658.92
Yurok	1644.52	407.11	982.84	2441.85	1484.78
Zuni	329.10	1507.15	1971.56	1024.45	2674.17

Matrix 2F. cont.

	Tundra Evenk	Tuscarora	Tututni	Umatilla	Ute
Achomawi	5447.24	3445.30	289.18	531.59	954.74
Agua Caliente	6427.02	3430.59	1221.51	1386.43	995.82
Aiwan	817.88	6545.60	4584.63	4574.69	5451.71
Aleut	2465.37	6274.58	3435.21	3622.40	4526.32
Apache	6660.34	2932.93	1579.41	1531.33	791.91
Arapaho	5755.16	2417.04	1263.80	818.76	292.60
Assiniboin	5544.69	1890.90	1805.81	1239.08	979.05
Atsugewi	5520.67	3471.62	334.19	608.99	955.73
Bannock	5609.06	2679.98	991.21	566.74	360.92
Bella Coola	4182.19	3636.27	1120.48	952.55	1836.43
Big Meadow	5556.21	3477.32	363.31	641.33	951.69
Blood	4961.50	2702.94	1158.40	574.20	1035.83
Caddo	7348.28	1900.04	2783.81	2484.53	1588.94
Carrier	4292.39	3347.71	1182.28	858.56	1679.83
Catawba	7531.68	934.14	3809.55	3357.83	2599.45
Cherokee	7414.31	993.24	3550.16	3111.72	2334.97
Cheyenne	5827.08	2006.88	1657.68	1156.06	631.24
Chickasaw	7299.22	1199.76	3225.74	2813.65	2003.64
Chilcotin	4367.36	3384.85	1062.05	766.98	1616.85
Chippewa(MN)	5762.45	1348.86	2366.88	1800.22	1440.00
Chippewa(WI)	6116.53	916.99	2756.18	2206.48	1726.71
Choctaw	7498.48	1456.78	3258.23	2885.82	2035.49
Chuvantsy	735.41	6598.73	4671.95	4657.27	5532.14
Clallum	4706.06	3445.00	639.81	458.64	1364.89
C. Miwok	5828.33	3470.16	622.57	864.83	906.41
Coahuilla	6436.18	3359.99	1240.35	1373.36	939.35
Coeur d'Alene	5066.14	2946.04	812.65	223.49	909.26
Comanche	6912.92	2074.46	2249.66	1962.71	1060.58
Concow	5542.15	3503.31	342.49	649.66	979.43
Creek	7611.36	1172.53	3659.90	3242.22	2437.93
Crow	5553.85	2265.17	1397.31	860.25	603.42
E. Mono	5920.39	3368.19	732.74	895.94	805.13
Eskimo(EC)	5526.23	2014.17	4529.34	3939.36	3836.87
Eskimo(WC)	2673.13	4212.09	2848.68	2594.93	3355.35
Even	462.70	7189.22	5556.13	5506.80	6362.43
Evenk	765.91	7225.32	5274.96	5285.77	6167.06
Flathead	5163.32	2743.16	986.22	396.74	808.44
Haida	3822.58	3982.08	1409.14	1340.16	2234.26
Hoopa	5378.44	3645.11	164.94	659.16	1155.25
Itelman1	1326.73	7722.91	5538.65	5610.48	6507.60
Itelman2	1244.33	7578.77	5396.90	5464.41	6360.89
Kalapuya	4991.08	3519.17	301.46	399.84	1223.46
Kiowa	6978.93	1920.77	2405.07	2091.15	1199.29
Klamath	5296.93	3432.62	228.70	413.59	1003.71
Klickitat**	4977.17	3281.13	520.98	190.48	1092.77
Koryak	754.15	7028.90	5047.62	5058.34	5940.44
Kutenai	4863.43	2866.70	1048.26	489.81	1109.38
Kwakiutl	4223.69	3675.32	1054.23	923.32	1817.67

Matrix 2F. cont.

	Tundra Evenk	Tuscarora	Tututni	Umatilla	Ute
Lillooet	4523.35	3377.52	887.72	605.69	1481.52
Makah	4636.84	3528.52	661.84	547.11	1453.40
Malecite	6472.26	904.00	4250.88	3673.27	3281.40
Maritime Chukchi	842.83	6525.61	4555.76	4546.82	5424.34
Menomini	6266.14	795.18	2864.50	2324.78	1798.72
Micmac	6736.36	1245.77	4699.90	4123.09	3715.34
Mississagua	6302.88	462.14	3279.15	2721.57	2250.75
Modoc	5392.49	3440.54	257.52	486.60	970.45
Mohawk	6655.68	398.11	3942.51	3384.02	2896.21
Montagnais	6067.13	1792.80	4760.33	4168.18	3942.57
Munsee	6976.45	359.36	4014.82	3478.09	2906.73
Nanaimo	4589.74	3467.44	750.38	558.35	1460.25
Navajo	6520.98	2663.33	1569.51	1410.52	568.25
Nez Perce	5126.25	2974.42	749.47	157.35	860.16
Nisqually	4835.51	3408.99	533.73	352.89	1255.92
Nivkhi	1955.23	8654.55	6636.31	6697.51	7590.17
N. Hill Yokut	5948.31	3484.42	738.71	977.19	923.18
N. Paiute	5506.29	3372.60	374.28	525.54	870.65
N. Pomo	5544.16	3695.28	341.88	804.92	1160.96
Ojibwa1*	6367.04	361.92	3463.79	2903.60	2437.90
Ojibwa2*	5603.79	1284.00	2590.69	2007.21	1749.41
Okanagan	4806.04	3145.90	799.39	342.87	1181.45
Omaha	6290.64	1434.87	2284.31	1802.14	1132.87
Oneida	6702.61	205.23	3476.85	2945.79	2367.89
Osage	6849.42	1648.96	2471.40	2096.17	1247.29
Pawnee	6312.57	1614.97	2144.06	1688.27	965.34
Piegan	5113.40	2631.66	1138.94	546.64	887.00
Ponca	6043.54	1781.99	1905.82	1421.72	790.08
Potawatomi	6617.38	583.13	3126.24	2610.44	1996.39
Pueblo	6600.65	2599.22	1673.34	1500.46	635.77
Puyallup	4839.59	3375.41	556.76	330.98	1236.52
Queets	4751.40	3485.75	564.77	449.68	1352.95
Quillayute	4684.47	3518.22	616.17	510.01	1415.30
Quinault	4746.97	3521.62	547.44	474.95	1374.90
Reindeer Chukchi	988.26	6319.07	4338.03	4323.32	5199.91
Reindeer Even	631.49	6623.75	4752.86	4728.32	5599.00
Reindeer Koryak	808.09	6912.76	4895.42	4909.52	5793.28
San Luis Rey	6431.12	3448.20	1223.76	1396.02	1012.89
Sarcee	4683.84	2758.54	1351.46	807.99	1340.67
Sauk	6756.61	1484.12	2514.40	2103.74	1295.13
Seneca	6753.87	43.58	3702.31	3162.86	2607.10
Serrano	6348.94	3385.34	1149.33	1299.60	923.36
Shawnee	6970.56	1772.33	2493.23	2150.44	1275.22
Shoshoni	5616.71	2695.83	978.08	564.00	355.73
Shuswap	4586.60	3200.18	969.42	570.48	1388.83

Matrix 2F. cont.

	Tundra Evenk	Tuscarora	Tututni	Umatilla	Ute
Sioux(Santee)	6096.99	1289.36	2371.04	1844.74	1300.98
Sioux(Teton)	5832.07	1773.05	1885.69	1358.23	880.20
Sioux (Yankton)	6182.83	1492.49	2199.62	1706.18	1072.41
S. Miwok	5910.58	3462.30	704.29	932.57	898.96
Stalo	4670.21	3308.71	782.98	458.83	1340.04
Stockbridge	6360.03	755.28	2905.53	2374.08	1816.48
Tahltan	3523.10	3909.00	1787.57	1607.69	2454.66
Taos	6539.95	2380.78	1743.88	1493.56	589.44
Tenino	5108.88	3348.54	364.07	236.41	1043.06
Thompson	4580.01	3289.54	896.15	553.70	1410.92
Tonkawa	7194.83	2036.74	2542.21	2264.80	1362.00
Tsimshian	3897.43	3838.17	1365.93	1242.18	2125.67
Tundra Evenk	0	6728.96	5214.38	5129.04	5968.26
Tuscarora	6728.96	0	3658.73	3119.41	2564.26
Tututni	5214.38	3658.73	0	592.43	1224.17
Umatilla	5129.04	3119.41	592.43	0	906.37
Ute	5968.26	2564.26	1224.17	906.37	0
Wasco	5035.73	3321.46	438.13	203.66	1073.46
Washo	5693.76	3441.08	500.08	731.32	889.65
W. Mono	5993.90	3416.18	793.39	984.78	859.18
Winnebago	6257.32	961.01	2699.68	2170.09	1616.09
Yakut	1441.41	8009.61	6641.26	6569.97	7408.56
Yokuts	5717.55	3580.74	503.19	842.35	1023.57
Yukaghir	470.83	7156.46	5441.13	5405.57	6268.13
Yuki	5505.83	3649.20	294.18	741.16	1125.09
Yurok	5340.08	3618.13	126.80	612.56	1143.43
Zuni	6549.01	2709.82	1571.21	1432.23	606.80

Matrix 2F. cont.

	Wasco	Washo	W. Mono	Winnebago	Yakut
Achomawi	475.21	248.64	547.50	2484.30	6880.00
Agua Caliente	1420.63	733.26	433.14	2528.00	7858.26
Aiwan	4457.74	5077.22	5375.83	5957.30	2090.95
Aleut	3454.66	3931.07	4209.73	5482.35	3634.89
Apache	1635.68	1088.15	836.49	2076.83	8101.16
Arapaho	1012.84	1034.11	1075.36	1456.59	7192.43
Assiniboin	1438.01	1696.17	1776.26	967.43	6956.80
Atsugewi	558.47	173.25	473.34	2511.07	6952.17
Bannock	751.91	797.63	892.38	1718.99	7049.71
Bella Coola	855.90	1545.25	1840.63	2764.89	5622.02
Big Meadow	595.06	138.81	438.23	2517.22	6987.33
Blood	727.55	1263.66	1470.56	1795.07	6397.79
Caddo	2660.63	2358.59	2177.89	1414.35	8766.80
Carrier	825.87	1538.33	1819.62	2488.10	5733.64
Catawba	3558.94	3478.40	3369.85	1335.05	8857.22
Cherokee	3311.41	3209.93	3096.52	1167.73	8762.46
Cheyenne	1358.96	1449.00	1476.00	1045.88	7251.96
Chickasaw	3009.93	2867.65	2743.01	1056.57	8674.83
Chilcotin	716.85	1428.56	1713.44	2507.76	5808.74
Chippewa(MN)	1998.12	2233.29	2282.58	509.88	7139.22
Chippewa(WI)	2407.65	2574.43	2585.59	202.42	7469.83
Choctaw	3076.36	2869.97	2719.09	1288.76	8885.67
Chuvantsy	4541.85	5163.97	5462.76	6020.59	1999.81
Clallum	329.67	1022.66	1315.39	2519.30	6144.74
C. Miwok	853.05	140.89	171.62	2518.47	7258.57
Coahuilla	1417.87	745.43	447.07	2459.64	7869.46
Coeur d'Alene	394.22	929.42	1159.86	2007.41	6507.35
Comanche	2133.99	1828.82	1660.80	1349.04	8343.02
Concow	594.56	157.60	454.14	2543.07	6972.48
Creek	3439.66	3300.32	3170.26	1358.66	8962.93
Crow	1063.85	1262.88	1349.57	1311.12	6984.92
E. Mono	913.11	232.82	89.80	2421.15	7353.52
Eskimo(EC)	4098.58	4539.66	4645.84	2466.02	6577.61
Eskimo(WC)	2553.24	3261.58	3550.30	3621.20	4092.88
Even	5403.05	6043.47	6343.25	6705.24	1093.04
Evenk	5164.25	5770.77	6067.94	6663.32	1504.05
Flathead	587.84	1024.63	1217.93	1804.42	6602.74
Haida	1220.71	1873.98	2173.72	3135.37	5258.33
Hoopa	543.35	354.34	637.80	2684.14	6804.49
Itelman1	5473.09	6038.55	6330.09	7118.05	1625.80
Itelman2	5327.93	5896.66	6188.80	6970.53	1685.62
Kalapuya	198.62	706.09	1005.13	2569.68	6425.16
Kiowa	2268.78	1995.52	1836.01	1247.88	8403.23
Klamath	324.22	404.27	701.11	2472.95	6731.05
Klickitat**	87.30	793.07	1073.28	2337.92	6416.87
Koryak	4936.47	5543.24	5840.52	6452.84	1703.71
Kutenai	610.55	1212.38	1443.78	1958.97	6302.48
Kwakiutl	812.13	1489.87	1787.03	2794.36	5662.24
Lillooet	540.31	1251.10	1537.38	2477.37	5964.29

Matrix 2F. cont.

	Wasco	Washo	W. Mono	Winnebago	Yakut
Makah	403.86	1075.37	1371.68	2605.98	6074.29
Malecite	3865.06	4116.29	4139.78	1686.56	7641.80
Maritime Chukchi	4429.53	5048.45	5347.02	5934.44	2120.25
Menomini	2527.13	2661.75	2657.26	187.02	7615.27
Micmac	4315.10	4558.47	4574.47	2108.49	7847.00
Mississagua	2920.92	3103.02	3109.92	646.89	7606.11
Modoc	420.06	305.07	603.19	2479.67	6825.73
Mohawk	3582.81	3758.95	3753.92	1280.16	7889.45
Montagnais	4342.14	4711.45	4782.77	2439.54	7109.20
Munsee	3680.30	3788.10	3753.70	1315.32	8224.71
Nanaimo	446.97	1142.68	1435.45	2553.07	6028.97
Navajo	1544.74	1111.64	918.87	1790.12	7962.20
Nez Perce	349.11	846.54	1076.71	2029.44	6567.64
Nisqually	200.98	894.06	1185.67	2472.86	6273.86
Nivkhi	6564.23	7136.11	7428.01	8116.48	1233.20
N. Hill Yokut	973.03	262.17	80.72	2539.20	7377.78
N. Paiute	502.87	210.94	496.94	2411.78	6940.83
N. Pomo	712.03	281.79	512.58	2735.40	6966.95
Ojibwa1*	3102.23	3290.53	3297.05	830.43	7650.03
Ojibwa2*	2196.67	2504.10	2576.44	679.11	6955.30
Okanagan	370.44	1056.61	1322.64	2224.94	6247.44
Omaha	2004.55	2017.87	1981.38	517.26	7692.37
Oneida	3148.64	3247.97	3217.40	777.52	8005.76
Osage	2285.43	2100.43	1975.76	969.54	8263.08
Pawnee	1888.11	1854.41	1804.66	707.49	7724.71
Piegan	727.30	1184.02	1369.73	1706.26	6549.86
Ponca	1623.80	1659.09	1649.06	827.22	7461.12
Potawatomi	2814.03	2880.31	2842.32	452.14	7957.46
Pueblo	1639.72	1216.99	1022.27	1743.78	8041.49
Puyallup	196.92	901.25	1190.32	2440.13	6278.57
Queets	292.05	962.77	1258.26	2554.12	6188.75
Quillayute	358.86	1026.77	1323.12	2591.46	6121.68
Quinault	307.09	959.79	1256.90	2589.07	6183.45
Reindeer Chukchi	4207.20	4829.62	5128.52	5717.29	2324.09
Reindeer Even	4615.89	5243.49	5542.66	6060.01	1908.25
Reindeer Koryak	4786.45	5391.29	5688.41	6324.05	1850.34
San Luis Rey	1427.96	737.59	437.75	2545.80	7861.84
Sarcee	914.13	1530.61	1756.68	1901.62	6116.29
Sauk	2298.64	2170.01	2067.37	791.06	8162.46
Seneca	3364.88	3484.27	3458.68	1004.52	8030.28
Serrano	1336.64	656.20	356.71	2474.56	7781.39
Shawnee	2334.01	2099.34	1953.36	1127.01	8388.82
Shoshoni	746.49	778.52	872.14	1734.82	7057.52
Shuswap	568.50	1273.42	1545.62	2305.41	6027.93
Sioux(Santee)	2048.20	2160.11	2160.14	328.71	7484.58
Sioux(Teton)	1561.82	1697.99	1728.24	815.01	7245.28

Matrix 2F. cont.

	Wasco	Washo	W. Mono	Winnebago	Yakut
Sioux (Yankton)	1909.20	1950.00	1927.98	547.87	7586.49
S. Miwok	929.63	220.33	93.56	2514.84	7340.87
Stalo	404.09	1116.53	1398.86	2394.18	6111.14
Stockbridge	2577.09	2687.92	2672.78	205.95	7709.60
Tahltan	1529.96	2222.78	2518.22	3128.79	4964.46
Taos	1652.74	1320.92	1164.98	1519.82	7978.28
Tenino	90.41	624.52	912.09	2395.86	6546.48
Thompson	517.10	1229.05	1509.10	2388.22	6021.34
Tonkawa	2435.45	2109.93	1924.97	1436.07	8621.24
Tsimshian	1138.30	1813.46	2111.50	2993.52	5336.31
Tundra Evenk	5035.73	5693.76	5993.90	6257.32	1441.41
Tuscarora	3321.46	3441.08	3416.18	961.01	8009.61
Tututni	438.13	500.08	793.39	2699.68	6641.26
Umatilla	203.66	731.32	984.78	2170.09	6569.97
Ute	1073.46	889.65	859.18	1616.09	7408.56
Wasco	0	712.47	997.08	2373.29	6474.37
Washo	712.47	0	300.15	2484.04	7125.41
W. Mono	997.08	300.15	0	2473.85	7425.49
Winnebago	2373.29	2484.04	2473.85	0	7622.57
Yakut	6474.37	7125.41	7425.49	7622.57	0
Yokuts	795.58	144.69	313.50	2624.85	7144.22
Yukaghir	5297.56	5930.76	6230.17	6650.57	1224.46
Yuki	649.32	264.83	524.74	2688.74	6930.84
Yurok	492.55	375.59	666.90	2657.39	6767.52
Zuni	1561.22	1105.57	901.18	1840.56	7990.37

Matrix 2F. cont.

	Yokuts	Yukaghir	Yuki	Yurok	Zuni
Achomawi	320.90	5687.72	223.44	189.29	1282.27
Aqua Caliente	724.54	6661.66	941.17	1094.71	740.93
Aiwan	5085.08	867.57	4869.60	4711.42	6006.89
Aleut	3898.08	2441.98	3685.04	3556.40	4989.55
Apache	1145.74	6931.90	1345.57	1459.66	241.47
Arapaho	1177.36	6069.41	1232.19	1208.62	880.41
Assiniboin	1840.76	5903.43	1852.85	1786.13	1476.88
Atsugewi	238.06	5757.65	177.89	215.63	1244.50
Bannock	942.33	5907.34	974.26	939.56	949.72
Bella Coola	1599.46	4453.23	1408.75	1233.38	2384.25
Big Meadow	202.77	5792.15	173.98	241.20	1223.08
Blood	1390.28	5281.61	1311.78	1186.63	1641.35
Caddo	2457.14	7693.92	2621.85	2685.77	1277.90
Carrier	1616.84	4588.38	1449.78	1277.94	2256.92
Catawba	3602.19	7940.93	3723.27	3738.94	2522.10
Cherokee	3332.23	7813.48	3456.91	3476.76	2245.71
Cheyenne	1592.05	6168.12	1644.49	1611.93	1084.48
Chickasaw	2986.49	7683.06	3118.75	3147.03	1882.84
Chilcotin	1503.03	4654.37	1332.28	1159.61	2183.02
Chippewa(MN)	2377.84	6150.18	2404.20	2344.36	1822.79
Chippewa(WI)	2717.26	6516.81	2766.48	2722.79	1998.22
Choctaw	2980.48	7873.73	3127.77	3171.22	1832.95
Chuvantsy	5172.71	776.93	4957.37	4798.72	6089.36
Clallum	1087.13	4969.04	910.56	737.20	1880.85
C. Miwok	150.69	6061.55	354.41	495.90	1040.03
Coahuilla	750.37	6676.14	966.26	1113.75	668.82
Coeur d'Alene	1049.70	5360.07	961.70	836.04	1483.66
Comanche	1931.44	7241.73	2091.11	2152.08	771.54
Concow	201.04	5776.14	146.81	218.50	1249.16
Creek	3417.96	8008.27	3552.27	3581.32	2299.71
Crow	1407.49	5884.73	1424.78	1367.40	1174.89
E. Mono	283.54	6160.91	479.99	607.68	907.08
Eskimo(EC)	4681.83	5993.32	4653.87	4548.54	4231.98
Eskimo(WC)	3324.94	3039.01	3137.20	2961.80	3954.93
Even	6058.57	156.17	5844.39	5682.65	6934.44
Evenk	5772.55	398.11	5556.28	5401.70	6717.79
Flathead	1156.83	5470.75	1099.93	993.19	1407.19
Haida	1908.27	4077.01	1703.32	1531.66	2771.29
Hoopa	339.83	5603.10	129.47	51.31	1450.57
Itelman1	6025.73	891.55	5809.31	5664.27	7034.29
Itelman2	5885.13	834.99	5668.62	5522.67	6889.05
Kalapuya	754.96	5236.40	570.57	396.41	1668.06
Kiowa	2101.69	7317.47	2256.27	2310.90	951.66
Klamath	472.99	5541.63	331.91	203.06	1389.39
Klickitat**	880.25	5244.69	736.58	579.46	1602.28
Koryak	5545.47	520.25	5329.25	5174.37	6490.30
Kutenai	1329.72	5173.71	1228.90	1090.46	1706.70
Kwakiutl	1538.97	4487.72	1344.65	1169.54	2355.10
Lillooet	1324.80	4802.01	1154.94	982.85	2033.59

Matrix 2F. cont.

	Yokuts	Yukaghir	Yuki	Yurok	Zuni
Makah	1130.21	4894.67	943.86	768.67	1962.66
Malecite	4260.28	6925.21	4293.61	4232.80	3521.86
Maritime Chukchi	5056.15	896.89	4840.64	4682.55	5979.04
Menomini	2803.26	6668.10	2862.23	2826.02	2026.66
Micmac	4702.14	7196.68	4739.31	4680.66	3930.30
Mississagua	3245.75	6724.08	3294.61	3248.58	2484.88
Modoc	375.52	5634.43	256.70	178.63	1320.45
Mohawk	3900.88	7095.89	3954.95	3911.27	3081.06
Montagnais	4855.82	6534.18	4853.19	4764.89	4268.87
Munsee	3926.68	7412.39	4000.15	3972.40	3020.37
Nanaimo	1205.88	4855.87	1026.37	852.12	1988.25
Navajo	1201.28	6810.54	1376.47	1460.18	53.04
Nez Perce	967.91	5415.41	885.06	765.03	1422.83
Nisqually	962.49	5096.57	792.51	621.71	1759.05
Nivkhi	7123.83	1504.09	6907.40	6762.03	8124.82
N. Hill Yokut	244.93	6179.49	460.49	611.92	981.89
N. Paiute	318.13	5751.76	279.85	275.18	1198.61
N. Pomo	199.08	5761.95	63.88	230.92	1379.26
Ojibwa1*	3433.29	6794.78	3481.50	3434.36	2663.93
Ojibwa2*	2648.67	6006.69	2656.33	2581.03	2156.41
Okanagan	1154.07	5093.14	1018.92	862.67	1743.89
Omaha	2154.76	6657.38	2239.02	2227.52	1323.59
Oneida	3386.80	7122.72	3459.74	3432.98	2504.90
Osage	2218.18	7202.31	2353.39	2387.86	1132.82
Pawnee	1988.88	6668.75	2082.74	2080.76	1133.41
Piegan	1317.18	5432.40	1260.48	1150.92	1493.38
Ponca	1798.97	6394.11	1871.07	1852.25	1109.45
Potawatomi	3017.87	7022.67	3097.25	3077.21	2126.96
Pueblo	1306.39	6894.64	1481.82	1564.67	125.39
Puyallup	974.24	5103.65	809.23	640.28	1746.71
Queets	1021.25	5008.50	839.81	665.49	1852.97
Quillayute	1081.99	4941.22	896.60	721.55	1919.27
Quinault	1013.28	5000.79	827.37	652.32	1867.77
Reindeer Chukchi	4839.08	1106.04	4623.90	4464.79	5755.49
Reindeer Even	5254.30	689.43	5039.31	4879.58	6159.89
Reindeer Koryak	5393.05	649.55	5176.80	5022.17	6341.25
San Luis Rey	725.38	6664.46	941.98	1096.98	757.62
Sarcee	1648.51	5015.03	1544.78	1401.83	1947.16
Sauk	2293.88	7118.04	2416.26	2438.04	1257.98
Seneca	3623.87	7182.59	3692.62	3661.68	2749.74
Serrano	657.92	6586.81	873.96	1022.63	716.25
Shawnee	2210.43	7317.55	2357.36	2403.53	1081.40
Shoshoni	923.21	5913.61	957.13	924.67	939.51
Shuswap	1363.47	4879.73	1213.79	1048.99	1962.46
Sioux(Santee)	2301.70	6476.03	2361.63	2328.81	1577.97
Sioux(Teton)	1841.53	6188.58	1887.43	1846.88	1289.39

Matrix 2F. cont.

	Yokuts	Yukaghir	Yuki	Yurok	Zuni
Sioux (Yankton)	2088.85	6548.10	2164.84	2146.79	1313.11
S. Miwok	219.95	6143.76	431.81	577.54	985.28
Stalo	1196.86	4948.18	1036.57	868.19	1887.69
Stockbridge	2828.32	6761.47	2894.07	2863.33	2016.00
Tahltan	2274.35	3813.48	2079.26	1904.39	3026.95
Taos	1426.18	6848.15	1582.76	1644.52	329.10
Tenino	705.36	5365.96	560.29	407.11	1507.15
Thompson	1311.14	4864.53	1151.48	982.84	1971.56
Tonkawa	2206.29	7529.46	2373.79	2441.85	1024.45
Tsimshian	1857.83	4164.34	1658.92	1484.78	2674.17
Tundra Evenk	5717.55	470.83	5505.83	5340.08	6549.01
Tuscarora	3580.74	7156.46	3649.20	3618.13	2709.82
Tututni	503.19	5441.13	294.18	126.80	1571.21
Umatilla	842.35	5405.57	741.16	612.56	1432.23
Ute	1023.57	6268.13	1125.09	1143.43	606.80
Wasco	795.58	5297.56	649.32	492.55	1561.22
Washo	144.69	5930.76	264.83	375.59	1105.57
W. Mono	313.50	6230.17	524.74	666.90	901.18
Winnebago	2624.85	6650.57	2688.74	2657.39	1840.56
Yakut	7144.22	1224.46	6930.84	6767.52	7990.37
Yokuts	0	5942.88	216.64	377.69	1189.94
Yukaghir	5942.88	0	5728.07	5567.80	6835.46
Yuki	216.64	5728.07	0	175.40	1370.21
Yurok	377.69	5567.80	175.40	0	1459.68
Zuni	1189.94	6835.46	1370.21	1459.68	0

Itelman1=Itelman located near and in Khayryuzovo, Siberia.
Itelman2=Itelman located near and in Sedanka, Siberia.
Klickitat**=Present in head data only.
Ojibwa1*=Ojibwa locations in the Georgian Bay area.
Ojibwa2*=Ojibwa locations in the Northwest Lake Superior area.

Matrix 3F. Squared Distance Matrix (Body Data)

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Achomawi	0	6.07493	5.72599	5.74470	3.46745
Agua Caliente	6.07493	0	8.54852	20.07581	8.48312
Aiwan	5.72599	8.54852	0	8.04007	4.75110
Aleut	5.74470	20.07581	8.04007	0	5.39518
Apache	3.46745	8.48312	4.75110	5.39518	0
Arapaho	4.44648	8.52894	7.76638	8.39898	0.99260
Assiniboin	7.12305	13.11434	6.90762	6.57367	1.19680
Atsugewi	0.25142	7.26540	5.21220	4.79693	2.87197
Bannock	3.33865	2.35173	4.22609	11.27303	2.88555
Bella Coola	4.71834	19.14204	12.27833	3.24588	6.49233
Big Meadow	1.36024	10.38049	8.69266	4.37201	2.42888
Blood	11.87878	9.95213	14.21619	17.98553	5.57294
Caddo	2.67764	8.12862	6.19586	5.45263	0.95710
Carrier	4.54701	4.80395	3.42049	9.60179	1.52063
Catawba	8.02451	9.93314	9.33400	12.12751	3.88482
Cherokee	3.20077	4.92222	5.57472	8.96165	1.43386
Cheyenne	8.16610	11.95784	9.42617	11.27582	2.52937
Chickasaw	3.09323	8.11180	5.19588	7.47896	2.52809
Chilcotin	3.32509	10.01144	4.55550	3.98662	1.29661
Chippewa(MN)	3.35880	7.38575	8.38862	9.66005	2.65178
Chippewa(WI)	3.42164	10.63147	8.78147	7.19743	2.44914
Choctaw	6.88846	5.29579	8.50660	15.76823	5.45947
Chuvantsy	6.56091	9.20110	4.96626	9.83568	8.84833
Clallam	8.53059	20.10224	13.29785	3.89437	4.54752
C. Miwok	1.86540	4.30415	2.49740	8.81505	3.25267
Coahuilla	1.88934	1.84252	6.20007	11.18160	3.14848
Coeur d'Alene	5.22437	11.55983	7.97799	5.04317	1.46285
Comanche	4.42802	8.11837	8.55365	7.71583	1.08351
Concow	1.86691	8.44709	3.17575	3.41190	1.39323
Creek	8.16703	3.79654	7.84302	18.41549	4.57714
Crow	5.12658	9.10547	12.86981	10.43808	2.54508
Eastern Mono	2.27389	9.70479	5.88043	4.00117	0.90377
Eskimo(EC)	3.94879	9.57162	4.25634	4.85040	5.75400
Eskimo(WC)	2.00315	5.96742	1.84148	5.30192	1.48173
Even	4.86461	11.72624	5.04126	4.54474	6.50582
Evenk	6.09370	12.06182	5.09185	5.21283	5.66547
Flathead	2.98836	2.81953	5.89833	10.94545	2.26901
Haida	0.64883	5.51145	5.22484	6.03107	1.72837
Hoopa	2.96094	4.96945	3.18736	6.66668	1.44402
Itelman(KH)	2.55965	12.46151	5.97208	1.93742	3.53016
Itelman(SE)	3.65108	14.77723	6.48609	1.49518	4.66410
Kalapuya	0.67207	3.62590	4.23959	7.97501	4.12957
Kiowa	4.84315	11.17637	10.25626	6.31339	1.24630
Klamath	1.14446	7.40851	5.18755	5.18512	1.93359
Koryak	4.59952	7.34021	3.54926	7.00398	5.45253
Kutenai	8.93763	15.73619	9.73641	5.77494	2.50151
Kwakiutl	2.82373	14.58316	5.43214	1.88424	4.52777
Lillooet	2.43840	8.09659	4.78225	5.32068	2.73535

Matrix 3F. cont.

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Makah	3.04723	13.53207	7.82591	1.98947	2.68730
Malecite	3.28666	8.46643	7.23673	7.22608	2.00235
Maritime Chukchi	5.75531	8.21314	0.47750	8.25966	5.34461
Menomini	4.07917	12.33430	7.43058	5.46815	2.22715
Micmac	5.00141	11.68797	7.50709	6.98386	1.57404
Mississagua	3.74458	11.11720	9.49336	7.62565	2.66393
Modoc	0.71985	5.78070	8.87261	8.88671	4.95964
Mohawk	4.04511	9.46942	9.61193	9.37589	2.90407
Montagnais	4.84658	10.81214	5.39396	5.36915	2.27897
Munsee	4.97615	11.39085	10.87934	9.03570	3.14208
Nanaimo	0.78446	4.27479	8.27754	8.96999	5.01740
Navajo	4.31795	11.03734	5.21494	4.07802	0.60896
Nez Perce	3.31351	9.43702	6.37942	5.02584	1.22961
Nisqually	1.04199	9.09459	8.26270	3.85159	3.38032
Nivkhi	9.42823	18.57858	9.97679	5.33713	6.69685
N. Hill Yokut	0.43422	6.34235	5.13028	5.42152	2.72921
N. Paiute	1.73836	5.12542	5.22857	6.46819	0.72893
N. Pomo	1.56712	5.30493	6.06975	7.58665	2.33171
Ojibwa(Gbay)	4.77586	9.19783	11.37952	9.85688	3.25219
Ojibwa (NWLSup)	11.40078	10.41391	17.77159	16.67980	7.41913
Okanagan	3.71816	8.74168	5.56417	5.35260	0.78148
Omaha	3.48308	7.54817	6.87200	9.31289	1.70113
Oneida	4.09456	12.76030	9.47447	6.51765	2.21871
Osage	3.89479	8.89365	7.98892	7.43257	0.69210
Pawnee	2.65394	9.40086	5.92042	4.99893	0.65393
Piegan	6.42969	12.24297	9.97876	8.05422	1.15912
Ponca	3.31627	6.96130	6.66653	8.60032	1.13363
Potawatomi	2.59542	9.34068	7.16914	5.60884	1.40886
Pueblo	3.24672	12.52775	6.63873	3.73509	2.83899
Puyallup	1.05054	10.45930	7.16934	2.98517	2.97586
Queets	8.28022	18.41246	11.12253	3.73600	4.83126
Quillayute	2.63273	14.14163	8.99255	2.23495	4.69970
Quinault	3.95480	13.62346	7.45216	1.63977	2.78244
Reindeer Chukchi	4.67558	5.91007	1.94834	9.93066	6.23509
Reindeer Evenk	11.47112	10.94485	7.36151	17.65234	16.99222
Reindeer Koryak	7.84721	6.76853	4.64117	13.35358	10.37445
San Luis Rey	4.85868	0.56075	9.17612	19.25853	7.74666
Sarcee	6.94368	4.87081	7.89359	14.43907	3.59351
Sauk	6.22789	7.08218	6.44548	10.56884	1.89541
Seneca	3.71974	10.86763	9.13886	6.56623	1.53532
Serrano	4.38437	2.88927	8.83875	16.27192	5.15967
Shawnee	4.47397	9.69620	4.51397	6.52328	1.11435
Shoshoni	1.89615	6.83247	4.60922	5.11649	0.68248

Matrix 3F. cont.

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Shuswap	2.99331	9.91991	5.58129	4.02061	1.59074
Sioux(Santee)	6.34931	11.31877	9.29313	10.92944	3.15095
Sioux(Teton)	4.95175	10.38138	8.61006	9.49760	1.99456
Sioux(Yankton)	5.24026	10.04563	8.30853	10.41741	2.83215
S. Miwok	0.68568	5.88212	4.54005	5.82360	1.49905
Stalo	6.29070	17.14384	8.32267	2.31383	2.73121
Stockbridge	6.60266	15.14681	9.98530	7.79104	3.30549
Tahltan	3.32726	9.90411	5.71875	5.06410	0.96271
Taos	4.25132	12.19157	3.10411	2.76349	1.55133
Tenino	2.06453	6.09736	3.28534	5.21860	0.92119
Thompson	5.69703	12.84516	4.51937	3.60911	1.77659
Tonkawa	3.47373	6.89391	6.40324	7.05352	0.82366
Tsimshian	1.06617	9.57240	6.32792	3.79715	2.13013
Tundra Evenk	7.55019	15.19725	7.07009	5.38152	8.51123
Tuscarora	4.98414	12.05169	10.46658	7.06279	2.00387
Tututni	2.18005	10.80719	5.92378	3.19871	3.93344
Umatilla	10.06879	17.35749	5.61290	5.88782	3.83982
Ute	1.63375	6.84430	3.64258	4.80737	1.03675
Wasco	1.95037	7.87835	3.52668	5.11069	1.23668
Washo	2.08752	4.67455	5.17505	8.71093	1.16156
W. Mono	1.19456	6.01225	3.76640	5.06211	0.87789
Winnebago	4.51899	10.42214	8.83134	9.87227	2.75492
Yakut	4.93373	13.26612	6.60859	4.20990	4.20066
Yokuts	4.66144	0.89658	5.89334	15.18458	4.32291
Yukaghir	5.98256	13.23325	6.93119	5.44202	6.88044
Yuki	1.97118	6.77332	5.16789	6.12781	3.54384
Yurok	2.38168	11.07768	7.83038	7.66034	7.36524
Zuni	3.76075	12.09058	3.45566	1.83874	2.42026

Matrix 3F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
Achomawi	4.44648	7.12305	0.25142	3.33865	4.71834
Agua caliente	8.52894	13.11434	7.26540	2.35173	19.14204
Aiwan	7.76638	6.90762	5.21220	4.22609	12.27833
Aleut	8.39898	6.57367	4.79693	11.27303	3.24588
Apache	0.99260	1.19680	2.87197	2.88555	6.49233
Arapaho	0	2.15570	4.25686	4.43835	7.22471
Assiniboin	2.15570	0	6.65756	5.35055	6.75801
Atsugewi	4.25686	6.65756	0	3.71682	4.90998
Bannock	4.43835	5.35055	3.71682	0	11.50522
Bella Coola	7.22471	6.75801	4.90998	11.50522	0
Big meadow	2.49402	5.08331	1.15238	5.85336	2.84187
Blood	4.32461	4.29393	12.82019	6.08867	14.97149
Caddo	2.16499	1.63545	2.76190	2.41269	4.48489
Carrier	2.38178	2.38062	4.76877	1.11138	9.98379
Catawba	2.84969	2.40186	8.99306	5.36358	8.68978
Cherokee	1.52230	2.32949	3.74410	1.42151	7.22683
Cheyenne	0.98426	1.82316	8.09918	6.80011	8.95958
Chickasaw	2.75108	2.73155	3.64394	3.39972	4.47029
Chilcotin	2.28621	1.30130	3.43332	3.91656	3.58055
Chippewa(MN)	1.70381	3.22336	4.08626	3.68343	5.20965
Chippewa(WI)	2.00649	2.59261	3.76483	5.15906	3.05625
Choctaw	4.80928	5.32224	8.34648	3.02465	11.40792
Chuvantsy	11.12390	9.56055	8.01198	5.91533	10.02441
Clallam	4.90187	3.57161	8.33138	11.69371	3.91589
C. Miwok	4.12426	5.73406	2.22365	1.87434	7.90556
Coahuilla	3.00264	6.58963	2.54399	1.19967	9.79196
Coeur d'Alene	1.38130	1.76455	5.14542	5.94625	5.48408
Comanche	2.12227	2.63392	4.07653	2.96024	8.32538
Concow	2.97164	2.47086	1.88375	2.98671	3.67863
Creek	3.76787	5.84039	8.73227	2.52786	16.55621
Crow	1.82306	4.81174	4.92515	5.32873	8.97382
E. Mono	1.69614	1.59781	2.20363	3.73011	2.83500
Eskimo(EC)	8.54413	7.14230	4.66838	4.95530	6.54279
Eskimo(WC)	2.63573	3.57022	1.95130	2.29052	6.63402
Even	9.97322	7.39744	5.48389	5.91281	6.34592
Evenk	9.00525	5.49077	6.67593	5.49086	6.93581
Flathead	3.05236	5.96507	2.87464	1.07568	11.88332
Haida	2.08695	4.00700	1.00450	2.22122	4.36923
Hoopa	2.54748	2.99492	3.25106	1.46464	7.87101
Itelman(KH)	5.76666	4.36972	2.70864	5.75172	1.89564
Itelman(SE)	7.63406	5.35907	3.63973	7.17887	2.30451
Kalapuya	5.84443	8.07549	1.06837	1.73610	7.96761
Kiowa	1.22596	2.14103	4.54020	5.44501	5.87084
Klamath	1.96717	3.67153	1.47436	3.59053	3.30426
Koryak	7.64747	6.82807	5.48508	3.90568	8.82673
Kutenai	3.22484	2.63203	8.10383	8.66413	9.17453
Kwakiutl	6.21129	5.87971	2.62467	8.09223	1.79088
Lillooet	4.82901	3.41081	2.89293	2.51285	4.31361

Matrix 3F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
Makah	3.78317	3.20505	3.08378	6.71194	1.25016
Malecite	2.16047	1.98652	3.86670	3.30745	4.04357
Maritime Chukchi	7.95431	6.80081	5.85521	4.23121	11.26151
Menomini	2.23630	1.75116	4.24554	5.86363	2.56203
Micmac	1.32251	0.99466	4.96315	5.34222	4.43800
Mississagua	2.09022	2.74968	4.06838	5.55560	3.18042
Modoc	5.85304	9.63615	0.92229	3.86673	7.20179
Mohawk	1.56210	3.16363	4.65084	5.22579	4.56439
Montagnais	3.88304	1.39091	5.17344	3.95805	4.63789
Munsee	2.26123	2.61799	5.55656	5.85107	4.04585
Nanaimo	5.01845	9.48096	1.53893	3.72748	7.36247
Navajo	1.17517	1.63241	3.64824	5.20426	5.86229
Nez perce	0.79483	2.62335	3.21201	5.10278	5.02766
Nisqually	4.45575	5.99284	1.37643	4.82748	2.95013
Nivkhi	8.65385	4.39928	10.09404	10.05472	5.18811
N. Hill Yokut	4.22635	5.23570	0.73756	2.38485	4.12788
N. Paiute	1.51603	3.14990	1.66711	1.52253	6.78157
N. Pomo	4.13862	4.83593	1.68911	1.27014	6.79795
Ojibwa(Gbay)	1.55408	3.55041	5.66336	5.56557	5.45127
Ojibwa (NWLSup)	6.00225	8.59932	12.39486	8.46516	15.96985
Okanagan	0.97946	1.19468	3.80611	3.64410	5.16538
Omaha	1.51606	2.41623	3.61856	2.98679	6.13398
Oneida	1.53305	2.50795	3.96538	6.71465	3.09612
Osage	0.89121	1.38678	3.68118	3.35974	5.90260
Pawnee	0.78355	1.52103	2.46122	3.97211	3.77616
Piegan	0.78662	1.04574	5.97717	5.84574	6.86829
Ponca	0.21054	2.95676	3.19077	3.65520	7.22201
Potawatomi	1.00352	2.15116	2.80169	4.44432	3.16496
Pueblo	4.63147	2.74361	3.35407	5.17362	1.99531
Puyallup	4.39919	4.93917	1.15408	4.98524	1.75923
Queets	5.76568	3.63150	8.44784	10.43096	4.36447
Quillayute	6.37104	5.84637	2.90775	7.57237	0.92690
Quinault	4.26738	3.62379	3.83306	6.98865	3.07545
Reindeer Chukchi	8.72222	7.88385	5.45673	2.93345	10.77588
Reindeer Evenk	19.94129	19.62570	13.29714	10.57412	19.36879
Reindeer Koryak	12.86201	12.43962	9.28678	5.50563	15.32485
San Luis Rey	7.34125	11.95554	6.08012	2.26241	16.25141
Sarcee	4.05940	3.81659	7.73701	1.57925	12.66732
Sauk	0.96258	3.34008	6.13343	4.29688	11.37328
Seneca	0.61208	2.28862	3.66362	5.74205	3.97409
Serrano	4.72753	7.39770	5.36498	1.84322	11.90651
Shawnee	1.16574	1.19166	4.32073	4.26187	5.81335
Shoshoni	1.24048	1.91720	2.03039	2.31905	4.50473

Matrix 3F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
Shuswap	2.38050	1.69255	3.29186	4.06239	2.97007
Sioux(Santee)	2.14732	2.31816	6.66738	5.83498	6.37282
Sioux(Teton)	1.69629	1.99033	4.86978	4.61714	5.97211
Sioux(Yankton)	2.47099	2.44331	5.51010	4.58597	6.12216
S. Miwok	2.42065	3.82186	0.74826	1.97394	4.64889
Stalo	4.51023	1.73499	5.88633	8.13225	2.96725
Stockbridge	2.49980	2.03372	6.68440	8.17867	3.86203
Tahltan	0.64023	2.17976	3.01490	5.07758	4.84380
Taos	3.19442	1.87478	3.74326	5.36576	4.63528
Tenino	1.84285	2.29488	2.23106	1.90899	5.53497
Thompson	4.01916	1.06662	5.37819	4.99564	5.37589
Tonkawa	0.55125	1.92822	3.65175	2.97433	6.51783
Tsimshian	2.64437	3.83416	1.16170	4.61304	1.93641
Tundra Evenk	12.63256	8.52475	8.21584	8.14944	7.61612
Tuscarora	1.16980	1.75032	5.18031	6.19138	3.95922
Tututni	4.56566	5.36160	2.70045	6.26694	2.36092
Umatilla	4.76985	3.25457	9.16755	10.05345	9.77086
Ute	3.06925	2.79856	1.42712	1.61934	5.35478
Wasco	2.45887	2.27743	1.89578	2.55778	4.23968
Washo	1.32166	3.14029	2.19069	1.41252	7.14722
W. Mono	1.92007	2.67959	1.25293	1.73490	4.77381
Winnebago	2.48209	3.04964	4.52229	4.90321	5.62322
Yakut	6.00669	3.29104	5.52964	6.11952	3.02385
Yokuts	4.87924	7.64832	5.22555	0.61025	15.20039
Yukaghir	9.76814	6.49833	6.93203	6.73826	5.42313
Yuki	6.70446	6.32577	1.96042	2.08517	7.24193
Yurok	9.96247	10.09210	2.63863	6.13865	5.14187
Zuni	5.01190	3.02154	3.48316	5.12517	4.21637

Matrix 3F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Achomawi	1.36024	11.87878	2.67764	4.54701	8.02451
Agua caliente	10.38049	9.95213	8.12862	4.80395	9.93314
Aiwan	8.69266	14.21619	6.19586	3.42049	9.33400
Aleut	4.37201	17.98553	5.45263	9.60179	12.12751
Apache	2.42888	5.57294	0.95710	1.52063	3.88482
Arapaho	2.49402	4.32461	2.16499	2.38178	2.84969
Assiniboin	5.08331	4.29393	1.63545	2.38062	2.40186
Atsugewi	1.15238	12.82019	2.76190	4.76877	8.99306
Bannock	5.85336	6.08867	2.41269	1.11138	5.36358
Bella coola	2.84187	14.97149	4.48489	9.98379	8.68978
Big meadow	0	10.52075	2.28315	5.57942	7.11098
Blood	10.52075	0	4.91122	3.80809	1.86379
Caddo	2.28315	4.91122	0	1.85318	3.10163
Carrier	5.57942	3.80809	1.85318	0	2.34661
Catawba	7.11098	1.86379	3.10163	2.34661	0
Cherokee	3.56367	3.06741	0.90877	0.59526	1.56722
Cheyenne	5.54801	3.58089	3.76319	3.14434	1.68015
Chickasaw	3.44598	6.20103	1.55016	1.99618	2.08572
Chilcotin	2.81838	6.12020	0.89136	1.91153	2.40518
Chippewa(MN)	2.83250	4.37483	1.60516	2.55326	1.77520
Chippewa(WI)	2.05491	6.06085	1.37903	3.66727	2.65508
Choctaw	8.43838	3.06184	3.82928	2.08671	1.52479
Chuvantsy	10.55557	12.83960	6.65353	5.42763	7.44007
Clallam	4.68166	9.12455	4.21552	8.19415	6.17509
C. Miwok	4.21739	9.57266	3.16421	1.97454	5.39209
Coahuilla	3.58671	6.57817	2.89886	2.19076	5.34387
Coeur d'Alene	3.00393	5.04609	2.05086	3.23064	3.05316
Comanche	3.26636	4.51776	1.14860	2.77272	5.12173
Concow	2.32682	8.09373	0.97961	1.98957	4.03399
Creek	9.35260	3.36590	5.27900	1.73964	3.64788
Crow	2.80580	5.30459	2.84886	5.12883	6.29171
E. Mono	1.31615	6.44636	0.40286	2.49488	3.28654
Eskimo(EC)	6.54218	12.34301	4.10555	4.76884	7.61521
Eskimo(WC)	3.10002	8.36472	2.17682	1.36738	4.62918
Even	7.40652	13.52624	4.39494	5.80290	8.60914
Evenk	8.06867	10.73549	3.68366	4.62917	6.61705
Flathead	4.19865	6.94452	2.98746	2.23498	7.02588
Haida	1.19419	7.27121	1.10252	2.25265	4.18872
Hoopa	4.03234	5.32665	1.55983	0.64711	3.26902
Itelman(KH)	2.78941	11.42202	1.94290	5.09288	6.54251
Itelman(SE)	3.97889	13.69574	2.94761	6.54902	8.39686
Kalapuya	3.58048	11.70751	3.26536	3.66645	8.56264
Kiowa	2.19383	4.76240	1.49146	3.93266	4.27886
Klamath	1.17040	7.91306	1.53921	2.70094	3.76494
Koryak	7.48067	10.17064	4.34778	3.38110	6.20489
Kutenai	5.75446	7.07860	4.28217	5.34827	6.20376
Kwakiutl	2.78584	15.40231	4.03447	6.73190	8.41878
Lillooet	3.71658	7.66621	0.86798	2.49010	4.27591
Makah	1.67561	9.52214	1.65473	5.16636	5.26574

Matrix 3F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Malecite	2.83923	4.27835	0.60813	2.10089	1.60527
Maritime					
Chukchi	8.99880	12.84046	5.90225	3.10445	7.58194
Menomini	2.55117	6.61558	1.51664	3.50737	2.41217
Micmac	3.10490	4.94543	1.51654	2.73406	1.82049
Mississagua	2.15986	6.13373	1.57227	4.04455	2.83719
Modoc	2.18186	13.17552	3.91060	6.44329	10.76024
Mohawk	2.66032	4.90993	2.07114	3.50235	1.96049
Montagnais	4.78457	5.49247	1.01644	2.11149	2.25602
Munsee	3.17897	4.53711	1.71992	4.05511	1.94405
Nanaimo	2.42365	11.27469	4.10435	5.42755	8.66107
Navajo	2.53317	7.12065	2.16298	2.73559	4.39111
Nez Perce	1.74019	6.50791	2.19835	2.90060	3.58466
Nisqually	1.08828	10.46962	1.94443	5.40689	7.31809
Nivkhi	8.66428	9.56687	4.58839	6.92377	5.12497
N. Hill Yokuts	1.79298	9.77132	1.37941	3.34195	6.24914
N. Paiute	1.85550	5.74879	0.90113	1.57478	4.52578
N. Pomo	2.86068	7.79496	1.08816	2.77319	6.36702
Ojibwa(GBay)	3.06527	3.42511	2.25270	3.77321	1.68170
Ojibwa					
(NWLSup)	9.74356	3.72762	7.02833	7.33072	6.65799
Okanagan	2.64458	4.29182	1.02373	1.49890	1.90788
Omaha	2.95749	4.94281	1.35628	2.01919	2.61240
Oneida	1.66124	7.22285	2.06788	4.63554	3.69398
Osage	2.28243	3.99001	0.65209	2.25381	3.01113
Pawnee	1.29819	6.03802	0.90127	2.30137	3.00117
Piegan	3.39019	3.78642	1.85191	3.40326	3.03327
Ponca	2.13783	5.36831	2.26606	2.17921	3.38781
Potawatomi	1.25480	5.73501	1.08273	2.77149	2.50795
Pueblo	2.90885	8.99344	1.11678	4.19279	4.66807
Puyallup	0.96494	11.03127	1.55534	5.17171	6.92142
Queets	5.76247	8.77939	4.05364	7.03418	5.37151
Quillayute	2.19281	12.79420	2.65578	7.18105	7.83360
Quinault	2.64759	9.81769	2.37724	5.27250	6.21790
Reindeer					
Chukchi	8.85850	11.80506	5.20554	3.10181	7.10368
Reindeer					
Evenk	18.61174	22.98698	15.00759	11.42687	16.24669
Reindeer					
Koryak	13.18328	14.31526	8.96455	5.85481	9.98500
San Luis Rey	8.51491	9.28279	6.85778	4.67967	8.68928
Sarcee	8.04904	1.80166	2.59713	1.17106	2.32117
Sauk	5.21044	4.32189	3.94684	1.87180	3.30976
Seneca	1.32963	5.72168	1.73414	3.74626	3.13689
Serrano	6.37002	5.86228	3.87541	3.04160	4.99297
Shawnee	3.48035	5.57285	1.92635	1.57593	2.04823
Shoshoni	1.70234	5.35280	0.51066	1.28525	2.68839
Shuswap	2.41900	5.98086	0.74955	2.31334	2.40746
Sioux(Santee)	4.76900	4.61691	2.71783	3.34639	1.67131

Matrix 3F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Sioux(Teton)	3.40306	5.06556	1.72736	3.05394	2.82663
Sioux(Yankton)	4.33788	5.07775	2.07659	2.94041	2.23847
S. Miwok	1.36442	8.05879	1.02589	2.24558	4.93779
Stalo	4.03925	8.80536	2.17542	5.40789	5.13553
Stockbridge	3.98151	6.56647	2.95429	4.86537	2.46458
Tahltan	1.69540	6.95428	2.14168	2.75112	3.59376
Taos	3.64246	9.26678	2.34107	2.84132	4.64437
Tenino	2.55870	5.82221	0.92494	0.90020	2.96139
Thompson	5.04988	7.09725	1.64551	2.61715	3.82927
Tonkawa	2.51607	3.54673	1.18995	1.38902	2.13830
Tsimshian	0.59041	9.41599	1.40753	3.98643	5.09094
Tundra Evenk	10.00612	14.99960	5.86767	7.75129	10.10042
Tuscarora	2.35357	4.27858	1.51226	3.86623	2.15985
Tututni	2.36988	11.14437	3.05330	4.92358	5.58227
Umatilla	8.06026	10.68378	6.48978	5.26386	6.31252
Ute	2.38829	7.67561	0.59591	1.78271	5.12431
Wasco	2.31763	7.50425	0.89809	1.72641	3.68943
Washo	2.42495	5.30110	1.22513	1.23398	3.47517
W. Mono	1.68761	6.69445	0.62802	1.38647	3.81136
Winnebago	3.37087	6.56513	2.16142	3.77408	3.70322
Yakut	5.09167	8.63861	2.15767	4.32061	3.90854
Yokuts	7.40982	6.26364	4.47011	1.90941	6.43683
Yukaghir	7.83746	11.61147	4.05709	5.94253	6.75204
Yuki	4.14336	11.07719	2.09179	4.01519	8.91936
Yurok	4.80930	17.45304	4.87834	8.23904	11.90203
Zuni	3.98021	10.45065	2.19870	3.57146	5.96702

Matrix 3F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa (MN)
Achomawi	3.20077	8.16610	3.09323	3.32509	3.35880
Agua Caliente	4.92222	11.95784	8.11180	10.01144	7.38575
Aiwan	5.57472	9.42617	5.19588	4.55550	8.38862
Aleut	8.96165	11.27582	7.47896	3.98662	9.66005
Apache	1.43386	2.52937	2.52809	1.29661	2.65178
Arapaho	1.52230	0.98426	2.75108	2.28621	1.70381
Assiniboin	2.32949	1.82316	2.73155	1.30130	3.22336
Atsugewi	3.74410	8.09918	3.64394	3.43332	4.08626
Bannock	1.42151	6.80011	3.39972	3.91656	3.68343
Bella Coola	7.22683	8.95958	4.47029	3.58055	5.20965
Big Meadow	3.56367	5.54801	3.44598	2.81838	2.83250
Blood	3.06741	3.58089	6.20103	6.12020	4.37483
Caddo	0.90877	3.76319	1.55016	0.89136	1.60516
Carrier	0.59526	3.14434	1.99618	1.91153	2.55326
Catawba	1.56722	1.68015	2.08572	2.40518	1.77520
Cherokee	0	2.53911	1.12017	1.41260	0.86228
Cheyenne	2.53911	0	3.02378	3.01749	2.26646
Chickasaw	1.12017	3.02378	0	0.96962	0.72730
Chilcotin	1.41260	3.01749	0.96962	0	1.96141
Chippewa(MN)	0.86228	2.26646	0.72730	1.96141	0
Chippewa(WI)	1.76868	2.53682	0.82859	1.52174	0.46299
Choctaw	1.44395	4.45575	2.20038	4.15695	1.96343
Chuvantsy	5.81611	12.48890	5.00307	4.78208	7.85836
Clallam	6.47269	5.89378	6.64465	3.19950	6.51626
C. Miwok	2.01151	5.89875	1.53893	2.81421	2.71763
Coahuilla	1.42190	5.93282	3.31639	4.14528	2.53211
Coeur d'Alene	2.42947	2.52536	3.63051	1.38461	3.30629
Comanche	2.03244	4.57173	4.67312	3.14624	3.64245
Concow	1.65427	4.61472	1.15290	0.36613	2.46005
Creek	2.17600	3.95363	4.58626	6.25846	3.75583
Crow	3.27590	4.56843	6.15085	5.22618	3.66480
E. Mono	1.38901	3.09270	1.11791	0.45905	1.39819
Eskimo(EC)	4.80121	11.08737	4.51429	2.95742	6.89750
Eskimo(WC)	1.69978	4.55476	1.92727	1.32672	3.14407
Even	5.81118	12.42006	5.14599	3.38193	7.89360
Evenk	4.89848	10.50557	4.56378	2.67950	7.18829
Flathead	2.17764	6.39215	5.02452	4.92610	4.25449
Haida	1.06830	4.45311	1.25176	1.51390	1.22216
Hoopa	0.90087	4.36005	2.32155	1.34814	2.98273
Itelman(KH)	3.99711	8.01015	2.81289	1.36628	4.38443
Itelman(SE)	5.62780	10.04668	4.16295	2.21931	6.25683
Kalapuya	3.16126	9.68898	3.73794	4.23412	4.45409
Kiowa	2.51293	3.08798	4.35043	2.51781	3.04887
Klamath	1.48413	3.74113	0.90103	1.06056	1.18041
Koryak	3.88121	9.73482	4.33729	3.05639	6.46108
Kutenai	5.35317	4.55039	7.58402	3.68170	7.39684
Kwakiutl	5.77585	8.20355	3.19914	2.26718	5.27380
Lillooet	1.80201	6.49532	1.38646	1.18665	2.62300

Matrix 3F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa (MN)
Makah	3.58153	5.65112	2.77205	1.05344	3.40601
Malecite	0.72430	2.75810	0.52471	0.87656	0.46049
Maritime Chukchi	4.90669	9.12113	4.25639	3.82739	7.47944
Menomini	2.12061	2.31976	0.76230	0.74290	1.16262
Micmac	1.69585	1.07386	1.05657	1.05623	1.07206
Mississagua	2.01187	2.56445	1.05857	1.83606	0.53242
Modoc	4.60999	10.53142	5.36266	6.07160	4.68127
Mohawk	1.53865	1.84539	1.05888	2.13200	0.17251
Montagnais	1.73544	4.13563	1.33071	0.46565	2.59988
Munsee	1.90296	2.30594	1.37123	2.10545	0.52129
Nanaimo	3.69777	9.35746	4.87683	5.21421	4.12064
Navajo	2.64886	2.55510	3.36307	1.33374	3.71298
Nez Perce	2.07630	2.35681	2.73939	1.37082	2.49003
Nisqually	3.48095	8.12652	3.81852	2.68515	3.70439
Nivkhi	6.22348	8.55973	5.21960	2.70651	7.17144
Northern Hill Yokuts	2.17513	7.16871	1.91621	2.18170	2.48955
N. Paiute	0.99325	4.19027	2.68285	1.97005	2.29969
N. Pomo	1.88115	7.19602	2.93775	3.10865	2.93032
Ojibwa(GBay)	1.57932	2.24177	2.31439	2.53112	0.77856
Ojibwa (NWLSup)	5.85400	8.23464	10.98261	8.74825	8.07749
Okanagan	0.96261	1.90547	1.70241	0.48154	1.79840
Omaha	0.97085	2.08484	0.87210	2.03260	0.50872
Oneida	2.76276	2.10542	1.79526	1.96866	1.25901
Osage	1.15875	2.08898	2.22187	1.81600	1.39751
Pawnee	1.31757	1.92130	1.20929	0.74907	1.18358
Piegan	2.35714	1.25647	3.57984	2.47462	2.48932
Ponca	1.37160	1.53399	2.30315	2.42012	1.44664
Potawatomi	1.27711	2.06920	1.01545	0.85240	0.70297
Pueblo	2.94554	5.76194	1.48002	1.01152	2.66913
Puyallup	3.41703	7.36777	2.68810	1.94937	3.17547
Queets	5.86973	6.59494	5.95984	2.52426	6.63382
Quillayute	5.14300	9.09110	3.79925	2.42145	4.70319
Quinault	4.27033	6.62434	4.46491	1.57397	5.22651
Reindeer Chukchi	4.10824	10.27974	3.58232	4.14504	6.29455
Reindeer Evenk	12.85905	22.39041	11.94483	12.46630	15.99048
Reindeer Koryak	7.11764	15.05327	7.67189	7.42956	10.49329
San Luis Rey	4.03151	10.34571	6.25019	8.96642	5.22880
Sarcee	1.10098	4.53245	3.42527	4.05521	2.94367
Sauk	2.12169	1.86014	4.33924	3.41167	3.68545
Seneca	2.02628	1.62181	2.11933	1.78716	1.17316
Serrano	1.97750	6.27080	3.16713	5.86526	2.18229
Shawnee	1.44515	1.15661	1.06609	0.79273	1.70995

Matrix 3F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa (MN)
Shoshoni	0.59089	2.83439	1.05521	0.49993	1.24857
Shuswap	1.38614	3.35591	1.02169	0.09955	1.70288
Sioux(Santee)	2.06009	1.22578	1.20427	2.52141	0.83281
Sioux(Teton)	1.80401	1.75550	1.45980	2.41621	0.93811
Sioux (Yankton)	1.73133	2.06241	0.89677	2.39111	0.72508
S. Miwok	1.33586	4.81624	1.32845	1.66751	1.60085
Stalo	4.56357	5.28558	3.92504	1.29852	5.03418
Stockbridge	3.29347	1.61840	1.69776	1.96024	1.69766
Tahltan	2.07884	1.82618	2.18404	1.24043	2.18691
Taos	3.15993	4.06392	2.38056	0.65360	4.20498
Tenino	0.71690	3.48602	1.28772	0.58403	1.95131
Thompson	2.91101	4.55827	2.79614	0.68723	4.49412
Tonkawa	0.68121	1.92292	2.20418	1.29525	1.59978
Tsimshian	2.39029	4.79557	1.46829	1.27654	1.76931
Tundra Evenk	7.85819	14.77758	7.09996	4.73110	10.26277
Tuscarora	1.98616	1.64503	2.20872	1.64646	1.21222
Tututni	3.66565	6.63475	2.47961	1.49695	3.60624
Umatilla	6.52437	4.48188	6.36851	3.38395	8.27630
Ute	1.50415	5.39196	1.90826	1.34719	2.72435
Wasco	1.28607	3.70633	0.58058	0.72342	1.57971
Washo	0.58346	3.00901	1.41615	2.12267	1.05820
W. Mono	0.84056	3.97980	1.17189	0.86527	1.63955
Winnebago	2.29533	2.70997	1.39376	2.91438	0.99404
Yakut	3.44308	6.58115	2.07060	1.00905	3.81316
Yokuts	2.28091	7.48893	5.23204	6.17654	4.75156
Yukaghir	5.42909	11.19551	4.37230	2.95909	6.81906
Yuki	3.61731	10.44315	4.45914	3.80392	5.46697
Yurok	6.71347	13.19565	4.45829	5.86207	6.03624
Zuni	3.72483	6.75896	3.17131	0.96971	5.27727

Matrix 3F. cont.

	Chippewa (WI)	Choctaw	Chuvantsy	Clallam	C. Miwok
Achomawi	3.42164	6.88846	6.56091	8.53059	1.86540
Agua Caliente	10.63147	5.29579	9.20110	20.10224	4.30415
Aiwan	8.78147	8.50660	4.96626	13.29785	2.49740
Aleut	7.19743	15.76823	9.83568	3.89437	8.81505
Apache	2.44914	5.45947	8.84833	4.54752	3.25267
Arapaho	2.00649	4.80928	11.12390	4.90187	4.12426
Assiniboin	2.59261	5.32224	9.56055	3.57161	5.73406
Atsugewi	3.76483	8.34648	8.01198	8.33138	2.22365
Bannock	5.15906	3.02465	5.91533	11.69371	1.87434
Bella Coola	3.05625	11.40792	10.02441	3.91589	7.90556
Big Meadow	2.05491	8.43838	10.55557	4.68166	4.21739
Blood	6.06085	3.06184	12.83960	9.12455	9.57266
Caddo	1.37903	3.82928	6.65353	4.21552	3.16421
Carrier	3.66727	2.08671	5.42763	8.19415	1.97454
Catawba	2.65508	1.52479	7.44007	6.17509	5.39209
Cherokee	1.76868	1.44395	5.81611	6.47269	2.01151
Cheyenne	2.53682	4.45575	12.48890	5.89378	5.89875
Chickasaw	0.82859	2.20038	5.00307	6.64465	1.53893
Chilcotin	1.52174	4.15695	4.78208	3.19950	2.81421
Chippewa(MN)	0.46299	1.96343	7.85836	6.51626	2.71763
Chippewa(WI)	0	3.82674	8.80140	4.85956	3.55851
Choctaw	3.82674	0	6.02904	11.59264	3.58885
Chuvantsy	8.80140	6.02904	0	12.11547	4.54251
Clallam	4.85956	11.59264	12.11547	0	11.17916
C. Miwok	3.55851	3.58885	4.54251	11.17916	0
Coahuilla	4.15424	3.44398	7.16839	10.58266	1.78838
Coeur d'Alene	3.03977	6.45548	8.76733	1.55676	5.94706
Comanche	3.75956	6.21075	11.14549	5.24393	5.71235
Concow	2.07428	4.78873	4.03365	4.68303	1.73129
Creek	6.13312	2.03128	10.79518	14.50340	4.13956
Crow	3.96114	7.68894	15.52487	6.16662	7.51654
E. Mono	0.75919	4.75250	6.94198	3.31404	2.88644
Eskimo(EC)	6.94683	7.42953	1.17017	7.73298	4.19271
Eskimo(WC)	3.51613	4.80835	4.36464	6.91322	0.98394
Even	7.50043	8.56371	1.63617	7.92571	5.32233
Evenk	6.87199	7.13131	1.83496	6.92601	5.63578
Flathead	5.59308	5.55651	9.88665	10.93014	3.03288
Haida	1.49683	3.85242	5.79993	6.25681	1.28103
Hoopa	3.82072	3.43800	3.95603	6.18600	2.00775
Itelman(KH)	3.20001	7.80714	4.51707	3.97420	4.25529
Itelman(SE)	4.68094	9.90320	5.00230	4.53035	5.64046
Kalapuya	5.22888	6.03957	5.16167	11.53139	1.34729
Kiowa	2.65385	7.03674	12.07247	2.52661	6.71643
Klamath	1.14656	4.26822	5.65913	5.28010	1.48971
Koryak	7.28268	5.73142	0.81698	8.67058	3.60686
Kutenai	6.73659	11.00923	12.96996	2.22210	9.89497
Kwakiutl	3.72701	10.05661	6.21206	5.62797	3.99880
Lillooet	2.41421	3.86894	3.48362	6.30515	2.38953

Matrix 3F. cont.

	Chippewa (WI)	Choctaw	Chuvantsy	Clallam	C. Miwok
Makah	2.11943	7.82200	6.85748	1.79531	5.19755
Malecite	0.47194	2.25003	6.15788	4.76106	2.90111
Maritime Chukchi	8.12200	6.73713	2.58085	12.36607	2.31511
Menomini	0.36801	4.46417	7.62112	3.61377	3.74411
Micmac	0.56444	3.98619	9.17330	4.10597	3.98352
Mississagua	0.01916	4.08114	9.60484	5.02162	3.97420
Modoc	4.98154	8.60059	10.36042	11.56759	3.58935
Mohawk	0.29333	2.98417	9.33057	5.70024	3.68787
Montagnais	2.20587	3.61530	4.27147	4.12722	3.80041
Munsee	0.25481	3.37790	9.81091	4.83289	4.96982
Nanaimo	5.09190	7.00094	7.64486	10.08901	3.16881
Navajo	3.20962	7.35435	9.13589	3.05811	4.41374
Nez perce	2.41782	6.06977	8.31357	3.08440	3.85371
Nisqually	3.22958	7.82884	6.92453	4.69270	4.35789
Nivkhi	6.07773	8.46585	5.10746	3.30949	9.41977
Northern Hill Yokuts	2.40825	5.16720	5.29617	7.58800	1.58713
N. Paiute	2.74535	4.62841	7.53833	5.95196	2.42020
N. Pomo	3.18766	4.86034	7.28085	8.71335	2.52753
Ojibwa(GBay)	1.26580	3.23686	9.42817	4.40352	5.26057
Ojibwa (NWLSup)	9.90889	8.58147	14.97471	8.09436	13.05100
Okanagan	1.84059	3.96994	6.42793	2.91117	3.38526
Omaha	0.70825	2.66766	9.07519	7.41838	2.31531
Oneida	0.38008	5.92561	11.36833	4.17512	4.64019
Osage	1.24612	4.34776	10.47849	4.61674	4.16117
Pawnee	0.75203	4.70757	8.22886	3.72605	2.78412
Piegan	2.07974	5.99564	13.15705	3.54278	6.54170
Ponca	1.92809	4.44962	10.31692	6.32563	2.82858
Potawatomi	0.42534	4.12749	7.74128	3.53119	3.01242
Pueblo	1.47803	5.78996	5.94772	4.36515	3.88075
Puyallup	2.21505	7.55870	6.73765	4.66672	3.63393
Queets	5.38285	10.08655	8.40643	0.55776	10.00353
Quillayute	3.24797	9.38125	6.58877	3.74242	5.77241
Quinault	4.13270	9.29929	6.83175	1.46336	6.32029
Reindeer Chukchi	7.37281	4.73256	1.27190	13.53626	1.77935
Reindeer Evenk	17.99023	12.33293	2.32466	23.63394	8.28797
Reindeer Koryak	12.42206	7.32535	0.96205	16.43154	5.16472
San Luis Rey	8.02053	4.10434	9.62331	18.95877	3.39062
Sarcee	4.61760	1.19379	7.58908	10.40745	4.42408
Sauk	4.85390	5.03537	10.20535	6.98423	4.52413
Seneca	0.75136	5.44663	10.90493	3.45416	4.51543
Serrano	4.01457	1.87027	9.27732	14.46434	2.66948
Shawnee	1.61430	3.88697	7.30968	4.97103	2.58982

Matrix 3F. cont.

	Chippewa (WI)	Choctaw	Chuvantsy	Clallam	C. Miwok
Shoshoni	1.34132	3.52437	5.61495	4.24402	1.89247
Shuswap	1.27917	4.08600	4.78705	2.82771	3.10190
Sioux(Santee)	0.81389	2.93182	10.50821	7.03662	4.32150
Sioux(Teton)	0.67825	3.77102	11.26882	6.77954	3.91114
Sioux (Yankton)	0.68862	2.68524	9.70539	7.72646	3.43963
S. Miwok	1.64457	4.36755	6.36922	7.03046	1.10338
Stalo	3.32048	8.99285	8.48646	1.19445	7.44804
Stockbridge	0.78820	5.32904	10.80889	4.29124	5.68578
Tahltan	1.90440	5.97018	8.83125	3.71439	3.30110
Taos	3.33894	7.08668	5.82333	3.88463	3.43290
Tenino	2.27601	3.49473	4.32639	5.05087	1.50539
Thompson	3.65227	6.29866	5.60510	3.31427	4.88538
Tonkawa	2.11580	3.62750	7.55929	3.98654	3.37779
Tsimshian	1.08235	5.98142	6.89465	4.52508	2.51319
Tundra Evenk	9.56197	10.55054	2.45988	8.53253	8.06823
Tuscarora	0.75680	4.83358	10.51001	2.58318	5.69164
Tututni	3.10002	6.99066	4.09533	4.24025	3.40593
Umatilla	7.51848	10.96270	10.17596	5.03278	7.92192
Ute	2.53202	4.92442	5.81607	6.35971	1.84334
Wasco	1.29266	3.90165	5.48488	6.10666	1.19700
Washo	1.71501	2.88996	7.82888	7.89455	1.36222
W. Mono	1.74038	3.88542	5.28377	5.59446	1.24846
Winnebago	0.66583	4.05600	11.31387	8.03206	3.59062
Yakut	2.98139	5.47700	3.40739	3.98821	4.84472
Yokuts	7.09707	3.54225	8.11475	14.56530	2.82197
Yukaghir	6.32768	7.21960	1.80287	6.82271	6.13051
Yuki	5.39726	7.27461	6.02486	9.51408	3.35980
Yurok	5.18137	9.47445	7.84329	13.23144	3.82755
Zuni	4.32814	7.84499	4.23243	3.93595	4.01206

Matrix 3F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Achomawi	1.88934	5.22437	4.42802	1.86691	8.16703
Agua Caliente	1.84252	11.55983	8.11837	8.44709	3.79654
Aiwan	6.20007	7.97799	8.55365	3.17575	7.84302
Aleut	11.18160	5.04317	7.71583	3.41190	18.41549
Apache	3.14848	1.46285	1.08351	1.39323	4.57714
Arapaho	3.00264	1.38130	2.12227	2.97164	3.76787
Assiniboin	6.58963	1.76455	2.63392	2.47086	5.84039
Atsugewi	2.54399	5.14542	4.07653	1.88375	8.73227
Bannock	1.19967	5.94625	2.96024	2.98671	2.52786
Bella Coola	9.79196	5.48408	8.32538	3.67863	16.55621
Big Meadow	3.58671	3.00393	3.26636	2.32682	9.35260
Blood	6.57817	5.04609	4.51776	8.09373	3.36590
Caddo	2.89886	2.05086	1.14860	0.97961	5.27900
Carrier	2.19076	3.23064	2.77272	1.98957	1.73964
Catawba	5.34387	3.05316	5.12173	4.03399	3.64788
Cherokee	1.42190	2.42947	2.03244	1.65427	2.17600
Cheyenne	5.93282	2.52536	4.57173	4.61472	3.95363
Chickasaw	3.31639	3.63051	4.67312	1.15290	4.58626
Chilcotin	4.14528	1.38461	3.14624	0.36613	6.25846
Chippewa(MN)	2.53211	3.30629	3.64245	2.46005	3.75583
Chippewa(WI)	4.15424	3.03977	3.75956	2.07428	6.13312
Choctaw	3.44398	6.45548	6.21075	4.78873	2.03128
Chuvantsy	7.16839	8.76733	11.14549	4.03365	10.79518
Clallam	10.58266	1.55676	5.24393	4.68303	14.50340
C. Miwok	1.78838	5.94706	5.71235	1.73129	4.13956
Coahuilla	0	4.94481	3.26458	3.27628	2.98176
Coeur d'Alene	4.94481	0	2.37406	2.35135	7.17015
Comanche	3.26458	2.37406	0	3.27101	5.33804
Concow	3.27628	2.35135	3.27101	0	6.59613
Creek	2.98176	7.17015	5.33804	6.59613	0
Crow	3.61043	3.17890	1.07740	5.58248	6.29711
E. Mono	3.44997	1.60145	2.09239	0.59387	6.35715
Eskimo(EC)	5.85899	5.66531	7.27950	2.03729	11.27365
Eskimo(WC)	2.18936	2.82927	3.78343	0.67710	4.93135
Even	7.49572	6.62935	7.91998	2.46116	13.07220
Evenk	7.72741	5.64453	6.95523	2.36196	11.41692
Flathead	0.85639	5.10238	1.94251	3.92302	3.22368
Haida	1.15121	2.91766	2.70385	0.93634	5.03401
Hoopa	1.81140	2.13467	2.47948	1.11746	3.82100
Itelman(KH)	5.93920	3.63771	4.93967	0.88811	11.61351
Itelman(SE)	7.85668	4.81331	6.18539	1.59900	14.11510
Kalapuya	1.42498	6.84116	4.86744	2.39576	6.80278
Kiowa	4.46723	0.93762	0.82020	3.26464	6.98282
Klamath	2.17986	2.48216	3.76497	0.77242	5.93048
Koryak	4.79887	5.30865	7.05539	2.36620	8.64366
Kutenai	8.46340	1.02986	3.16921	4.84552	10.13309
Kwakiutl	7.29987	4.97148	7.80867	1.54435	13.27977
Lillooet	3.65168	4.14650	3.58535	0.73627	6.92019

Matrix 3F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Makah	5.90867	1.86761	3.90420	1.22272	11.04222
Malecite	3.17874	2.50724	2.82175	1.38187	4.73388
Maritime Chukchi	6.01082	7.45543	9.07786	2.79043	7.64936
Menomini	5.30645	2.33232	4.30089	1.47321	7.05729
Micmac	5.03541	2.08035	3.46678	2.02696	5.29539
Mississagua	4.46324	3.28135	3.89103	2.45661	6.35167
Modoc	2.18045	7.69592	4.65396	4.23087	9.01535
Mohawk	3.61666	3.09242	4.16726	2.91391	4.87017
Montagnais	5.33783	2.57260	3.64655	1.01004	6.59918
Munsee	4.88245	3.18830	3.89784	3.14717	5.99503
Nanaimo	1.23709	5.92722	4.98641	3.79185	7.93862
Navajo	4.63735	0.70397	2.49630	1.70900	6.73166
Nez Perce	3.37088	0.55741	2.86419	1.77483	6.23157
Nisqually	3.36615	3.38849	3.32346	1.90783	10.33313
Nivkhi	11.35482	4.29835	8.19812	3.87902	14.09987
Northern Hill Yokuts	2.08645	4.69911	3.49586	1.06212	7.10724
N. Paiute	1.12375	2.19220	0.88026	1.51215	4.13246
N. Pomo	1.83972	5.15351	1.93033	2.07418	5.56912
Ojibwa(GBay)	3.51662	2.07588	3.47212	3.62948	5.24313
Ojibwa (NWLSup)	6.82358	4.78339	4.62379	10.10685	8.42300
Okanagan	3.22334	0.44138	2.04245	1.09799	4.82509
Omaha	2.74707	3.76525	2.95913	2.27673	3.16830
Oneida	5.22679	2.68213	3.90494	2.65154	7.29568
Osage	3.20228	1.96331	0.88248	2.30695	4.30271
Pawnee	3.19954	1.38030	2.21957	1.03569	5.34924
Piegan	5.39701	1.47475	1.62907	3.67322	5.50697
Ponca	2.08239	2.16860	2.55371	2.65474	3.31075
Potawatomi	3.10588	1.43647	2.78621	1.29018	5.66352
Pueblo	5.83796	3.76192	4.23796	0.99753	9.34997
Puyallup	4.10748	3.67853	3.74993	1.21485	10.35435
Queets	10.05859	1.70105	5.80654	3.83884	13.81829
Quillayute	6.72058	4.21878	5.61088	1.97459	13.78708
Quinault	6.36287	1.38592	3.74571	1.71349	11.77631
Reindeer Chukchi	4.66222	8.52114	8.81274	2.89656	6.98699
Reindeer Evenk	11.91446	17.93965	20.28724	10.39082	16.77604
Reindeer Koryak	6.95385	11.05467	12.40134	6.10642	10.32458
San Luis Rey	1.37819	11.08830	7.50861	7.56722	3.33738
Sarcee	3.06585	5.31317	3.12867	4.55039	1.51946
Sauk	3.21845	2.00469	3.39114	4.06560	2.92979
Seneca	3.95098	1.47915	2.68563	2.50066	6.13064
Serrano	1.59301	8.29807	5.15465	5.33868	2.07558
Shawnee	4.11450	1.84447	3.75414	1.39488	4.27097

Matrix 3F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Shoshoni	1.92801	1.34674	1.80841	0.49315	4.46232
Shuswap	3.93700	1.32244	3.01110	0.47966	6.67586
Sioux(Santee)	5.41251	4.14935	5.08247	3.65392	4.35298
Sioux(Teton)	4.47371	3.89517	3.26937	3.07115	4.33208
Sioux(Yankton)	4.63280	4.64494	4.46805	3.08136	4.10656
S. Miwok	1.50631	3.59028	2.61887	0.87724	5.14014
Stalo	8.76053	1.89376	4.12784	2.11782	11.84217
Stockbridge	7.33746	3.15220	5.71062	3.30324	7.64727
Tahltan	3.63813	1.03339	3.12654	1.59842	5.87041
Taos	5.87176	2.01990	4.49533	0.74570	8.17224
Tenino	1.88944	1.68192	2.33983	0.39602	4.30982
Thompson	6.67842	2.06404	3.55165	1.17036	8.13851
Tonkawa	2.10568	0.72079	1.45838	1.79582	3.68372
Tsimshian	3.29176	2.79861	3.66381	0.88413	8.08143
Tundra Evenk	10.52964	8.17554	9.69929	4.05515	16.02184
Tuscarora	4.90429	1.30073	2.65250	2.82359	6.49039
Tututni	4.73419	2.93442	6.15018	1.18238	10.42094
Umatilla	10.39274	2.95938	7.79994	4.38989	10.54363
Ute	2.45777	3.32490	1.87390	0.61613	5.59701
Wasco	2.90962	3.15342	3.20037	0.38002	5.15522
Washo	1.01735	3.38305	2.05775	1.80285	2.49773
W. Mono	1.59798	2.33191	2.04620	0.38525	4.66410
Winnebago	4.59312	5.08536	4.23255	3.28234	5.01026
Yakut	7.02270	3.62281	5.88018	1.37791	10.23236
Yokuts	0.95844	7.32721	4.16919	5.21740	1.76429
Yukaghir	8.32580	6.27557	8.13914	2.72804	12.89181
Yuki	3.42682	6.46656	3.30932	2.24612	8.57124
Yurok	6.43727	10.97152	8.80600	3.91077	12.95102
Zuni	6.10433	2.72088	4.51739	0.66340	10.06284

Matrix 3F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even
Achomawi	5.12658	2.27389	3.94879	2.00315	4.86461
Agua Caliente	9.10547	9.70479	9.57162	5.96742	11.72624
Aiwan	12.86981	5.88043	4.25634	1.84148	5.04126
Aleut	10.43808	4.00117	4.85040	5.30192	4.54474
Apache	2.54508	0.90377	5.75400	1.48173	6.50582
Arapaho	1.82306	1.69614	8.54413	2.63573	9.97322
Assiniboin	4.81174	1.59781	7.14230	3.57022	7.39744
Atsugewi	4.92515	2.20363	4.66838	1.95130	5.48389
Bannock	5.32873	3.73011	4.95530	2.29052	5.91281
Bella Coola	8.97382	2.83500	6.54279	6.63402	6.34592
Big Meadow	2.80580	1.31615	6.54218	3.10002	7.40652
Blood	5.30459	6.44636	12.34301	8.36472	13.52624
Caddo	2.84886	0.40286	4.10555	2.17682	4.39494
Carrier	5.12883	2.49488	4.76884	1.36738	5.80290
Catawba	6.29171	3.28654	7.61521	4.62918	8.60914
Cherokee	3.27590	1.38901	4.80121	1.69978	5.81118
Cheyenne	4.56843	3.09270	11.08737	4.55476	12.42006
Chickasaw	6.15085	1.11791	4.51429	1.92727	5.14599
Chilcotin	5.22618	0.45905	2.95742	1.32672	3.38193
Chippewa(MN)	3.66480	1.39819	6.89750	3.14407	7.89360
Chippewa(WI)	3.96114	0.75919	6.94683	3.51613	7.50043
Choctaw	7.68894	4.75250	7.42953	4.80835	8.56371
Chuvantsy	15.52487	6.94198	1.17017	4.36464	1.63617
Clallam	6.16662	3.31404	7.73298	6.91322	7.92571
C. Miwok	7.51654	2.88644	4.19271	0.98394	5.32233
Coahuilla	3.61043	3.44997	5.85899	2.18936	7.49572
Coeur d'Alene	3.17890	1.60145	5.66531	2.82927	6.62935
Comanche	1.07740	2.09239	7.27950	3.78343	7.91998
Concow	5.58248	0.59387	2.03729	0.67710	2.46116
Creek	6.29711	6.35715	11.27365	4.93135	13.07220
Crow	0	3.32934	11.18699	5.83075	12.41958
E. Mono	3.32934	0	4.24834	1.75244	4.65660
Eskimo(EC)	11.18699	4.24834	0	2.79057	0.22600
Eskimo(WC)	5.83075	1.75244	2.79057	0	3.87103
Even	12.41958	4.65660	0.22600	3.87103	0
Evenk	11.72683	4.22268	0.70952	3.91432	0.39085
Flathead	2.82013	3.91825	7.32713	2.63908	8.77368
Haida	3.40204	0.87202	3.80254	1.14945	4.76613
Hoopa	4.73406	1.94941	2.54009	0.63898	3.57615
Itelman(KH)	7.51693	1.44161	1.73642	2.78326	1.58655
Itelman(SE)	9.40171	2.42778	1.88715	3.83501	1.42458
Kalapuya	6.62172	3.59486	3.40986	1.96458	4.34873
Kiowa	0.92559	1.54609	7.93485	4.13799	8.71602
Klamath	4.36527	0.73554	3.84579	1.09628	4.83011
Koryak	10.84509	4.71947	0.45717	2.28443	1.14192
Kutenai	4.60761	4.01815	8.51521	5.14063	9.34022
Kwakiutl	9.76204	2.32792	3.54139	2.85461	3.73008
Lillooet	6.44183	1.26586	1.99325	2.17063	1.97778
Makah	5.28392	0.83656	3.49286	3.08899	3.63977

Matrix 3F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even
Malecite	3.97261	0.64809	4.82415	2.66898	5.30630
Maritime Chukchi	13.46855	5.64795	2.79160	1.79717	3.56804
Menomini	5.25523	0.61067	5.81601	2.98078	6.21576
Micmac	4.26393	0.85105	7.33565	3.10180	7.92554
Mississagua	3.90599	0.93762	7.65545	3.98430	8.20031
Modoc	4.62219	4.02947	7.05904	4.32716	8.03556
Mohawk	3.74001	1.47043	8.03277	3.80393	9.03776
Montagnais	6.63222	1.18597	2.96720	2.56796	2.96030
Munsee	3.89699	1.39673	8.19189	4.83656	8.74449
Nanaimo	4.75310	4.07223	5.27239	3.27133	6.78676
Navajo	3.68466	1.38602	5.78796	1.64346	6.75173
Nez Perce	3.10677	1.30145	5.50956	1.61393	6.82152
Nisqually	4.07361	1.73307	3.36113	3.09085	3.89359
Nivkhi	11.94720	4.41805	3.60674	6.53201	3.16468
Northern Hill Yokuts	5.02312	1.38643	3.07097	1.82923	3.53878
N. Paiute	1.88350	1.25737	4.69438	1.33019	5.70410
N. Pomo	3.64683	1.96212	4.69620	2.74105	5.08982
Ojibwa(GBay)	2.76518	2.03845	7.81025	4.43720	9.02488
Ojibwa (NWLSup)	4.22968	8.58785	12.19784	9.81628	13.94667
Okanagan	3.30271	0.76093	4.28626	1.42654	5.18874
Omaha	3.52036	1.24609	7.64248	2.79369	8.44274
Oneida	3.59786	0.96734	8.62748	3.93025	9.30033
Osage	1.45860	0.84398	7.52605	3.10190	8.17919
Pawnee	2.87426	0.24424	5.61648	1.63417	6.39174
Piegan	1.84185	1.71022	9.80632	4.47710	10.57376
Ponca	2.22292	1.71569	8.06552	2.01865	9.60212
Potawatomi	3.01848	0.37530	5.50247	2.08383	6.36640
Pueblo	6.54824	0.77440	3.63177	3.22801	3.33923
Puyallup	4.92800	1.03800	3.39528	2.78841	3.60081
Queets	7.83494	3.44485	5.09942	5.90418	5.22385
Quillayute	7.19342	1.91626	3.16950	4.31556	3.03940
Quinault	5.57832	1.76895	3.01439	3.07223	3.32264
Reindeer Chukchi	12.99008	5.58605	2.10203	2.42917	2.73616
Reindeer Evenk	25.60873	15.34030	5.01985	9.18577	5.99885
Reindeer Koryak	17.05500	9.77615	2.46697	5.06476	3.46439
San Luis Rey	7.83003	8.10793	9.94080	5.79739	11.87965
Sarcee	5.21657	4.27144	7.42466	4.53149	8.30139
Sauk	3.77222	3.74384	8.45684	2.50765	10.37498
Seneca	2.17572	0.89737	7.99068	3.24084	8.99245
Serrano	5.57580	4.88868	9.31195	4.90365	10.61043
Shawnee	5.10333	1.15734	5.88875	1.47111	6.81631
Shoshoni	3.07436	0.35524	3.51051	0.82406	4.33382
Shuswap	4.77368	0.38227	2.85066	1.67038	3.26817

Matrix 3F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even
Sioux(Santee)	5.41058	2.18494	9.72973	4.61983	10.49238
Sioux(Teton)	3.66581	1.46625	9.39627	4.07839	9.98737
Sioux(Yankton)	5.18938	1.82752	8.80528	4.15066	9.37012
S. Miwok	3.71613	0.85914	4.15001	1.17543	4.89708
Stalo	6.57371	1.58095	4.89488	4.37922	4.61859
Stockbridge	6.05795	1.76328	9.12687	4.90209	9.62807
Tahltan	3.46630	1.05818	6.14252	1.48423	7.34586
Taos	7.13920	1.39653	3.45660	1.23410	3.88998
Tenino	4.19047	0.86057	2.61638	0.36465	3.49899
Thompson	6.98740	1.56799	3.26894	2.43607	3.22345
Tonkawa	2.07626	1.19722	5.33635	1.68201	6.55688
Tsimshian	4.28537	0.52365	4.17349	1.91008	4.76893
Tundra					
Evenk	15.03924	6.37397	1.00842	6.12400	0.35126
Tuscarora	2.52834	1.02952	7.84724	4.17607	8.57192
Tututni	7.49012	1.88949	2.12728	2.00314	2.85574
Umatilla	10.43239	5.06474	7.80068	3.98294	8.73089
Ute	4.17375	0.88346	3.24948	1.20385	3.58130
Wasco	5.10351	0.53881	3.76131	0.99872	4.22697
Washo	2.76000	1.37212	6.11673	1.53938	7.22083
W. Mono	3.58728	0.55728	3.15709	0.61366	3.90315
Winnebago	4.51043	1.75643	9.62803	4.40324	10.16653
Yakut	8.98455	1.90536	2.08905	3.53527	1.86012
Yokuts	5.64182	5.89761	7.54050	3.45598	9.20000
Yukaghir	12.41528	4.34575	0.90627	4.84834	0.50036
Yuki	6.26937	3.05024	3.14087	3.09914	3.16836
Yurok	10.96827	4.58832	5.79250	5.63566	5.56078
Zuni	7.88885	1.74038	1.59448	1.68659	1.65336

Matrix 3F. cont.

	Evenk	Flathead	Haida	Hoopa	Itelman (KH)
Achomawi	6.09370	2.98836	0.64883	2.96094	2.55965
Agua Caliente	12.06182	2.81953	5.51145	4.96945	12.46151
Aiwan	5.09185	5.89833	5.22484	3.18736	5.97208
Aleut	5.21283	10.94545	6.03107	6.66668	1.93742
Apache	5.66547	2.26901	1.72837	1.44402	3.53016
Arapaho	9.00525	3.05236	2.08695	2.54748	5.76666
Assiniboin	5.49077	5.96507	4.00700	2.99492	4.36972
Atsugewi	6.67593	2.87464	1.00450	3.25106	2.70864
Bannock	5.49086	1.07568	2.22122	1.46464	5.75172
Bella Coola	6.93581	11.88332	4.36923	7.87101	1.89564
Big Meadow	8.06867	4.19865	1.19419	4.03234	2.78941
Blood	10.73549	6.94452	7.27121	5.32665	11.42202
Caddo	3.68366	2.98746	1.10252	1.55983	1.94290
Carrier	4.62917	2.23498	2.25265	0.64711	5.09288
Catawba	6.61705	7.02588	4.18872	3.26902	6.54251
Cherokee	4.89848	2.17764	1.06830	0.90087	3.99711
Cheyenne	10.50557	6.39215	4.45311	4.36005	8.01015
Chickasaw	4.56378	5.02452	1.25176	2.32155	2.81289
Chilcotin	2.67950	4.92610	1.51390	1.34814	1.36628
Chippewa(MN)	7.18829	4.25449	1.22216	2.98273	4.38443
Chippewa(WI)	6.87199	5.59308	1.49683	3.82072	3.20001
Choctaw	7.13131	5.55651	3.85242	3.43800	7.80714
Chuvantsy	1.83496	9.88665	5.79993	3.95603	4.51707
Clallam	6.92601	10.93014	6.25681	6.18600	3.97420
C. Miwok	5.63578	3.03288	1.28103	2.00775	4.25529
Coahuilla	7.72741	0.85639	1.15121	1.81140	5.93920
Coeur d'Alene	5.64453	5.10238	2.91766	2.13467	3.63771
Comanche	6.95523	1.94251	2.70385	2.47948	4.93967
Concow	2.36196	3.92302	0.93634	1.11746	0.88811
Creek	11.41692	3.22368	5.03401	3.82100	11.61351
Crow	11.72683	2.82013	3.40204	4.73406	7.51693
E. Mono	4.22268	3.91825	0.87202	1.94941	1.44161
Eskimo(EC)	0.70952	7.32713	3.80254	2.54009	1.73642
Eskimo(WC)	3.91432	2.63908	1.14945	0.63898	2.78326
Even	0.39085	8.77368	4.76613	3.57615	1.58655
Evenk	0	8.68091	5.04347	3.07662	1.93625
Flathead	8.68091	0	2.22695	2.11828	6.98528
Haida	5.04347	2.22695	0	1.47802	2.27362
Hoopa	3.07662	2.11828	1.47802	0	3.18288
Itelman(KH)	1.93625	6.98528	2.27362	3.18288	0
Itelman(SE)	1.86978	8.67568	3.62570	4.33423	0.18144
Kalapuya	5.44490	2.22031	1.33046	2.47565	3.71864
Kiowa	7.75218	3.87303	2.79104	3.21414	4.48182
Klamath	5.06524	3.66790	0.28248	1.83874	2.00369
Koryak	1.24422	6.27837	3.84921	1.65857	3.15779
Kutenai	7.88911	6.99786	6.34160	4.12507	6.32822
Kwakiutl	4.59631	8.74582	2.95653	4.83211	1.12904
Lillooet	1.73870	4.56738	1.48752	1.89609	1.08693

Matrix 3F. cont.

	Evenk	Flathead	Haida	Hoopa	Itelman (KH)
Makah	3.64985	6.87145	2.14201	3.34095	0.60799
Malecite	4.45245	4.47598	1.19794	2.20958	2.56280
Maritime Chukchi	3.51356	6.74346	4.91820	2.68125	5.16970
Menomini	5.42994	6.64784	1.97533	3.45263	2.42583
Micmac	6.66517	5.75379	2.34523	3.30370	3.85040
Mississagua	7.52443	5.88235	1.75278	4.28874	3.59096
Modoc	9.48096	2.78437	1.78715	5.02573	5.04126
Mohawk	8.26822	5.41656	1.73441	3.87364	4.70218
Montagnais	1.81180	6.10073	2.63242	1.93896	1.74572
Munsee	7.65320	6.45585	2.40835	4.48567	4.33775
Nanaimo	8.15977	2.76422	1.40316	3.48265	4.82408
Navajo	6.05783	4.10012	2.54722	1.96104	3.58209
Nez Perce	6.46179	3.90673	1.66986	1.83089	3.51123
Nisqually	4.74332	4.35131	1.25145	3.10849	1.38686
Nivkhi	1.95509	12.91474	7.01044	5.38416	2.84218
Northern Hill Yokuts	4.17750	3.02264	0.48911	2.31133	1.61791
N. Paiute	5.50286	0.83633	0.73705	0.96410	3.38977
N. Pomo	5.17719	1.71818	1.18879	2.39840	3.20967
Ojibwa(GBay)	8.11817	5.32637	2.22076	3.52608	5.15747
Ojibwa (NWLSup)	12.41586	6.93372	8.31714	6.20285	12.13254
Okanagan	4.27726	3.66265	1.54749	0.98336	2.77587
Omaha	7.57212	3.40455	1.41423	3.00040	4.69779
Oneida	8.67317	6.14780	2.15746	4.68256	3.93762
Osage	7.09499	2.84458	1.74673	2.60232	4.19380
Pawnee	5.84457	3.58970	0.98138	2.05878	2.62392
Piegan	8.96043	4.75969	3.50733	3.85117	5.80365
Ponca	9.03391	2.37657	1.44404	2.35614	5.60575
Potawatomi	5.91799	4.23476	0.87282	2.32620	2.57921
Pueblo	3.00638	6.76883	2.11517	3.55061	0.75863
Puyallup	4.29705	5.06429	1.13349	3.39506	0.69682
Queets	4.23663	10.85408	6.03260	4.89548	3.07250
Quillayute	3.73879	8.16971	2.67049	4.79156	0.41595
Quinault	3.29238	6.72775	3.08047	2.89028	1.18461
Reindeer Chukchi	2.89368	6.18804	4.09020	2.70986	4.74674
Reindeer Evenk	7.27440	15.32344	12.01314	9.45216	11.50048
Reindeer Koryak	3.85782	9.12969	7.40954	4.39483	7.67003
San Luis Rey	12.22923	2.79078	4.23837	5.22529	11.25731
Sarcee	6.53369	3.30584	3.94411	2.48290	7.63758
Sauk	9.20509	3.07732	3.56205	2.02193	7.87225
Seneca	8.34206	4.64793	1.71981	3.48323	4.07210
Serrano	10.14332	2.86827	2.79376	4.32877	8.55891
Shawnee	5.76794	4.65576	2.07611	1.96358	3.86976

Matrix 3F. cont.

	Evenk	Flathead	Haida	Hoopa	Itelman (KH)
Shoshoni	3.93279	2.47687	0.45896	0.74479	2.01294
Shuswap	2.69592	4.99524	1.29886	1.50395	1.11885
Sioux(Santee)	8.99766	6.72052	3.24887	4.77251	6.13763
Sioux(Teton)	8.76028	4.87259	2.46166	4.29007	5.35019
Sioux(Yankton)	8.11162	5.70712	2.61208	4.35282	5.37065
S. Miwok	5.14990	2.08601	0.18240	1.76523	2.30467
Stalo	3.65384	8.73985	4.38281	4.18938	1.71532
Stockbridge	8.33162	8.73045	3.71372	5.43691	4.73778
Tahltan	6.90773	4.03287	1.63053	2.16349	3.60671
Taos	3.36837	5.95733	2.77769	2.04236	1.97213
Tenino	3.14734	2.41470	0.71950	0.27421	2.10954
Thompson	2.04885	6.41260	3.61781	2.08614	1.96578
Tonkawa	5.71633	2.42769	1.35893	0.98448	3.92955
Tsimshian	5.17735	4.48833	0.57071	2.81812	1.31346
Tundra Evenk	0.44239*	11.71558	7.20033	5.37345	2.53842
Tuscarora	7.45376	5.75979	2.41743	3.70365	4.00159
Tututni	3.49742	6.82573	1.77196	2.76776	1.07820
Umatilla	7.38392	9.91298	7.36693	4.64289	6.73613
Ute	3.44154	2.19594	0.92882	1.32169	1.82236
Wasco	3.94458	3.48095	0.78953	1.67564	1.87709
Washo	6.80720	1.32425	0.66664	1.62525	4.40505
W. Mono	3.82142	2.01603	0.27228	0.81572	1.87055
Winnebago	9.26711	5.34737	2.41950	5.01095	5.38741
Yakut	1.28210	8.66192	3.33297	3.23969	0.91646
Yokuts	8.82167	0.94318	3.40451	2.43550	9.02736
Yukaghir	0.36242	10.18997	5.08192	4.13070	1.62802
Yuki	3.66213	3.05376	2.32707	2.88119	2.58578
Yurok	6.94110	7.87189	3.55753	7.27628	3.46188
Zuni	1.49293	6.25125	2.92479	2.02428	0.82193

Matrix 3F. cont.

	Itelman (SE)	Kalapuya	Kiowa	Klamath	Koryak
Achomawi	3.65108	0.67207	4.84315	1.14446	4.59952
Agua Caliente	14.77723	3.62590	11.17637	7.40851	7.34021
Aiwan	6.48609	4.23959	10.25626	5.18755	3.54926
Aleut	1.49518	7.97501	6.31339	5.18512	7.00398
Apache	4.66410	4.12957	1.24630	1.93359	5.45253
Arapaho	7.63406	5.84443	1.22596	1.96717	7.64747
Assiniboin	5.35907	8.07549	2.14103	3.67153	6.82807
Atsugewi	3.63973	1.06837	4.54020	1.47436	5.48508
Bannock	7.17887	1.73610	5.44501	3.59053	3.90568
Bella Coola	2.30451	7.96761	5.87084	3.30426	8.82673
Big Meadow	3.97889	3.58048	2.19383	1.17040	7.48067
Blood	13.69574	11.70751	4.76240	7.91306	10.17064
Caddo	2.94761	3.26536	1.49146	1.53921	4.34778
Carrier	6.54902	3.66645	3.93266	2.70094	3.38110
Catawba	8.39686	8.56264	4.27886	3.76494	6.20489
Cherokee	5.62780	3.16126	2.51293	1.48413	3.88121
Cheyenne	10.04668	9.68898	3.08798	3.74113	9.73482
Chickasaw	4.16295	3.73794	4.35043	0.90103	4.33729
Chilcotin	2.21931	4.23412	2.51781	1.06056	3.05639
Chippewa(MN)	6.25683	4.45409	3.04887	1.18041	6.46108
Chippewa(WI)	4.68094	5.22888	2.65385	1.14656	7.28268
Choctaw	9.90320	6.03957	7.03674	4.26822	5.73142
Chuvantsy	5.00230	5.16167	12.07247	5.65913	0.81698
Clallam	4.53035	11.53139	2.52661	5.28010	8.67058
C. Miwok	5.64046	1.34729	6.71643	1.48971	3.60686
Coahuilla	7.85668	1.42498	4.46723	2.17986	4.79887
Coeur d'Alene	4.81331	6.84116	0.93762	2.48216	5.30865
Comanche	6.18539	4.86744	0.82020	3.76497	7.05539
Concow	1.59900	2.39576	3.26464	0.77242	2.36620
Creek	14.11510	6.80278	6.98282	5.93048	8.64366
Crow	9.40171	6.62172	0.92559	4.36527	10.84509
E. Mono	2.42778	3.59486	1.54609	0.73554	4.71947
Eskimo(EC)	1.88715	3.40986	7.93485	3.84579	0.45717
Eskimo(WC)	3.83501	1.96458	4.13799	1.09628	2.28443
Even	1.42458	4.34873	8.71602	4.83011	1.14192
Evenk	1.86978	5.44490	7.75218	5.06524	1.24422
Flathead	8.67568	2.22031	3.87303	3.66790	6.27837
Haida	3.62570	1.33046	2.79104	0.28248	3.84921
Hoopa	4.33423	2.47565	3.21414	1.83874	1.65857
Itelman(KH)	0.18144	3.71864	4.48182	2.00369	3.15779
Itelman(SE)	0	4.79165	5.81388	3.31033	3.69784
Kalapuya	4.79165	0	6.59156	2.34317	3.51535
Kiowa	5.81388	6.59156	0	3.05173	7.94394
Klamath	3.31033	2.34317	3.05173	0	3.96666
Koryak	3.69784	3.51535	7.94394	3.96666	0
Kutenai	7.17303	10.50585	1.90577	6.00271	8.09260
Kwakiutl	1.40413	4.67667	6.48547	1.95096	5.05238
Lillooet	1.72137	2.40011	4.38752	1.84009	2.55684

Matrix 3F. cont.

	Itelman (SE)	Kalapuya	Kiowa	Klamath	Koryak
Makah	1.13122	5.09250	2.48293	1.60706	4.71191
Malecite	3.91537	4.18380	2.47256	1.18339	4.80556
Maritime Chukchi	5.73945	4.26597	10.39747	4.67168	1.97652
Menomini	3.58760	5.93041	2.86380	1.20667	6.20351
Micmac	5.26080	6.62090	2.29285	1.74629	7.20114
Mississagua	5.12330	5.68472	2.70761	1.40591	8.02638
Modoc	6.37728	1.25657	5.79236	3.01820	7.81273
Mohawk	6.60017	5.77944	2.89042	1.36853	7.75594
Montagnais	2.42862	5.21291	3.58776	2.41120	3.10686
Munsee	6.00066	6.82342	2.65654	2.11486	8.28730
Nanaimo	6.38765	1.24290	5.45368	2.25836	5.29497
Navajo	4.61575	5.68137	1.54571	2.09928	5.51918
Nez Perce	4.89843	4.93655	1.48126	1.17857	5.10774
Nisqually	2.17791	2.39947	3.00652	1.63639	4.46959
Nivkhi	2.90119	10.51435	6.84884	6.06594	4.35229
Northern Hill Yokuts	2.54223	0.79400	4.23456	1.04386	3.77316
N. Paiute	4.71746	1.98055	1.58706	1.47728	4.34977
N. Pomo	4.26979	1.30072	3.64317	2.43326	5.04381
Ojibwa(GBay)	7.13872	6.51049	2.01480	2.04682	7.24785
Ojibwa (NWLSup)	14.24347	11.81373	4.41421	9.40714	10.39178
Okanagan	4.01716	4.67428	1.31570	1.28432	3.79676
Omaha	6.41359	4.26239	3.00994	1.56292	7.26293
Oneida	5.41757	6.54795	2.22031	1.54044	9.06733
Osage	5.66085	4.98881	0.80938	2.11849	7.36418
Pawnee	3.90868	4.13334	1.40187	0.69776	5.67052
Piegan	7.35063	8.15800	0.67899	3.44150	9.42519
Ponca	7.52531	4.46274	1.97858	1.41894	7.18241
Potawatomi	4.00508	4.29729	1.59911	0.49563	5.56567
Pueblo	1.25176	4.47013	3.86981	1.87162	4.86016
Puyallup	1.32393	2.55837	3.34393	1.22165	4.80050
Queets	3.43858	10.42407	3.60288	5.07707	5.77818
Quillayute	0.68985	4.59141	4.53596	2.36478	5.05377
Quinault	1.54082	5.65205	2.50694	2.65985	3.93220
Reindeer Chukchi	5.48385	2.82416	10.70876	4.37756	1.45799
Reindeer Evenk	11.94476	8.50777	22.46235	12.13345	4.11804
Reindeer Koryak	8.36212	5.26366	14.46857	7.84560	1.27205
San Luis Rey	13.68570	3.13021	10.07073	5.94088	8.19365
Sarcee	9.44227	5.65639	4.90180	5.04972	5.78963
Sauk	9.84436	6.61743	2.98985	3.49693	6.53903
Seneca	5.69177	5.92693	1.13124	1.32061	7.99534
Serrano	10.82620	3.54952	6.92179	4.02213	8.10022
Shawnee	5.23226	5.44338	2.94700	1.42553	5.25489

Matrix 3F. cont.

	Itelman (SE)	Kalapuya	Kiowa	Klamath	Koryak
Shoshoni	3.22425	2.57834	1.67452	0.51877	3.32202
Shuswap	2.01309	4.08361	2.25139	0.92258	3.09908
Sioux(Santee)	7.99729	7.76697	4.06280	2.72104	9.18900
Sioux(Teton)	7.02583	6.26083	2.87383	2.41133	9.23422
Sioux(Yankton)	7.07771	6.26929	4.11627	2.42979	8.51087
S. Miwok	3.50858	1.18947	3.11945	0.58501	4.38132
Stalo	1.94561	8.20646	2.74671	3.67370	5.99243
Stockbridge	6.18031	8.99184	3.61900	2.60727	9.28458
Tahltan	4.99026	4.99317	1.80351	1.02790	5.82464
Taos	2.49985	5.19752	3.77521	2.00241	3.64660
Tenino	3.22018	2.24341	2.54021	0.79787	2.20073
Thompson	2.31797	6.19452	3.38852	3.24380	3.50099
Tonkawa	5.49670	4.25772	1.03738	1.46236	4.51913
Tsimshian	2.32991	2.73638	2.81787	0.31869	5.00880
Tundra Evenk	2.02684	6.94428	10.52171	7.21683	2.18964
Tuscarora	5.53632	7.14436	1.03094	2.02442	7.86987
Tututni	1.82122	3.68389	4.76782	1.02443	2.79747
Umatilla	7.41343	11.29214	6.10523	5.89158	7.03032
Ute	2.61208	1.65082	2.93028	1.51474	3.57519
Wasco	2.87423	2.46368	3.40932	0.73488	3.95250
Washo	6.08731	2.28478	2.72528	1.20673	5.49324
W. Mono	2.97569	1.55572	2.43013	0.54673	3.13758
Winnebago	7.06370	5.87627	3.90209	2.37047	9.71448
Yakut	1.27284	5.77550	5.22070	2.76274	2.90361
Yokuts	11.00928	2.77646	6.78423	4.98865	5.66211
Yukaghir	1.60596	5.86174	8.37323	4.89762	1.82729
Yuki	3.04045	1.27822	5.47969	3.63269	3.96609
Yurok	3.93965	2.79472	9.98291	4.10021	7.67770
Zuni	0.94891	4.32860	4.34909	2.53423	2.29114

Matrix 3F. cont.

	Kutenai	Kwakiutl	Lillooet	Makah	Malecite
Achomawi	8.93763	2.82373	2.43840	3.04723	3.28666
Agua Caliente	15.73619	14.58316	8.09659	13.53207	8.46643
Aiwan	9.73641	5.43214	4.78225	7.82591	7.23673
Aleut	5.77494	1.88424	5.32068	1.98947	7.22608
Apache	2.50151	4.52777	2.73535	2.68730	2.00235
Arapaho	3.22484	6.21129	4.82901	3.78317	2.16047
Assiniboin	2.63203	5.87971	3.41081	3.20505	1.98652
Atsugewi	8.10383	2.62467	2.89293	3.08378	3.86670
Bannock	8.66413	8.09223	2.51285	6.71194	3.30745
Bella Coola	9.17453	1.79088	4.31361	1.25016	4.04357
Big Meadow	5.75446	2.78584	3.71658	1.67561	2.83923
Blood	7.07860	15.40231	7.66621	9.52214	4.27835
Caddo	4.28217	4.03447	0.86798	1.65473	0.60813
Carrier	5.34827	6.73190	2.49010	5.16636	2.10089
Catawba	6.20376	8.41878	4.27591	5.26574	1.60527
Cherokee	5.35317	5.77585	1.80201	3.58153	0.72430
Cheyenne	4.55039	8.20355	6.49532	5.65112	2.75810
Chickasaw	7.58402	3.19914	1.38646	2.77205	0.52471
Chilcotin	3.68170	2.26718	1.18665	1.05344	0.87656
Chippewa(MN)	7.39684	5.27380	2.62300	3.40601	0.46049
Chippewa(WI)	6.73659	3.72701	2.41421	2.11943	0.47194
Choctaw	11.00923	10.05661	3.86894	7.82200	2.25003
Chuvantsy	12.96996	6.21206	3.48362	6.85748	6.15788
Clallam	2.22210	5.62797	6.30515	1.79531	4.76106
C. Miwok	9.89497	3.99880	2.38953	5.19755	2.90111
Coahuilla	8.46340	7.29987	3.65168	5.90867	3.17874
Coeur d'Alene	1.02986	4.97148	4.14650	1.86761	2.50724
Comanche	3.16921	7.80867	3.58535	3.90420	2.82175
Concow	4.84552	1.54435	0.73627	1.22272	1.38187
Creek	10.13309	13.27977	6.92019	11.04222	4.73388
Crow	4.60761	9.76204	6.44183	5.28392	3.97261
E. Mono	4.01815	2.32792	1.26586	0.83656	0.64809
Eskimo(EC)	8.51521	3.54139	1.99325	3.49286	4.82415
Eskimo(WC)	5.14063	2.85461	2.17063	3.08899	2.66898
Even	9.34022	3.73008	1.97778	3.63977	5.30630
Evenk	7.88911	4.59631	1.73870	3.64985	4.45245
Flathead	6.99786	8.74582	4.56738	6.87145	4.47598
Haida	6.34160	2.95653	1.48752	2.14201	1.19794
Hoopa	4.12507	4.83211	1.89609	3.34095	2.20958
Itelman(KH)	6.32822	1.12904	1.08693	0.60799	2.56280
Itelman(SE)	7.17303	1.40413	1.72137	1.13122	3.91537
Kalapuya	10.50585	4.67667	2.40011	5.09250	4.18380
Kiowa	1.90577	6.48547	4.38752	2.48293	2.47256
Klamath	6.00271	1.95096	1.84009	1.60706	1.18339
Koryak	8.09260	5.05238	2.55684	4.71191	4.80556
Kutenai	0	8.08162	7.32957	4.18058	5.93153
Kwakiutl	8.08162	0	3.04338	1.53336	4.12353
Lillooet	7.32957	3.04338	0	2.06877	1.19595
Makah	4.18058	1.53336	2.06877	0	2.03424

Matrix 3F. cont.

	Kutenai	Kwakiutl	Lillooet	Makah	Malecite
Malecite	5.93153	4.12353	1.19595	2.03424	0
Maritime Chukchi	9.97467	5.06464	3.94074	7.10028	6.24462
Menomini	5.47838	2.66151	2.25049	1.45835	0.67923
Micmac	4.67170	4.24852	3.00401	2.49726	0.82084
Mississagua	7.00858	4.11414	2.77329	2.37029	0.61723
Modoc	11.53840	5.90764	4.25410	5.44963	4.98709
Mohawk	7.08441	5.16924	3.47020	3.22484	0.73318
Montagnais	4.95426	3.69153	0.84770	1.91405	0.97615
Munsee	6.91380	5.55561	3.13706	2.88321	0.54727
Nanaimo	9.96135	5.74034	4.32335	4.92227	4.60541
Navajo	1.40546	3.79327	4.07030	2.24450	3.02877
Nez Perce	2.35123	3.65605	3.98483	1.95783	2.38344
Nisqually	6.32901	2.87804	2.21665	1.27817	2.85194
Nivkhi	6.32132	5.37713	3.77251	2.92267	4.40600
Northern Hill Yokuts	8.29462	2.63374	0.91162	2.35881	1.90823
N. Paiute	4.12240	4.94768	2.25046	2.96117	1.97746
N. Pomo	7.99965	5.40519	1.37502	3.86087	2.24817
Ojibwa(GBay)	5.59309	6.68372	4.15720	3.24094	1.17894
Ojibwa (NWLSup)	5.80616	16.86240	10.52471	9.68820	7.84264
Okanagan	2.24857	3.93974	2.36001	1.72502	1.16539
Omaha	7.11305	5.33331	2.58855	3.94760	0.80755
Oneida	5.67488	3.75705	3.86893	2.22442	1.41012
Osage	3.84373	5.80274	2.83211	2.89225	1.10548
Pawnee	3.69299	2.91960	2.31879	1.53913	0.94292
Piegan	2.55704	7.19928	4.94726	3.58321	2.19798
Ponca	4.56434	5.60267	4.46359	4.04155	2.16893
Potawatomi	4.41281	3.00760	2.34289	1.36832	0.64362
Pueblo	6.77535	1.93463	0.74474	1.02855	1.18877
Puyallup	6.78283	1.56154	1.48983	0.80465	2.19609
Queets	2.66371	5.11496	5.05188	1.74280	4.47331
Quillayute	7.34175	1.49480	2.12944	0.56093	3.13066
Quinault	2.62272	2.55727	3.02895	0.55279	3.46877
Reindeer Chukchi	12.33119	5.69264	2.66288	7.15335	5.18768
Reindeer Evenk	23.11172	12.40552	9.96968	15.49766	14.56405
Reindeer Koryak	14.85903	9.60243	5.79018	10.45902	9.07031
San Luis Rey	16.04787	12.93878	6.91831	12.04852	6.61504
Sarcee	8.00559	11.06784	3.57114	7.58716	2.56203
Sauk	3.25328	8.44905	6.45887	6.14391	4.13128
Seneca	4.00351	4.35779	3.96075	2.12193	1.40031
Serrano	13.05279	10.29795	4.38869	8.76276	3.17696
Shawnee	4.07595	3.73696	3.02879	2.93640	1.48502
Shoshoni	3.79049	3.03833	1.31289	1.55276	0.76522
Shuswap	3.90369	2.29935	1.05901	0.71815	0.65894

Matrix 3F. cont.

	Kutenai	Kwakiutl	Lillooet	Makah	Malecite
Sioux(Santee)	7.75587	6.45301	4.16777	4.73873	1.21217
Sioux(Teton)	6.90266	5.96120	3.46486	4.12802	1.12260
Sioux(Yankton)	8.35760	5.94806	3.13207	4.52435	0.92659
S. Miwok	6.77805	2.86996	1.32660	2.45337	1.41846
Stalo	2.86859	3.16847	3.03035	0.90666	2.90475
Stockbridge	6.27728	4.58666	4.40832	3.00857	1.57921
Tahltan	2.93242	3.22052	3.87089	2.13775	2.18730
Taos	3.38222	1.86310	2.58358	1.80097	2.86510
Tenino	4.00271	3.13089	1.29303	2.06263	1.30218
Thompson	3.03795	3.55243	1.91110	1.96800	2.44132
Tonkawa	2.63294	5.34323	3.00511	2.65467	1.42703
Tsimshian	6.10668	1.37022	1.75893	0.91728	1.41758
Tundra Evenk	10.53005	5.41855	3.12529	4.82811	6.94419
Tuscarora	3.78046	5.20891	3.68694	2.00586	1.01744
Tututni	6.33199	1.06764	2.43202	1.05123	2.79727
Umatilla	2.76855	6.02740	7.86227	5.47290	6.96914
Ute	5.48770	3.21194	0.78876	2.33946	1.69436
Wasco	6.05768	2.23141	0.93455	2.08527	0.98335
Washo	6.34495	5.24128	2.35740	4.00225	1.35728
W. Mono	4.94728	2.77220	1.01768	1.91518	1.12691
Winnebago	8.73114	5.63575	3.47792	4.45312	1.34655
Yakut	6.64012	2.59343	1.10994	1.41777	1.86926
Yokuts	10.21544	11.22925	5.16337	9.57499	5.19310
Yukaghir	9.46431	4.16725	1.77029	3.27602	4.22920
Yuki	8.88291	4.99254	1.41798	4.13818	3.94267
Yurok	15.86713	3.72751	2.88147	5.42165	5.21010
Zuni	4.14218	1.74153	1.68302	1.38203	3.24908

Matrix 3F. cont.

	Maritime Chukchi	Menomini	Micmac	Mississagua	Modoc
Achomawi	5.75531	4.07917	5.00141	3.74458	0.71985
Agua Caliente	8.21314	12.33430	11.68797	11.11720	5.78070
Aiwan	0.47750	7.43058	7.50709	9.49336	8.87261
Aleut	8.25966	5.46815	6.98386	7.62565	8.88671
Apache	5.34461	2.22715	1.57404	2.66393	4.95964
Arapaho	7.95431	2.23630	1.32251	2.09022	5.85304
Assiniboin	6.80081	1.75116	0.99466	2.74968	9.63615
Atsugewi	5.85521	4.24554	4.96315	4.06838	0.92229
Bannock	4.23121	5.86363	5.34222	5.55560	3.86673
Bella Coola	11.26151	2.56203	4.43800	3.18042	7.20179
Big Meadow	8.99880	2.55117	3.10490	2.15986	2.18186
Blood	12.84046	6.61558	4.94543	6.13373	13.17552
Caddo	5.90225	1.51664	1.51654	1.57227	3.91060
Carrier	3.10445	3.50737	2.73406	4.04455	6.44329
Catawba	7.58194	2.41217	1.82049	2.83719	10.76024
Cherokee	4.90669	2.12061	1.69585	2.01187	4.60999
Cheyenne	9.12113	2.31976	1.07386	2.56445	10.53142
Chickasaw	4.25639	0.76230	1.05657	1.05857	5.36266
Chilcotin	3.82739	0.74290	1.05623	1.83606	6.07160
Chippewa(MN)	7.47944	1.16262	1.07206	0.53242	4.68127
Chippewa(WI)	8.12200	0.36801	0.56444	0.01916	4.98154
Choctaw	6.73713	4.46417	3.98619	4.08114	8.60059
Chuvantsy	2.58085	7.62112	9.17330	9.60484	10.36042
Clallam	12.36607	3.61377	4.10597	5.02162	11.56759
C. Miwok	2.31511	3.74411	3.98352	3.97420	3.58935
Coahuilla	6.01082	5.30645	5.03541	4.46324	2.18045
Coeur d'Alene	7.45543	2.33232	2.08035	3.28135	7.69592
Comanche	9.07786	4.30089	3.46678	3.89103	4.65396
Concow	2.79043	1.47321	2.02696	2.45661	4.23087
Creek	7.64936	7.05729	5.29539	6.35167	9.01535
Crow	13.46855	5.25523	4.26393	3.90599	4.62219
E. Mono	5.64795	0.61067	0.85105	0.93762	4.02947
Eskimo(EC)	2.79160	5.81601	7.33565	7.65545	7.05904
Eskimo(WC)	1.79717	2.98078	3.10180	3.98430	4.32716
Even	3.56804	6.21576	7.92554	8.20031	8.03556
Evenk	3.51356	5.42994	6.66517	7.52443	9.48096
Flathead	6.74346	6.64784	5.75379	5.88235	2.78437
Haida	4.91820	1.97533	2.34523	1.75278	1.78715
Hoopa	2.68125	3.45263	3.30370	4.28874	5.02573
Itelman(KH)	5.16970	2.42583	3.85040	3.59096	5.04126
Itelman(SE)	5.73945	3.58760	5.26080	5.12330	6.37728
Kalapuya	4.26597	5.93041	6.62090	5.68472	1.25657
Kiowa	10.39747	2.86380	2.29285	2.70761	5.79236
Klamath	4.67168	1.20667	1.74629	1.40591	3.01820
Koryak	1.97652	6.20351	7.20114	8.02638	7.81273
Kutenai	9.97467	5.47838	4.67170	7.00858	11.53840
Kwakiutl	5.06464	2.66151	4.24852	4.11414	5.90764
Lillooet	3.94074	2.25049	3.00401	2.77329	4.25410

Matrix 3F. cont.

	Maritime Chukchi	Menomini	Micmac	Mississagua	Modoc
Makah	7.10028	1.45835	2.49726	2.37029	5.44963
Malecite	6.24462	0.67923	0.82084	0.61723	4.98709
Maritime Chukchi	0	6.66283	7.09768	8.87572	9.41596
Menomini	6.66283	0	0.32275	0.47999	6.56557
Micmac	7.09768	0.32275	0	0.62559	7.22848
Mississagua	8.87572	0.47999	0.62559	0	5.18653
Modoc	9.41596	6.56557	7.22848	5.18653	0
Mohawk	8.72975	0.87516	0.79635	0.29891	5.56988
Montagnais	4.28491	1.38597	1.71200	2.53378	7.63103
Munsee	9.86005	0.75516	0.74124	0.21527	6.47175
Nanaimo	7.92555	6.28303	7.05040	5.42990	0.97962
Navajo	5.59340	2.37027	1.96186	3.48294	6.73427
Nez Perce	6.17264	2.00482	1.88011	2.66734	5.55616
Nisqually	7.78385	3.57058	4.69820	3.51398	2.01585
Nivkhi	7.69415	4.17649	5.39018	6.53781	13.73863
Northern Hill Yokuts	4.91860	2.90074	3.72003	2.71223	1.34216
N. Paiute	5.51591	3.19355	2.86490	3.00527	2.45674
N. Pomo	6.30154	4.10462	4.22408	3.42538	1.59256
Ojibwa(GBay)	10.07500	1.86968	1.72687	1.30736	6.23219
Ojibwa (NWLSup)	16.48061	10.66502	9.54504	10.11169	11.99001
Okanagan	5.01175	1.34139	1.12345	2.11081	6.06236
Omaha	6.80239	1.34347	0.85558	0.75789	4.53950
Oneida	9.34854	0.57324	0.55808	0.34109	5.72211
Osage	8.21201	1.70985	1.02187	1.28003	4.70596
Pawnee	5.92113	0.66171	0.54201	0.89260	4.42344
Piegan	10.23106	2.14689	1.10457	2.05546	7.76180
Ponca	6.96374	2.35559	1.59675	2.04415	4.53619
Potawatomi	6.64850	0.49252	0.62243	0.55026	4.41237
Pueblo	5.95881	1.06195	1.97352	1.69636	5.38922
Puyallup	6.85900	2.32108	3.50269	2.46043	2.36255
Queets	9.61900	3.76787	4.53780	5.72096	11.94156
Quillayute	8.08607	2.85083	4.57330	3.53682	4.67929
Quinault	6.83170	3.07643	3.96043	4.50909	6.62101
Reindeer Chukchi	0.86679	6.69101	7.46585	8.08343	7.52210
Reindeer Evenk	4.86291	16.72727	18.76130	19.12185	15.57168
Reindeer Koryak	2.63415	11.44129	12.55849	13.37061	11.23360
San Luis Rey	8.82319	10.06670	9.57817	8.34353	4.28501
Sarcee	7.04255	5.26965	4.19672	4.86550	7.88784
Sauk	6.50256	4.64419	3.36026	5.13687	8.24684
Seneca	8.99339	0.99735	0.75482	0.76336	5.20388
Serrano	8.39696	5.78832	5.19224	4.14875	4.18629
Shawnee	4.28370	0.97846	0.56967	1.84513	7.18776

Matrix 3F. cont.

	Maritime Chukchi	Menomini	Micmac	Mississagua	Modoc
Shoshoni	4.27094	1.26288	1.29178	1.61269	3.64883
Shuswap	4.64341	0.70417	1.18622	1.56762	5.52328
Sioux(Santee)	8.63197	1.06900	0.52386	0.78980	8.27978
Sioux(Teton)	8.65876	1.21384	0.57888	0.62783	6.07753
Sioux(Yankton)	7.85871	1.14353	0.71800	0.68594	6.74660
S. Miwok	4.65390	2.11543	2.38765	1.88717	1.64727
Stalo	7.77400	1.98015	2.52262	3.56385	9.31863
Stockbridge	9.22749	0.42113	0.36804	0.77519	9.25804
Tahltan	5.80050	1.47884	1.25043	2.11070	5.58874
Taos	3.01585	1.90401	2.17716	3.74818	7.59741
Tenino	2.88234	1.94333	2.00260	2.65691	4.14290
Thompson	4.05565	2.24521	2.37827	4.04248	8.84825
Tonkawa	6.02097	2.13647	1.63310	2.34399	5.12726
Tsimshian	6.04393	1.16531	1.96104	1.28174	2.68174
Tundra Evenk	5.25742	7.88710	9.78341	10.30263	11.13491
Tuscarora	9.79520	0.87968	0.66561	0.75583	6.68486
Tututni	4.72885	2.35309	3.75370	3.52814	5.13843
Umatilla	5.61458	5.12410	4.65602	7.98549	14.69558
Ute	3.90033	2.56097	2.70113	2.84525	2.82306
Wasco	3.43713	1.11903	1.34028	1.56112	3.83487
Washo	5.35661	2.42422	1.93030	1.89134	2.84381
W. Mono	3.67638	1.79502	1.94912	2.04556	2.67067
Winnebago	8.87784	1.39659	1.01961	0.60218	5.48220
Yakut	4.95238	1.88824	3.07121	3.37390	8.22752
Yokuts	5.97403	8.24077	7.26643	7.49261	4.77553
Yukaghir	4.84131	5.06905	6.78330	6.92800	9.40263
Yuki	5.41159	5.79183	6.42593	5.80575	2.40890
Yurok	7.77386	5.85701	7.52832	5.46418	3.06081
Zuni	3.05582	2.90947	3.71976	4.83045	6.89933

Matrix 3F. cont.

	Mohawk	Montagnais	Munsee	Nanaimo	Navajo
Achomawi	4.04511	4.84658	4.97615	0.78446	4.31795
Agua Caliente	9.46942	10.81214	11.39085	4.27479	11.03734
Aiwan	9.61193	5.39396	10.87934	8.27754	5.21494
Aleut	9.37589	5.36915	9.03570	8.96999	4.07802
Apache	2.90407	2.27897	3.14208	5.01740	0.60896
Arapaho	1.56210	3.88304	2.26123	5.01845	1.17517
Assiniboin	3.16363	1.39091	2.61799	9.48096	1.63241
Atsugewi	4.65084	5.17344	5.55656	1.53893	3.64824
Bannock	5.22579	3.95805	5.85107	3.72748	5.20426
Bella Coola	4.56439	4.63789	4.04585	7.36247	5.86229
Big Meadow	2.66032	4.78457	3.17897	2.42365	2.53317
Blood	4.90993	5.49247	4.53711	11.27469	7.12065
Caddo	2.07114	1.01644	1.71992	4.10435	2.16298
Carrier	3.50235	2.11149	4.05511	5.42755	2.73559
Catawba	1.96049	2.25602	1.94405	8.66107	4.39111
Cherokee	1.53865	1.73544	1.90296	3.69777	2.64886
Cheyenne	1.84539	4.13563	2.30594	9.35746	2.55510
Chickasaw	1.05888	1.33071	1.37123	4.87683	3.36307
Chilcotin	2.13200	0.46565	2.10545	5.21421	1.33374
Chippewa(MN)	0.17251	2.59988	0.52129	4.12064	3.71298
Chippewa(WI)	0.29333	2.20587	0.25481	5.09190	3.20962
Choctaw	2.98417	3.61530	3.37790	7.00094	7.35435
Chuvantsy	9.33057	4.27147	9.81091	7.64486	9.13589
Clallam	5.70024	4.12722	4.83289	10.08901	3.05811
C. Miwok	3.68787	3.80041	4.96982	3.16881	4.41374
Coahuilla	3.61666	5.33783	4.88245	1.23709	4.63735
Coeur d'Alene	3.09242	2.57260	3.18830	5.92722	0.70397
Comanche	4.16726	3.64655	3.89784	4.98641	2.49630
Concow	2.91391	1.01004	3.14717	3.79185	1.70900
Creek	4.87017	6.59918	5.99503	7.93862	6.73166
Crow	3.74001	6.63222	3.89699	4.75310	3.68466
E. Mono	1.47043	1.18597	1.39673	4.07223	1.38602
Eskimo(EC)	8.03277	2.96720	8.19189	5.27239	5.78796
Eskimo(WC)	3.80393	2.56796	4.83656	3.27133	1.64346
Even	9.03776	2.96030	8.74449	6.78676	6.75173
Evenk	8.26822	1.81180	7.65320	8.15977	6.05783
Flathead	5.41656	6.10073	6.45585	2.76422	4.10012
Haida	1.73441	2.63242	2.40835	1.40316	2.54722
Hoopa	3.87364	1.93896	4.48567	3.48265	1.96104
Itelman(KH)	4.70218	1.74572	4.33775	4.82408	3.58209
Itelman(SE)	6.60017	2.42862	6.00066	6.38765	4.61575
Kalapuya	5.77944	5.21291	6.82342	1.24290	5.68137
Kiowa	2.89042	3.58776	2.65654	5.45368	1.54571
Klamath	1.36853	2.41120	2.11486	2.25836	2.09928
Koryak	7.75594	3.10686	8.28730	5.29497	5.51918
Kutenai	7.08441	4.95426	6.91380	9.96135	1.40546
Kwakiutl	5.16924	3.69153	5.55561	5.74034	3.79327
Lillooet	3.47020	0.84770	3.13706	4.32335	4.07030
Makah	3.22484	1.91405	2.88321	4.92227	2.24450

Matrix 3F. cont.

	Mohawk	Montagnais	Munsee	Nanaimo	Navajo
Malecite	0.73318	0.97615	0.54727	4.60541	3.02877
Maritime Chukchi	8.72975	4.28491	9.86005	7.92555	5.59340
Menomini	0.87516	1.38597	0.75516	6.28303	2.37027
Micmac	0.79635	1.71200	0.74124	7.05040	1.96186
Mississagua	0.29891	2.53378	0.21527	5.42990	3.48294
Modoc	5.56988	7.63103	6.47175	0.97962	6.73427
Mohawk	0	3.03369	0.30769	4.99409	3.56342
Montagnais	3.03369	0	2.44818	7.00451	2.92267
Munsee	0.30769	2.44818	0	6.30545	4.04119
Nanaimo	4.99409	7.00451	6.30545	0	5.83820
Navajo	3.56342	2.92267	4.04119	5.83820	0
Nez Perce	2.31220	3.19532	3.07568	3.97818	0.49272
Nisqually	4.09427	3.81850	4.22610	1.65731	3.72985
Nivkhi	7.27338	1.89661	6.05890	11.72251	5.96559
Northern Hill Yokuts	3.27230	2.87158	3.62434	1.75452	4.04107
N. Paiute	2.95577	3.00300	3.47043	2.21087	1.75777
N. Pomo	3.99627	3.32431	4.03655	2.62171	4.54966
Ojibwa(GBay)	0.64994	3.40665	0.84893	4.65936	3.56966
Ojibwa (NWLSup)	8.62519	9.33846	8.66537	8.75219	7.78494
Okanagan	1.91215	1.33440	2.14520	4.70151	0.69057
Omaha	0.76050	2.63262	1.05748	5.01045	3.20446
Oneida	0.71017	3.25601	0.80246	6.00975	2.46420
Osage	1.51484	2.44646	1.37542	5.13618	1.88210
Pawnee	1.09722	1.92289	1.39075	4.25674	0.92209
Piegan	2.15647	3.35764	1.92288	7.74115	1.65154
Ponca	1.47634	4.17891	2.49313	3.88601	1.53189
Potawatomi	0.56430	1.99664	0.86064	3.78551	1.55821
Pueblo	2.85861	0.96541	2.20943	5.98006	3.62402
Puyallup	3.42027	2.89346	3.38070	2.71087	3.45711
Queets	6.22945	2.95530	5.40221	9.76933	3.35783
Quillayute	4.75203	3.11389	4.31025	4.58394	4.59963
Quinault	5.18272	2.58155	4.94229	5.37956	1.87340
Reindeer Chukchi	7.91069	3.97901	8.78464	6.23860	7.41001
Reindeer Evenk	18.30731	12.28423	19.91864	12.01339	17.34685
Reindeer Koryak	12.53732	7.15899	13.67004	8.03948	10.96342
San Luis Rey	6.99615	9.73950	8.69146	3.56351	10.56463
Sarcee	4.17003	3.29573	4.13000	7.09515	5.95554
Sauk	3.91385	5.09509	5.14442	6.12644	1.71432
Seneca	0.74876	3.26588	1.03977	4.81165	1.59052
Serrano	3.40010	6.06771	4.22807	4.32250	8.03292
Shawnee	1.68241	1.79218	2.20377	6.36718	1.13186
Shoshoni	1.61314	1.34710	1.97128	2.96314	1.16541
Shuswap	1.85731	0.54194	1.74376	4.58415	1.65869

Matrix 3F. cont.

	Mohawk	Montagnais	Munsee	Nanaimo	Navajo
Sioux(Santee)	0.63363	2.95974	0.71095	8.20661	4.12881
Sioux(Teton)	0.87567	2.93998	0.83336	6.93061	3.41766
Sioux(Yankton)	0.79113	2.61155	0.78212	7.26541	4.33020
S. Miwok	2.18317	2.66154	2.75144	2.00002	2.66952
Stalo	4.72014	1.55854	3.76978	9.02552	2.23409
Stockbridge	1.02945	2.70860	0.85841	8.99224	3.29183
Tahltan	1.93608	3.06216	2.71289	4.59540	0.42870
Taos	4.25662	1.62900	4.51907	6.85092	0.97236
Tenino	2.53419	1.36444	3.05998	3.10221	1.32070
Thompson	4.77649	0.61592	4.23204	8.28766	1.82943
Tonkawa	1.84123	2.34587	2.30902	3.74701	1.06051
Tsimshian	1.80203	2.57050	2.15845	2.66922	2.36465
Tundra Evenk	11.44182	3.70961	10.60426	9.83540	8.72210
Tuscarora	0.79896	2.48482	0.57234	6.06456	2.16871
Tututni	3.70712	2.82520	4.27284	3.43077	3.06908
Umatilla	7.88692	4.90677	8.47014	12.55091	1.93153
Ute	3.49292	1.76633	3.58120	3.41554	2.36602
Wasco	2.00781	1.33468	2.30126	4.09687	2.13990
Washo	1.66232	3.05105	2.37118	2.92077	2.61395
W. Mono	2.21541	1.70340	2.67424	2.43821	1.69575
Winnebago	0.96931	3.48586	1.02065	6.67475	4.37723
Yakut	4.13058	0.59553	3.44898	7.26864	4.30172
Yokuts	6.41362	6.72573	7.68098	3.94921	6.64672
Yukaghir	7.73265	2.06397	7.00707	7.99102	7.17350
Yuki	6.80370	3.80328	6.69410	3.46633	5.58242
Yurok	6.94480	6.20420	7.05620	5.10749	9.41410
Zuni	5.67564	1.45291	5.56075	6.20798	2.10507

Matrix 3F. cont.

	Nez Perce	Nisqually	Nivkhi	N.Hill Yokuts	N. Paiute
Achomawi	3.31351	1.04199	9.42823	0.43422	1.73836
Agua Caliente	9.43702	9.09459	18.57858	6.34235	5.12542
Aiwan	6.37942	8.26270	9.97679	5.13028	5.22857
Aleut	5.02584	3.85159	5.33713	5.42152	6.46819
Apache	1.22961	3.38032	6.69685	2.72921	0.72893
Arapaho	0.79483	4.45575	8.65385	4.22635	1.51603
Assiniboin	2.62335	5.99284	4.39928	5.23570	3.14990
Atsugewi	3.21201	1.37643	10.09404	0.73756	1.66711
Bannock	5.10278	4.82748	10.05472	2.38485	1.52253
Bella Coola	5.02766	2.95013	5.18811	4.12788	6.78157
Big Meadow	1.74019	1.08828	8.66428	1.79298	1.85550
Blood	6.50791	10.46962	9.56687	9.77132	5.74879
Caddo	2.19835	1.94443	4.58839	1.37941	0.90113
Carrier	2.90060	5.40689	6.92377	3.34195	1.57478
Catawba	3.58466	7.31809	5.12497	6.24914	4.52578
Cherokee	2.07630	3.48095	6.22348	2.17513	0.99325
Cheyenne	2.35681	8.12652	8.55973	7.16871	4.19027
Chickasaw	2.73939	3.81852	5.21960	1.91621	2.68285
Chilcotin	1.37082	2.68515	2.70651	2.18170	1.97005
Chippewa(MN)	2.49003	3.70439	7.17144	2.48955	2.29969
Chippewa(WI)	2.41782	3.22958	6.07773	2.40825	2.74535
Choctaw	6.06977	7.82884	8.46585	5.16720	4.62841
Chuvantsy	8.31357	6.92453	5.10746	5.29617	7.53833
Clallam	3.08440	4.69270	3.30949	7.58800	5.95196
C. Miwok	3.85371	4.35789	9.41977	1.58713	2.42020
Coahuilla	3.37088	3.36615	11.35482	2.08645	1.12375
Coeur d'Alene	0.55741	3.38849	4.29835	4.69911	2.19220
Comanche	2.86419	3.32346	8.19812	3.49586	0.88026
Concow	1.77483	1.90783	3.87902	1.06212	1.51215
Creek	6.23157	10.33313	14.09987	7.10724	4.13246
Crow	3.10677	4.07361	11.94720	5.02312	1.88350
E. Mono	1.30145	1.73307	4.41805	1.38643	1.25737
Eskimo(EC)	5.50956	3.36113	3.60674	3.07097	4.69438
Eskimo(WC)	1.61393	3.09085	6.53201	1.82923	1.33019
Even	6.82152	3.89359	3.16468	3.53878	5.70410
Evenk	6.46179	4.74332	1.95509	4.17750	5.50286
Flathead	3.90673	4.35131	12.91474	3.02264	0.83633
Haida	1.66986	1.25145	7.01044	0.48911	0.73705
Hoopa	1.83089	3.10849	5.38416	2.31133	0.96410
Itelman(KH)	3.51123	1.38686	2.84218	1.61791	3.38977
Itelman(SE)	4.89843	2.17791	2.90119	2.54223	4.71746
Kalapuya	4.93655	2.39947	10.51435	0.79400	1.98055
Kiowa	1.48126	3.00652	6.84884	4.23456	1.58706
Klamath	1.17857	1.63639	6.06594	1.04386	1.47728
Koryak	5.10774	4.46959	4.35229	3.77316	4.34977
Kutenai	2.35123	6.32901	6.32132	8.29462	4.12240
Kwakiutl	3.65605	2.87804	5.37713	2.63374	4.94768
Lillooet	3.98483	2.21665	3.77251	0.91162	2.25046

Matrix 3F. cont.

	Nez Perce	Nisqually	Nivkhi	N.Hill Yokuts	N. Paiute
Makah	1.95783	1.27817	2.92267	2.35881	2.96117
Malecite	2.38344	2.85194	4.40600	1.90823	1.97746
Maritime Chukchi	6.17264	7.78385	7.69415	4.91860	5.51591
Menomini	2.00482	3.57058	4.17649	2.90074	3.19355
Micmac	1.88011	4.69820	5.39018	3.72003	2.86490
Mississagua	2.66734	3.51398	6.53781	2.71223	3.00527
Modoc	5.55616	2.01585	13.73863	1.34216	2.45674
Mohawk	2.31220	4.09427	7.27338	3.27230	2.95577
Montagnais	3.19532	3.81850	1.89661	2.87158	3.00300
Munsee	3.07568	4.22610	6.05890	3.62434	3.47043
Nanaimo	3.97818	1.65731	11.72251	1.75452	2.21087
Navajo	0.49272	3.72985	5.96559	4.04107	1.75777
Nez Perce	0	2.77184	6.11131	3.44186	1.56243
Nisqually	2.77184	0	6.24764	1.08181	1.90162
Nivkhi	6.11131	6.24764	0	7.14600	7.78236
Northern Hill Yokuts	3.44186	1.08181	7.14600	0	1.45587
N. Paiute	1.56243	1.90162	7.78236	1.45587	0
N. Pomo	4.40405	2.09086	8.70081	0.69905	1.02146
Ojibwa(GBay)	1.97551	3.71194	6.59273	4.14684	2.82473
Ojibwa (NWLSup)	6.39021	8.41762	11.71337	10.94677	5.90345
Okanagan	0.52398	2.91418	4.04955	2.95015	1.27549
Omaha	2.82376	4.41982	8.33119	2.41435	1.93165
Oneida	1.95594	3.79809	7.22456	3.43867	3.10176
Osage	1.93609	3.40972	7.19662	2.83453	1.10823
Pawnee	0.76932	2.54807	5.80685	2.07406	1.23499
Piegan	1.92433	5.24582	7.44221	5.33889	2.45095
Ponca	0.97320	4.12189	9.63571	3.34955	1.25984
Potawatomi	0.83129	2.23462	5.40188	2.08185	1.60114
Pueblo	3.71684	2.43232	3.25838	1.66929	3.28035
Puyallup	2.91183	0.41506	5.56797	0.69915	2.21667
Queets	3.35958	4.60124	1.42993	7.05474	5.94329
Quillayute	3.99557	0.97057	3.93649	2.03168	4.16643
Quinault	1.88514	1.68372	2.87840	3.48441	3.03198
Reindeer Chukchi	7.24189	6.65972	7.67130	3.57221	5.23327
Reindeer Evenk	16.13289	13.84878	13.89923	10.98386	14.36347
Reindeer Koryak	10.18917	9.15562	9.18742	7.05764	8.33411
San Luis Rey	8.73107	7.96772	17.90608	4.95693	4.59263
Sarcee	5.69240	7.20567	8.56388	4.99679	3.00269
Sauk	1.46198	6.64577	9.76254	6.20358	2.32069
Seneca	0.93852	3.15006	7.10893	3.36785	2.04682
Serrano	6.70643	6.60257	13.61662	3.52444	3.35965
Shawnee	1.24557	4.91069	5.62815	3.58716	2.35660

Matrix 3F. cont.

	Nez Perce	Nisqually	Nivkhi	N.Hill Yokuts	N. Paiute
Shoshoni	0.85625	1.80744	4.94886	1.27937	0.56651
Shuswap	1.37759	2.03839	2.52764	1.91594	1.90866
Sioux(Santee)	3.60515	6.77847	7.73981	4.86014	4.24216
Sioux(Teton)	3.30070	5.40666	8.43519	3.59890	2.87208
Sioux(Yankton)	3.96129	5.96500	7.87310	3.66108	3.58242
S. Miwok	2.24797	1.63513	7.63184	0.33622	0.77694
Stalo	2.99879	3.78027	1.95159	4.72207	4.33657
Stockbridge	2.92553	6.02511	5.75071	5.26121	4.96738
Tahltan	0.20335	3.32488	6.63813	3.30883	1.71494
Taos	1.72559	4.00907	3.79016	3.41801	2.94727
Tenino	1.14212	2.24198	4.82274	1.45792	0.73664
Thompson	2.88281	4.39805	2.12831	3.93287	3.20625
Tonkawa	0.59132	2.94201	5.97200	3.00382	0.77520
Tsimshian	1.67431	1.04878	5.89524	0.86572	1.80600
Tundra Evenk	9.11337	5.72297	2.72874	5.64571	8.00850
Tuscarora	1.52830	3.55101	5.41080	4.02799	2.65481
Tututni	2.04966	1.61388	3.94941	2.17357	3.43247
Umatilla	3.18895	9.35498	6.18796	9.39142	6.59163
Ute	2.73826	1.99274	6.13947	0.70481	0.77109
Wasco	2.21324	2.71714	5.59165	1.00608	1.49602
Washo	2.19136	3.30128	8.99084	1.57488	0.66832
W. Mono	1.48975	1.63353	5.86429	0.65887	0.47909
Winnebago	4.05842	5.43186	9.34605	3.26177	3.37406
Yakut	4.17409	3.43117	1.01368	3.12346	4.62057
Yokuts	6.02986	6.78103	13.87752	4.29806	2.39118
Yukaghir	6.97829	4.37410	1.64696	4.09675	6.39966
Yuki	5.87753	2.26215	8.16424	1.04243	2.11485
Yurok	8.92691	3.96352	11.03365	1.65902	5.91895
Zuni	2.81460	2.86936	2.68065	2.74909	3.09167

Matrix 3F. cont.

	N. Pomo	Ojibwa (GBay)	Ojibwa (NWLSup)	Okanagan	Omaha
Achomawi	1.56712	4.77586	11.40078	3.71816	3.48308
Agua Caliente	5.30493	9.19783	10.41391	8.74168	7.54817
Aiwan	6.06975	11.37952	17.77159	5.56417	6.87200
Aleut	7.58665	9.85688	16.67980	5.35260	9.31289
Apache	2.33171	3.25219	7.41913	0.78148	1.70113
Arapaho	4.13862	1.55408	6.00225	0.97946	1.51606
Assiniboin	4.83593	3.55041	8.59932	1.19468	2.41623
Atsugewi	1.68911	5.66336	12.39486	3.80611	3.61856
Bannock	1.27014	5.56557	8.46516	3.64410	2.98679
Bella Coola	6.79795	5.45127	15.96985	5.16538	6.13398
Big Meadow	2.86068	3.06527	9.74356	2.64458	2.95749
Blood	7.79496	3.42511	3.72762	4.29182	4.94281
Caddo	1.08816	2.25270	7.02833	1.02373	1.35628
Carrier	2.77319	3.77321	7.33072	1.49890	2.01919
Catawba	6.36702	1.68170	6.65799	1.90788	2.61240
Cherokee	1.88115	1.57932	5.85400	0.96261	0.97085
Cheyenne	7.19602	2.24177	8.23464	1.90547	2.08484
Chickasaw	2.93775	2.31439	10.98261	1.70241	0.87210
Chilcotin	3.10865	2.53112	8.74825	0.48154	2.03260
Chippewa(MN)	2.93032	0.77856	8.07749	1.79840	0.50872
Chippewa(WI)	3.18766	1.26580	9.90889	1.84059	0.70825
Choctaw	4.86034	3.23686	8.58147	3.96994	2.66766
Chuvantsy	7.28085	9.42817	14.97471	6.42793	9.07519
Clallam	8.71335	4.40352	8.09436	2.91117	7.41838
Cmiwok	2.52753	5.26057	13.05100	3.38526	2.31531
Coahuilla	1.83972	3.51662	6.82358	3.22334	2.74707
Coeur d'Alene	5.15351	2.07588	4.78339	0.44138	3.76525
Comanche	1.93033	3.47212	4.62379	2.04245	2.95913
Concow	2.07418	3.62948	10.10685	1.09799	2.27673
Creek	5.56912	5.24313	8.42300	4.82509	3.16830
Crow	3.64683	2.76518	4.22968	3.30271	3.52036
E. Mono	1.96212	2.03845	8.58785	0.76093	1.24609
Eskimo(EC)	4.69620	7.81025	12.19784	4.28626	7.64248
Eskimo(WC)	2.74105	4.43720	9.81628	1.42654	2.79369
Even	5.08982	9.02488	13.94667	5.18874	8.44274
Evenk	5.17719	8.11817	12.41586	4.27726	7.57212
Flathead	1.71818	5.32637	6.93372	3.66265	3.40455
Haida	1.18879	2.22076	8.31714	1.54749	1.41423
Hoopa	2.39840	3.52608	6.20285	0.98336	3.00040
Itelman(KH)	3.20967	5.15747	12.13254	2.77587	4.69779
Itelman(SE)	4.26979	7.13872	14.24347	4.01716	6.41359
Kalapuya	1.30072	6.51049	11.81373	4.67428	4.26239
Kiowa	3.64317	2.01480	4.41421	1.31570	3.00994
Klamath	2.43326	2.04682	9.40714	1.28432	1.56292
Koryak	5.04381	7.24785	10.39178	3.79676	7.26293
Kutenai	7.99965	5.59309	5.80616	2.24857	7.11305
Kwakiutl	5.40519	6.68372	16.86240	3.93974	5.33331
Lillooet	1.37502	4.15720	10.52471	2.36001	2.58855

Matrix 3F. cont.

	N. Pomo	Ojibwa (GBay)	Ojibwa (NWLSup)	Okanagan	Omaha
Makah	3.86087	3.24094	9.68820	1.72502	3.94760
Malecite	2.24817	1.17894	7.84264	1.16539	0.80755
Maritime Chukchi	6.30154	10.07500	16.48061	5.01175	6.80239
Menomini	4.10462	1.86968	10.66502	1.34139	1.34347
Micmac	4.22408	1.72687	9.54504	1.12345	0.85558
Mississagua	3.42538	1.30736	10.11169	2.11081	0.75789
Modoc	1.59256	6.23219	11.99001	6.06236	4.53950
Mohawk	3.99627	0.64994	8.62519	1.91215	0.76050
Montagnais	3.32431	3.40665	9.33846	1.33440	2.63262
Munsee	4.03655	0.84893	8.66537	2.14520	1.05748
Nanaimo	2.62171	4.65936	8.75219	4.70151	5.01045
Navajo	4.54966	3.56966	7.78494	0.69057	3.20446
Nez Perce	4.40405	1.97551	6.39021	0.52398	2.82376
Nisqually	2.09086	3.71194	8.41762	2.91418	4.41982
Nivkhi	8.70081	6.59273	11.71337	4.04955	8.33119
Northern Hill Yokuts	0.69905	4.14684	10.94677	2.95015	2.41435
N. Paiute	1.02146	2.82473	5.90345	1.27549	1.93165
N. Pomo	0	4.57714	9.24470	3.35888	2.29642
Ojibwa(GBay)	4.57714	0	4.91633	1.61229	2.03725
Ojibwa (NWLSup)	9.24470	4.91633	0	5.71891	9.73894
Okanagan	3.35888	1.61229	5.71891	0	1.99507
Omaha	2.29642	2.03725	9.73894	1.99507	0
Oneida	4.32691	1.76394	10.57698	1.98620	1.20192
Osage	2.10239	1.78400	6.55992	1.20811	0.83959
Pawnee	2.64290	1.74597	8.37381	0.61635	0.92601
Piegan	4.62395	2.08209	6.31924	1.40868	1.97035
Ponca	3.48029	1.88337	7.23169	1.32136	1.17490
Potawatomi	2.96990	0.94503	7.75612	0.71226	1.05027
Pueblo	2.65930	3.96557	12.42959	2.45465	2.55457
Puyallup	1.94132	3.95556	11.02918	2.80937	3.41899
Queets	8.41383	4.80545	8.03584	2.63351	7.79668
Quillayute	3.90236	4.98259	12.36125	3.72639	5.46782
Quinault	4.76637	4.39593	8.15633	1.77717	5.78572
Reindeer Chukchi	4.68270	9.07885	15.49777	5.55634	6.17534
Reindeer Evenk	13.71065	18.77840	24.36872	14.50798	17.29326
Reindeer Koryak	8.44389	12.26476	15.29147	8.44004	11.44117
San Luis Rey	4.15115	7.38127	11.11331	8.06809	5.39043
Sarcee	3.30300	3.88331	6.03069	3.34401	2.76862
Sauk	5.96776	3.32868	5.35641	1.58048	3.54864
Seneca	3.94513	1.02151	7.50052	1.15723	1.34651
Serrano	2.62786	4.32636	10.19865	5.45516	2.06551
Shawnee	4.32264	2.61326	9.66268	0.73764	1.31147

Matrix 3F. cont.

	N. Pomo	Ojibwa (GBay)	Ojibwa (NWLSup)	Okanagan	Omaha
Shoshoni	1.69592	1.80357	6.88705	0.37222	1.25709
Shuswap	2.88967	1.99932	7.99650	0.53628	2.10037
Sioux(Santee)	5.19152	1.97563	11.01359	2.56771	0.71294
Sioux(Teton)	3.36260	2.27586	10.54306	2.39549	0.25616
Sioux(Yankton)	3.75033	2.38145	11.52190	2.72324	0.32273
S. Miwok	0.78785	3.17012	9.91014	1.96302	1.22810
Stalo	5.60994	4.73362	10.46363	2.02457	4.95662
Stockbridge	6.41509	2.21350	11.88652	2.31021	1.82900
Tahltan	4.29016	2.28762	8.23463	0.67129	2.08071
Taos	4.71478	5.07505	11.69993	1.28309	3.64690
Tenino	1.95437	2.68832	7.28300	0.53910	1.91531
Thompson	4.34144	5.05124	9.98581	1.38060	3.97284
Tonkawa	2.95509	1.26106	4.28468	0.27049	1.84006
Tsimshian	2.26818	2.62733	10.56751	1.81960	1.97845
Tundra Evenk	7.12431	11.17842	15.61175	6.88959	10.89557
Tuscarora	4.36689	0.66246	6.46717	1.10920	1.68962
Tututni	4.63621	3.83627	10.91509	2.25376	4.70447
Umatilla	10.77271	8.08594	12.91816	3.11708	7.65581
Ute	0.61294	4.28438	9.66330	1.82111	1.91320
Wasco	1.67220	3.35546	11.14284	1.44407	1.00575
Washo	1.29057	2.44557	8.08268	1.70551	0.54496
W. Mono	1.04718	2.76198	8.29636	1.00204	1.37215
Winnebago	3.31384	2.81057	12.44192	3.23735	0.31687
Yakut	4.60859	4.46615	11.59136	2.51093	4.47806
Yokuts	2.90900	6.33464	7.80888	5.02963	4.26883
Yukaghir	5.67331	7.63497	13.30949	4.87579	7.79014
Yuki	0.65108	7.35398	11.58533	4.65550	4.70140
Yurok	3.03642	9.40346	20.58226	8.17611	5.51365
Zuni	3.98922	6.04243	11.53552	1.99239	5.00191

Matrix 3F. cont.

	Oneida	Osage	Pawnee	Piegan	Ponca
Achomawi	4.09456	3.89479	2.65394	6.42969	3.31627
Agua Caliente	12.76030	8.89365	9.40086	12.24297	6.96130
Aiwan	9.47447	7.98892	5.92042	9.97876	6.66653
Aleut	6.51765	7.43257	4.99893	8.05422	8.60032
Apache	2.21871	0.69210	0.65393	1.15912	1.13363
Arapaho	1.53305	0.89121	0.78355	0.78662	0.21054
Assiniboin	2.50795	1.38678	1.52103	1.04574	2.95676
Atsugewi	3.96538	3.68118	2.46122	5.97717	3.19077
Bannock	6.71465	3.35974	3.97211	5.84574	3.65520
Bella Coola	3.09612	5.90260	3.77616	6.86829	7.22201
Big Meadow	1.66124	2.28243	1.29819	3.39019	2.13783
Blood	7.22285	3.99001	6.03802	3.78642	5.36831
Caddo	2.06788	0.65209	0.90127	1.85191	2.26606
Carrier	4.63554	2.25381	2.30137	3.40326	2.17921
Catawba	3.69398	3.01113	3.00117	3.03327	3.38781
Cherokee	2.76276	1.15875	1.31757	2.35714	1.37160
Cheyenne	2.10542	2.08898	1.92130	1.25647	1.53399
Chickasaw	1.79526	2.22187	1.20929	3.57984	2.30315
Chilcotin	1.96866	1.81600	0.74907	2.47462	2.42012
Chippewa(MN)	1.25901	1.39751	1.18358	2.48932	1.44664
Chippewa(WI)	0.38008	1.24612	0.75203	2.07974	1.92809
Choctaw	5.92561	4.34776	4.70757	5.99564	4.44962
Chuvantsy	11.36833	10.47849	8.22886	13.15705	10.31692
Clallam	4.17512	4.61674	3.72605	3.54278	6.32563
Cmiwok	4.64019	4.16117	2.78412	6.54170	2.82858
Coahuilla	5.22679	3.20228	3.19954	5.39701	2.08239
Coeur d'Alene	2.68213	1.96331	1.38030	1.47475	2.16860
Comanche	3.90494	0.88248	2.21957	1.62907	2.55371
Concow	2.65154	2.30695	1.03569	3.67322	2.65474
Creek	7.29568	4.30271	5.34924	5.50697	3.31075
Crow	3.59786	1.45860	2.87426	1.84185	2.22292
E. Mono	0.96734	0.84398	0.24424	1.71022	1.71569
Eskimo(EC)	8.62748	7.52605	5.61648	9.80632	8.06552
Eskimo(WC)	3.93025	3.10190	1.63417	4.47710	2.01865
Even	9.30033	8.17919	6.39174	10.57376	9.60212
Evenk	8.67317	7.09499	5.84457	8.96043	9.03391
Flathead	6.14780	2.84458	3.58970	4.75969	2.37657
Haida	2.15746	1.74673	0.98138	3.50733	1.44404
Hoopa	4.68256	2.60232	2.05878	3.85117	2.35614
Itelman(KH)	3.93762	4.19380	2.62392	5.80365	5.60575
Itelman(SE)	5.41757	5.66085	3.90868	7.35063	7.52531
Kalapuya	6.54795	4.98881	4.13334	8.15800	4.46274
Kiowa	2.22031	0.80938	1.40187	0.67899	1.97858
Klamath	1.54044	2.11849	0.69776	3.44150	1.41894
Koryak	9.06733	7.36418	5.67052	9.42519	7.18241
Kutenai	5.67488	3.84373	3.69299	2.55704	4.56434
Kwakiutl	3.75705	5.80274	2.91960	7.19928	5.60267
Lillooet	3.86893	2.83211	2.31879	4.94726	4.46359
Makah	2.22442	2.89225	1.53913	3.58321	4.04155

Matrix 3F. cont.

	Oneida	Osage	Pawnee	Piegan	Ponca
Malecite	1.41012	1.10548	0.94292	2.19798	2.16893
Maritime Chukchi	9.34854	8.21201	5.92113	10.23106	6.96374
Menomini	0.57324	1.70985	0.66171	2.14689	2.35559
Micmac	0.55808	1.02187	0.54201	1.10457	1.59675
Mississagua	0.34109	1.28003	0.89260	2.05546	2.04415
Modoc	5.72211	4.70596	4.42344	7.76180	4.53619
Mohawk	0.71017	1.51484	1.09722	2.15647	1.47634
Montagnais	3.25601	2.44646	1.92289	3.35764	4.17891
Munsee	0.80246	1.37542	1.39075	1.92288	2.49313
Nanaimo	6.00975	5.13618	4.25674	7.74115	3.88601
Navajo	2.46420	1.88210	0.92209	1.65154	1.53189
Nez Perce	1.95594	1.93609	0.76932	1.92433	0.97320
Nisqually	3.79809	3.40972	2.54807	5.24582	4.12189
Nivkhi	7.22456	7.19662	5.80685	7.44221	9.63571
Northern Hill Yokuts	3.43867	2.83453	2.07406	5.33889	3.34955
N. Paiute	3.10176	1.10823	1.23499	2.45095	1.25984
N. Pomo	4.32691	2.10239	2.64290	4.62395	3.48029
Ojibwa(GBay)	1.76394	1.78400	1.74597	2.08209	1.88337
Ojibwa (NWLSup)	10.57698	6.55992	8.37381	6.31924	7.23169
Okanagan	1.98620	1.20811	0.61635	1.40868	1.32136
Omaha	1.20192	0.83959	0.92601	1.97035	1.17490
Oneida	0	1.29090	0.60268	1.51612	1.61860
Osage	1.29090	0	0.67449	0.52680	1.15888
Pawnee	0.60268	0.67449	0	1.17590	0.78407
Piegan	1.51612	0.52680	1.17590	0	1.57768
Ponca	1.61860	1.15888	0.78407	1.57768	0
Potawatomi	0.51676	0.99537	0.20320	1.55992	1.00454
Pueblo	2.25185	2.59735	1.73275	4.02448	4.56215
Puyallup	2.69500	2.99235	1.87519	4.82128	3.97814
Queets	5.36867	5.40283	4.18093	4.76343	7.04403
Quillayute	3.81862	4.73363	3.15495	6.32935	6.24450
Quinault	4.06882	3.81570	2.46246	4.20257	4.77013
Reindeer Chukchi	9.51202	8.03922	6.33959	10.98050	7.48758
Reindeer Evenk	21.32767	20.06238	16.68004	24.16143	18.04561
Reindeer Koryak	15.18402	12.81884	10.80634	15.93894	11.71337
San Luis Rey	10.06877	7.26464	7.80476	10.65085	5.70485
Sarcee	6.36226	2.88444	4.37183	4.32831	4.10124
Sauk	4.53725	2.86177	2.54778	2.60448	1.16132
Seneca	0.33235	0.85522	0.39642	0.90853	0.83390
Serrano	5.77301	3.82563	4.69473	6.45450	3.65334
Shawnee	1.56327	1.67375	0.62721	1.84740	1.18673
Shoshoni	1.76735	0.98785	0.40027	1.99835	1.10961
Shuswap	1.84570	1.76869	0.79836	2.53174	2.53914

Matrix 3F. cont.

	Oneida	Osage	Pawnee	Piegan	Ponca
Sioux(Santee)	1.17962	1.84176	1.66095	2.16574	2.20029
Sioux(Teton)	0.84750	0.80577	1.09323	1.44452	1.66719
Sioux(Yankton)	1.30587	1.55030	1.57037	2.44947	2.29173
S. Miwok	2.23826	1.65050	1.02672	3.58750	1.67459
Stalo	3.17091	3.21928	2.31746	3.10166	5.39137
Stockbridge	0.63484	2.32784	1.41242	2.08993	2.87460
Tahltan	1.31627	1.64945	0.41016	1.66919	0.68201
Taos	3.17264	3.25451	1.48055	3.61625	3.26224
Tenino	2.87773	1.77105	0.94803	2.93905	1.60283
Thompson	4.01757	2.93379	2.16567	3.30352	4.54649
Tonkawa	2.28662	0.97455	0.84532	1.32126	0.78942
Tsimshian	1.29100	2.11415	0.78335	3.48923	2.19269
Tundra Evenk	11.59428	10.20589	8.54123	12.48854	12.58813
Tuscarora	0.67129	0.89760	0.82857	0.76469	1.76372
Tututni	3.60164	4.80612	2.37607	6.04786	4.19696
Umatilla	6.46843	6.52599	4.36269	5.26778	5.49421
Ute	3.20845	1.63748	1.39361	3.46494	2.63790
Wasco	1.84922	1.63021	0.72916	3.11422	1.96266
Washo	2.26011	1.00859	1.05167	2.50835	0.76009
W. Mono	2.30909	1.37124	0.73249	2.89893	1.47940
Winnebago	0.97899	1.40295	1.46689	2.46432	2.15068
Yakut	4.20996	4.43618	3.07225	5.61052	6.20218
Yokuts	8.59953	4.79185	5.59684	7.22586	3.93158
Yukaghir	8.33651	7.69058	6.15466	9.72917	9.72672
Yuki	6.74140	4.19664	4.27204	7.15654	5.94513
Yurok	6.63967	7.20111	5.89142	10.92999	8.38298
Zuni	4.71011	4.16855	2.53332	5.18086	5.05307

Matrix 3F. cont.

	Potawatomi	Pueblo	Puyallup	Queets	Quillayute
Achomawi	2.59542	3.24672	1.05054	8.28022	2.63273
Agua Caliente	9.34068	12.52775	10.45930	18.41246	14.14163
Aiwan	7.16914	6.63873	7.16934	11.12253	8.99255
Aleut	5.60884	3.73509	2.98517	3.73600	2.23495
Apache	1.40886	2.83899	2.97586	4.83126	4.69970
Arapaho	1.00352	4.63147	4.39919	5.76568	6.37104
Assiniboin	2.15116	2.74361	4.93917	3.63150	5.84637
Atsugewi	2.80169	3.35407	1.15408	8.44784	2.90775
Bannock	4.44432	5.17362	4.98524	10.43096	7.57237
Bella Coola	3.16496	1.99531	1.75923	4.36447	0.92690
Big Meadow	1.25480	2.90885	0.96494	5.76247	2.19281
Blood	5.73501	8.99344	11.03127	8.77939	12.79420
Caddo	1.08273	1.11678	1.55534	4.05364	2.65578
Carrier	2.77149	4.19279	5.17171	7.03418	7.18105
Catawba	2.50795	4.66807	6.92142	5.37151	7.83360
Cherokee	1.27711	2.94554	3.41703	5.86973	5.14300
Cheyenne	2.06920	5.76194	7.36777	6.59494	9.09110
Chickasaw	1.01545	1.48002	2.68810	5.95984	3.79925
Chilcotin	0.85240	1.01152	1.94937	2.52426	2.42145
Chippewa(MN)	0.70297	2.66913	3.17547	6.63382	4.70319
Chippewa(WI)	0.42534	1.47803	2.21505	5.38285	3.24797
Choctaw	4.12749	5.78996	7.55870	10.08655	9.38125
Chuvantsy	7.74128	5.94772	6.73765	8.40643	6.58877
Clallam	3.53119	4.36515	4.66672	0.55776	3.74242
C. Miwok	3.01242	3.88075	3.63393	10.00353	5.77241
Coahuilla	3.10588	5.83796	4.10748	10.05859	6.72058
Coeur d'Alene	1.43647	3.76192	3.67853	1.70105	4.21878
Comanche	2.78621	4.23796	3.74993	5.80654	5.61088
Concow	1.29018	0.99753	1.21485	3.83884	1.97459
Creek	5.66352	9.34997	10.35435	13.81829	13.78708
Crow	3.01848	6.54824	4.92800	7.83494	7.19342
E. Mono	0.37530	0.77440	1.03800	3.44485	1.91626
Eskimo(EC)	5.50247	3.63177	3.39528	5.09942	3.16950
Eskimo(WC)	2.08383	3.22801	2.78841	5.90418	4.31556
Even	6.36640	3.33923	3.60081	5.22385	3.03940
Evenk	5.91799	3.00638	4.29705	4.23663	3.73879
Flathead	4.23476	6.76883	5.06429	10.85408	8.16971
Haida	0.87282	2.11517	1.13349	6.03260	2.67049
Hoopa	2.32620	3.55061	3.39506	4.89548	4.79156
Itelman(KH)	2.57921	0.75863	0.69682	3.07250	0.41595
Itelman(SE)	4.00508	1.25176	1.32393	3.43858	0.68985
Kalapuya	4.29729	4.47013	2.55837	10.42407	4.59141
Kiowa	1.59911	3.86981	3.34393	3.60288	4.53596
Klamath	0.49563	1.87162	1.22165	5.07707	2.36478
Koryak	5.56567	4.86016	4.80050	5.77818	5.05377
Kutenai	4.41281	6.77535	6.78283	2.66371	7.34175
Kwakiutl	3.00760	1.93463	1.56154	5.11496	1.49480
Lillooet	2.34289	0.74474	1.48983	5.05188	2.12944
Makah	1.36832	1.02855	0.80465	1.74280	0.56093

Matrix 3F. cont.

	Potawatomi	Pueblo	Puyallup	Queets	Quillayute
Malecite	0.64362	1.18877	2.19609	4.47331	3.13066
Maritime Chukchi	6.64850	5.95881	6.85900	9.61900	8.08607
Menomini	0.49252	1.06195	2.32108	3.76787	2.85083
Micmac	0.62243	1.97352	3.50269	4.53780	4.57330
Mississagua	0.55026	1.69636	2.46043	5.72096	3.53682
Modoc	4.41237	5.38922	2.36255	11.94156	4.67929
Mohawk	0.56430	2.85861	3.42027	6.22945	4.75203
Montagnais	1.99664	0.96541	2.89346	2.95530	3.11389
Munsee	0.86064	2.20943	3.38070	5.40221	4.31025
Nanaimo	3.78551	5.98006	2.71087	9.76933	4.58394
Navajo	1.55821	3.62402	3.45711	3.35783	4.59963
Nez Perce	0.83129	3.71684	2.91183	3.35958	3.99557
Nisqually	2.23462	2.43232	0.41506	4.60124	0.97057
Nivkhi	5.40188	3.25838	5.56797	1.42993	3.93649
Northern Hill Yokuts	2.08185	1.66929	0.69915	7.05474	2.03168
N. Paiute	1.60114	3.28035	2.21667	5.94329	4.16643
N. Pomo	2.96990	2.65930	1.94132	8.41383	3.90236
Ojibwa(GBay)	0.94503	3.96557	3.95556	4.80545	4.98259
Ojibwa (NWLSup)	7.75612	12.42959	11.02918	8.03584	12.36125
Okanagan	0.71226	2.45465	2.80937	2.63351	3.72639
Omaha	1.05027	2.55457	3.41899	7.79668	5.46782
Oneida	0.51676	2.25185	2.69500	5.36867	3.81862
Osage	0.99537	2.59735	2.99235	5.40283	4.73363
Pawnee	0.20320	1.73275	1.87519	4.18093	3.15495
Piegan	1.55992	4.02448	4.82128	4.76343	6.32935
Ponca	1.00454	4.56215	3.97814	7.04403	6.24450
Potawatomi	0	1.75011	1.75408	3.89520	2.77338
Pueblo	1.75011	0	1.11528	3.94028	1.27091
Puyallup	1.75408	1.11528	0	4.64944	0.48936
Queets	3.89520	3.94028	4.64944	0	3.42139
Quillayute	2.77338	1.27091	0.48936	3.42139	0
Quinault	2.49888	2.49783	1.80897	1.08923	1.45897
Reindeer Chukchi	6.55541	5.27271	5.99781	10.51668	7.23504
Reindeer Evenk	16.23767	14.28629	13.99855	18.41374	14.37309
Reindeer Koryak	10.60726	9.70505	9.64994	12.21743	10.36510
San Luis Rey	7.54802	10.48058	8.76820	17.88364	12.40365
Sarcee	4.45911	5.78485	7.30478	9.27142	9.49126
Sauk	2.94529	7.42358	7.12862	6.96602	9.36255
Seneca	0.29050	2.89729	2.72879	4.55201	4.00147
Serrano	4.46928	6.48753	6.45547	14.01119	9.52887
Shawnee	0.96776	2.70429	3.89922	4.81085	5.22608
Shoshoni	0.50926	1.69925	1.58887	3.93575	2.83027
Shuswap	0.67866	0.86616	1.51056	2.22737	1.83782

Matrix 3F. cont.

	Potawatomi	Pueblo	Puyallup	Queets	Quillayute
Sioux(Santee)	1.50773	3.32446	5.35649	7.49696	6.88322
Sioux(Teton)	1.28727	2.69905	4.09166	7.63621	5.96645
Sioux(Yankton)	1.54728	2.60371	4.47580	8.05452	6.17644
S. Miwok	1.22412	1.86995	1.15255	6.90514	2.90806
Stalo	2.60418	1.58059	2.85546	1.09669	2.33334
Stockbridge	1.20856	2.55252	4.46306	4.97509	5.08435
Tahltan	0.66206	3.29293	2.93961	4.17170	4.24263
Taos	2.10871	2.14083	2.96988	3.20320	3.46700
Tenino	1.15829	2.16652	2.09624	4.21842	3.34087
Thompson	2.75806	1.74656	3.47210	2.32531	3.63106
Tonkawa	0.89032	3.53133	3.26591	3.96243	4.72170
Tsimshian	0.65285	1.19941	0.43304	4.71627	1.28572
Tundra Evenk	8.50995	4.38388	5.32960	5.45451	4.14559
Tuscarora	0.53199	2.59052	3.16111	3.42687	3.95697
Tututni	1.91436	2.27575	1.39930	3.31786	1.31240
Umatilla	5.29184	7.09273	8.49144	4.41122	8.87975
Ute	1.95752	1.51585	1.43619	5.87387	2.93832
Wasco	1.06744	1.05041	1.63197	5.67583	2.97295
Washo	1.31509	3.21887	2.96862	7.95433	5.33350
W. Mono	0.97917	1.67393	1.30924	5.16230	2.77758
Winnebago	1.57112	2.65371	3.89909	8.89545	5.83900
Yakut	2.77572	0.87370	2.46933	2.49161	1.84426
Yokuts	5.96650	8.51400	7.55656	13.41478	10.87095
Yukaghir	5.77205	2.64198	3.84950	4.20020	2.87241
Yuki	4.80540	3.01672	2.11408	8.52098	3.57384
Yurok	5.92928	3.15418	2.48948	12.58571	3.65666
Zuni	3.03021	1.72636	2.17124	2.71084	2.17986

Matrix 3F. cont.

	Quinault	Reindeer Chukchi	Reindeer Evenk	Reindeer Koryak	San Luis Rey
Achomawi	3.95480	4.67558	11.47112	7.84721	4.85868
Agua Caliente	13.62346	5.91007	10.94485	6.76853	0.56075
Aiwan	7.45216	1.94834	7.36151	4.64117	9.17612
Aleut	1.63977	9.93066	17.65234	13.35358	19.25853
Apache	2.78244	6.23509	16.99222	10.37445	7.74666
Arapaho	4.26738	8.72222	19.94129	12.86201	7.34125
Assiniboin	3.62379	7.88385	19.62570	12.43962	11.95554
Atsugewi	3.83306	5.45673	13.29714	9.28678	6.08012
Bannock	6.98865	2.93345	10.57412	5.50563	2.26241
Bella Coola	3.07545	10.77588	19.36879	15.32485	16.25141
Big Meadow	2.64759	8.85850	18.61174	13.18328	8.51491
Blood	9.81769	11.80506	22.98698	14.31526	9.28279
Caddo	2.37724	5.20554	15.00759	8.96455	6.85778
Carrier	5.27250	3.10181	11.42687	5.85481	4.67967
Catawba	6.21790	7.10368	16.24669	9.98500	8.68928
Cherokee	4.27033	4.10824	12.85905	7.11764	4.03151
Cheyenne	6.62434	10.27974	22.39041	15.05327	10.34571
Chickasaw	4.46491	3.58232	11.94483	7.67189	6.25019
Chilcotin	1.57397	4.14504	12.46630	7.42956	8.96642
Chippewa(MN)	5.22651	6.29455	15.99048	10.49329	5.22880
Chippewa(WI)	4.13270	7.37281	17.99023	12.42206	8.02053
Choctaw	9.29929	4.73256	12.33293	7.32535	4.10434
Chuvantsy	6.83175	1.27190	2.32466	0.96205	9.62331
Clallam	1.46336	13.53626	23.63394	16.43154	18.95877
C. Miwok	6.32029	1.77935	8.28797	5.16472	3.39062
Coahuilla	6.36287	4.66222	11.91446	6.95385	1.37819
Coeur d'Alene	1.38592	8.52114	17.93965	11.05467	11.08830
Comanche	3.74571	8.81274	20.28724	12.40134	7.50861
Concow	1.71349	2.89656	10.39082	6.10642	7.56722
Creek	11.77631	6.98699	16.77604	10.32458	3.33738
Crow	5.57832	12.99008	25.60873	17.05500	7.83003
E. Mono	1.76895	5.58605	15.34030	9.77615	8.10793
Eskimo(EC)	3.01439	2.10203	5.01985	2.46697	9.94080
Eskimo(WC)	3.07223	2.42917	9.18577	5.06476	5.79739
Even	3.32264	2.73616	5.99885	3.46439	11.87965
Evenk	3.29238	2.89368	7.27440	3.85782	12.22923
Flathead	6.72775	6.18804	15.32344	9.12969	2.79078
Haida	3.08047	4.09020	12.01314	7.40954	4.23837
Hoopa	2.89028	2.70986	9.45216	4.39483	5.22529
Itelman(KH)	1.18461	4.74674	11.50048	7.67003	11.25731
Itelman(SE)	1.54082	5.48385	11.94476	8.36212	13.68570
Kalapuya	5.65205	2.82416	8.50777	5.26366	3.13021
Kiowa	2.50694	10.70876	22.46235	14.46857	10.07073
Klamath	2.65985	4.37756	12.13345	7.84560	5.94088
Koryak	3.93220	1.45799	4.11804	1.27205	8.19365
Kutenai	2.62272	12.33119	23.11172	14.85903	16.04787
Kwakiutl	2.55727	5.69264	12.40552	9.60243	12.93878
Lillooet	3.02895	2.66288	9.96968	5.79018	6.91831

Matrix 3F. cont.

	Quinault	Reindeer Chukchi	Reindeer Evenk	Reindeer Koryak	San Luis Rey
Makah	0.55279	7.15335	15.49766	10.45902	12.04852
Malecite	3.46877	5.18768	14.56405	9.07031	6.61504
Maritime Chukchi	6.83170	0.86679	4.86291	2.63415	8.82319
Menomini	3.07643	6.69101	16.72727	11.44129	10.06670
Micmac	3.96043	7.46585	18.76130	12.55849	9.57817
Mississagua	4.50909	8.08343	19.12185	13.37061	8.34353
Modoc	6.62101	7.52210	15.57168	11.23360	4.28501
Mohawk	5.18272	7.91069	18.30731	12.53732	6.99615
Montagnais	2.58155	3.97901	12.28423	7.15899	9.73950
Munsee	4.94229	8.78464	19.91864	13.67004	8.69146
Nanaimo	5.37956	6.23860	12.01339	8.03948	3.56351
Navajo	1.87340	7.41001	17.34685	10.96342	10.56463
Nez Perce	1.88514	7.24189	16.13289	10.18917	8.73107
Nisqually	1.68372	6.65972	13.84878	9.15562	7.96772
Nivkhi	2.87840	7.67130	13.89923	9.18742	17.90608
Northern Hill Yokuts	3.48441	3.57221	10.98386	7.05764	4.95693
N. Paiute	3.03198	5.23327	14.36347	8.33411	4.59263
N. Pomo	4.76637	4.68270	13.71065	8.44389	4.15115
Ojibwa(GBay)	4.39593	9.07885	18.77840	12.26476	7.38127
Ojibwa (NWLSup)	8.15633	15.49777	24.36872	15.29147	11.11331
Okanagan	1.77717	5.55634	14.50798	8.44004	8.06809
Omaha	5.78572	6.17534	17.29326	11.44117	5.39043
Oneida	4.06882	9.51202	21.32767	15.18402	10.06877
Osage	3.81570	8.03922	20.06238	12.81884	7.26464
Pawnee	2.46246	6.33959	16.68004	10.80634	7.80476
Piegan	4.20257	10.98050	24.16143	15.93894	10.65085
Ponca	4.77013	7.48758	18.04561	11.71337	5.70485
Potawatomi	2.49888	6.55541	16.23767	10.60726	7.54802
Pueblo	2.49783	5.27271	14.28629	9.70505	10.48058
Puyallup	1.80897	5.99781	13.99855	9.64994	8.76820
Queets	1.08923	10.51668	18.41374	12.21743	17.88364
Quillayute	1.45897	7.23504	14.37309	10.36510	12.40365
Quinault	0	7.50423	14.99624	9.60252	13.17255
Reindeer Chukchi	7.50423	0	3.28663	1.42715	6.09557
Reindeer Evenk	14.99624	3.28663	0	1.23667	12.50456
Reindeer Koryak	9.60252	1.42715	1.23667	0	8.31499
San Luis Rey	13.17255	6.09557	12.50456	8.31499	0
Sarcee	8.14743	5.50122	14.77274	8.17935	4.37588
Sauk	5.56798	7.89490	17.31287	10.44990	7.20441
Seneca	3.26986	9.26788	20.55159	13.94942	8.84893
Serrano	10.70169	5.89154	14.93172	9.82160	1.23109
Shawnee	3.72166	5.33629	15.09592	9.57947	8.46322

Matrix 3F. cont.

	Quinault	Reindeer Chukchi	Reindeer Evenk	Reindeer Koryak	San Luis Rey
Shoshoni	2.02195	4.18662	12.79187	7.40836	5.89905
Shuswap	1.32419	4.54065	12.68242	7.61450	8.74046
Sioux(Santee)	6.97866	8.32599	20.06259	13.95489	8.65976
Sioux(Teton)	6.19448	8.32058	20.92518	14.38554	7.79449
Sioux(Yankton)	6.86875	7.14449	18.72830	12.91704	7.38144
S. Miwok	3.55252	3.96042	12.59452	7.97939	4.47720
Stalo	1.09211	8.71129	18.59691	12.48680	15.88457
Stockbridge	5.01616	9.62634	21.23541	15.23219	12.37399
Tahltan	2.49770	7.06947	16.77184	10.95160	8.81281
Taos	1.81299	4.64686	12.87828	8.16133	11.58883
Tenino	2.17905	2.96936	10.49904	5.58301	5.66306
Thompson	1.84168	5.01339	13.77220	8.20841	12.35558
Tonkawa	2.65643	6.22836	15.47868	8.97984	6.31171
Tsimshian	2.15791	5.67204	14.22935	9.75268	7.71012
Tundra Evenk	4.30989	4.35565	7.38576	4.74757	15.48503
Tuscarora	3.13909	9.69175	21.03957	14.03743	10.00460
Tututni	1.48794	4.67896	10.02483	6.73654	9.82831
Umatilla	4.40173	9.21746	17.93954	12.16328	17.63604
Ute	2.88722	3.51735	12.34645	7.30175	5.94968
Wasco	3.25991	3.32366	12.21024	7.67514	6.40634
Washo	5.05554	4.79498	14.56197	8.95660	3.39306
W. Mono	2.48916	3.39256	11.66472	6.77164	5.09150
Winnebago	6.97289	8.18085	20.52366	14.59888	7.46923
Yakut	2.21060	4.35554	11.00944	6.99498	12.00572
Yokuts	9.58709	4.65228	12.01679	6.65103	1.19826
Yukaghir	3.48583	3.58828	7.54048	4.61481	12.79752
Yuki	4.48610	3.94680	11.33419	6.94034	6.21610
Yurok	7.84837	5.59586	12.76780	10.56403	8.57548
Zuni	1.09154	3.91352	10.74186	6.48647	11.81240

Matrix 3F. cont.

	Sarcee	Sauk	Seneca	Serrano	Shawnee
Achomawi	6.94368	6.22789	3.71974	4.38437	4.47397
Agua Caliente	4.87081	7.08218	10.86763	2.88927	9.69620
Aiwan	7.89359	6.44548	9.13886	8.83875	4.51397
Aleut	14.43907	10.56884	6.56623	16.27192	6.52328
Apache	3.59351	1.89541	1.53532	5.15967	1.11435
Arapaho	4.05940	0.96258	0.61208	4.72753	1.16574
Assiniboin	3.81659	3.34008	2.28862	7.39770	1.19166
Atsugewi	7.73701	6.13343	3.66362	5.36498	4.32073
Bannock	1.57925	4.29688	5.74205	1.84322	4.26187
Bella Coola	12.66732	11.37328	3.97409	11.90651	5.81335
Big Meadow	8.04904	5.21044	1.32963	6.37002	3.48035
Blood	1.80166	4.32189	5.72168	5.86228	5.57285
Caddo	2.59713	3.94684	1.73414	3.87541	1.92635
Carrier	1.17106	1.87180	3.74626	3.04160	1.57593
Catawba	2.32117	3.30976	3.13689	4.99297	2.04823
Cherokee	1.10098	2.12169	2.02628	1.97750	1.44515
Cheyenne	4.53245	1.86014	1.62181	6.27080	1.15661
Chickasaw	3.42527	4.33924	2.11933	3.16713	1.06609
Chilcotin	4.05521	3.41167	1.78716	5.86526	0.79273
Chippewa(MN)	2.94367	3.68545	1.17316	2.18229	1.70995
Chippewa(WI)	4.61760	4.85390	0.75136	4.01457	1.61430
Choctaw	1.19379	5.03537	5.44663	1.87027	3.88697
Chuvantsy	7.58908	10.20535	10.90493	9.27732	7.30968
Clallam	10.40745	6.98423	3.45416	14.46434	4.97103
C. Miwok	4.42408	4.52413	4.51543	2.66948	2.58982
Coahuilla	3.06585	3.21845	3.95098	1.59301	4.11450
Coeur d'Alene	5.31317	2.00469	1.47915	8.29807	1.84447
Comanche	3.12867	3.39114	2.68563	5.15465	3.75414
Concow	4.55039	4.06560	2.50066	5.33868	1.39488
Creek	1.51946	2.92979	6.13064	2.07558	4.27097
Crow	5.21657	3.77222	2.17572	5.57580	5.10333
E. Mono	4.27144	3.74384	0.89737	4.88868	1.15734
Eskimo(EC)	7.42466	8.45684	7.99068	9.31195	5.88875
Eskimo(WC)	4.53149	2.50765	3.24084	4.90365	1.47111
Even	8.30139	10.37498	8.99245	10.61043	6.81631
Evenk	6.53369	9.20509	8.34206	10.14332	5.76794
Flathead	3.30584	3.07732	4.64793	2.86827	4.65576
Haida	3.94411	3.56205	1.71981	2.79376	2.07611
Hoopa	2.48290	2.02193	3.48323	4.32877	1.96358
Itelman(KH)	7.63758	7.87225	4.07210	8.55891	3.86976
Itelman(SE)	9.44227	9.84436	5.69177	10.82620	5.23226
Kalapuya	5.65639	6.61743	5.92693	3.54952	5.44338
Kiowa	4.90180	2.98985	1.13124	6.92179	2.94700
Klamath	5.04972	3.49693	1.32061	4.02213	1.42553
Koryak	5.78963	6.53903	7.99534	8.10022	5.25489
Kutenai	8.00559	3.25328	4.00351	13.05279	4.07595
Kwakiutl	11.06784	8.44905	4.35779	10.29795	3.73696
Lillooet	3.57114	6.45887	3.96075	4.38869	3.02879
Makah	7.58716	6.14391	2.12193	8.76276	2.93640

Matrix 3F. cont.

	Sarcee	Sauk	Seneca	Serrano	Shawnee
Malecite	2.56203	4.13128	1.40031	3.17696	1.48502
Maritime Chukchi	7.04255	6.50256	8.99339	8.39696	4.28370
Menomini	5.26965	4.64419	0.99735	5.78832	0.97846
Micmac	4.19672	3.36026	0.75482	5.19224	0.56967
Mississagua	4.86550	5.13687	0.76336	4.14875	1.84513
Modoc	7.88784	8.24684	5.20388	4.18629	7.18776
Mohawk	4.17003	3.91385	0.74876	3.40010	1.68241
Montagnais	3.29573	5.09509	3.26588	6.06771	1.79218
Munsee	4.13000	5.14442	1.03977	4.22807	2.20377
Nanaimo	7.09515	6.12644	4.81165	4.32250	6.36718
Navajo	5.95554	1.71432	1.59052	8.03292	1.13186
Nez Perce	5.69240	1.46198	0.93852	6.70643	1.24557
Nisqually	7.20567	6.64577	3.15006	6.60257	4.91069
Nivkhi	8.56388	9.76254	7.10893	13.61662	5.62815
Northern Hill Yokuts	4.99679	6.20358	3.36785	3.52444	3.58716
N. Paiute	3.00269	2.32069	2.04682	3.35965	2.35660
N. Pomo	3.30300	5.96776	3.94513	2.62786	4.32264
Ojibwa(GBay)	3.88331	3.32868	1.02151	4.32636	2.61326
Ojibwa (NWLSup)	6.03069	5.35641	7.50052	10.19865	9.66268
Okanagan	3.34401	1.58048	1.15723	5.45516	0.73764
Omaha	2.76862	3.54864	1.34651	2.06551	1.31147
Oneida	6.36226	4.53725	0.33235	5.77301	1.56327
Osage	2.88444	2.86177	0.85522	3.82563	1.67375
Pawnee	4.37183	2.54778	0.39642	4.69473	0.62721
Piegan	4.32831	2.60448	0.90853	6.45450	1.84740
Ponca	4.10124	1.16132	0.83390	3.65334	1.18673
Potawatomi	4.45911	2.94529	0.29050	4.46928	0.96776
Pueblo	5.78485	7.42358	2.89729	6.48753	2.70429
Puyallup	7.30478	7.12862	2.72879	6.45547	3.89922
Queets	9.27142	6.96602	4.55201	14.01119	4.81085
Quillayute	9.49126	9.36255	4.00147	9.52887	5.22608
Quinault	8.14743	5.56798	3.26986	10.70169	3.72166
Reindeer Chukchi	5.50122	7.89490	9.26788	5.89154	5.33629
Reindeer Evenk	14.77274	17.31287	20.55159	14.93172	15.09592
Reindeer Koryak	8.17935	10.44990	13.94942	9.82160	9.57947
San Luis Rey	4.37588	7.20441	8.84893	1.23109	8.46322
Sarcee	0	4.03140	5.36717	2.22911	4.05348
Sauk	4.03140	0	2.85236	5.92146	1.93525
Seneca	5.36717	2.85236	0	5.37056	1.39465
Serrano	2.22911	5.92146	5.37056	0	5.25057
Shawnee	4.05348	1.93525	1.39465	5.25057	0
Shoshoni	3.04559	2.26352	1.19202	3.75463	0.94484
Shuswap	4.10442	3.78937	1.61030	5.68415	1.20852

Matrix 3F. cont.

	Sarcee	Sauk	Seneca	Serrano	Shawnee
Sioux(Santee)	3.96565	4.39864	1.63824	4.02691	1.40075
Sioux(Teton)	3.68377	4.29989	1.23485	3.43068	1.53893
Sioux(Yankton)	3.39405	4.91930	1.89179	3.01508	1.60340
S. Miwok	4.07295	4.12470	2.06764	2.78121	2.12400
Stalo	7.77179	6.60630	3.16282	11.30675	3.03643
Stockbridge	6.45304	5.21401	1.24751	7.11877	1.41124
Tahltan	5.75924	1.62754	0.70880	6.30956	0.68036
Taos	6.57816	3.81237	3.01681	8.71175	1.12028
Tenino	2.99567	2.18051	2.15022	4.06712	1.10182
Thompson	4.95524	4.75666	3.78652	8.76677	1.91269
Tonkawa	2.74629	1.01286	1.11412	4.29302	1.25253
Tsimshian	6.36808	5.05956	1.36010	5.21339	2.15642
Tundra Evenk	9.97625	13.08487	11.37107	13.62881	8.89009
Tuscarora	4.67006	3.50859	0.34489	5.85968	1.74644
Tututni	8.16247	5.83331	3.29163	8.14294	3.13331
Umatilla	10.10218	3.88311	5.67312	14.54145	2.74945
Ute	3.53882	4.42562	2.95171	3.94840	2.30541
Wasco	3.85695	4.02158	2.04085	3.72609	1.02810
Washo	2.37345	2.47131	1.78002	1.58543	1.62636
W. Mono	3.31097	3.01392	1.86596	3.34721	1.43061
Winnebago	4.46780	5.50788	1.67731	3.16599	2.08924
Yakut	5.99802	7.67152	4.47351	8.36876	3.27604
Yokuts	2.19776	3.93684	7.02138	1.86597	5.73341
Yukaghir	7.55893	10.71458	8.31237	10.36781	6.42908
Yuki	5.27802	8.20032	6.35657	5.22317	6.01942
Yurok	10.18650	13.48476	7.82010	6.56104	7.88479
Zuni	6.91155	5.73973	4.44183	9.40657	2.76749

Matrix 3F. cont.

	Shoshoni	Shuswap	Sioux (Santee)	Sioux (Teton)	Sioux (Yankton)
Achomawi	1.89615	2.99331	6.34931	4.95175	5.24026
Agua Caliente	6.83247	9.91991	11.31877	10.38138	10.04563
Aiwan	4.60922	5.58129	9.29313	8.61006	8.30853
Aleut	5.11649	4.02061	10.92944	9.49760	10.41741
Apache	0.68248	1.59074	3.15095	1.99456	2.83215
Arapaho	1.24048	2.38050	2.14732	1.69629	2.47099
Assiniboin	1.91720	1.69255	2.31816	1.99033	2.44331
Atsugewi	2.03039	3.29186	6.66738	4.86978	5.51010
Bannock	2.31905	4.06239	5.83498	4.61714	4.58597
Bella Coola	4.50473	2.97007	6.37282	5.97211	6.12216
Big Meadow	1.70234	2.41900	4.76900	3.40306	4.33788
Blood	5.35280	5.98086	4.61691	5.06556	5.07775
Caddo	0.51066	0.74955	2.71783	1.72736	2.07659
Carrier	1.28525	2.31334	3.34639	3.05394	2.94041
Catawba	2.68839	2.40746	1.67131	2.82663	2.23847
Cherokee	0.59089	1.38614	2.06009	1.80401	1.73133
Cheyenne	2.83439	3.35591	1.22578	1.75550	2.06241
Chickasaw	1.05521	1.02169	1.20427	1.45980	0.89677
Chilcotin	0.49993	0.09955	2.52141	2.41621	2.39111
Chippewa(MN)	1.24857	1.70288	0.83281	0.93811	0.72508
Chippewa(WI)	1.34132	1.27917	0.81389	0.67825	0.68862
Choctaw	3.52437	4.08600	2.93182	3.77102	2.68524
Chuvantsy	5.61495	4.78705	10.50821	11.26882	9.70539
Clallam	4.24402	2.82771	7.03662	6.77954	7.72646
Cmiwok	1.89247	3.10190	4.32150	3.91114	3.43963
Coahuilla	1.92801	3.93700	5.41251	4.47371	4.63280
Coeur d'Alene	1.34674	1.32244	4.14935	3.89517	4.64494
Comanche	1.80841	3.01110	5.08247	3.26937	4.46805
Concow	0.49315	0.47966	3.65392	3.07115	3.08136
Creek	4.46232	6.67586	4.35298	4.33208	4.10656
Crow	3.07436	4.77368	5.41058	3.66581	5.18938
E. Mono	0.35524	0.38227	2.18494	1.46625	1.82752
Eskimo(EC)	3.51051	2.85066	9.72973	9.39627	8.80528
Eskimo(WC)	0.82406	1.67038	4.61983	4.07839	4.15066
Even	4.33382	3.26817	10.49238	9.98737	9.37012
Evenk	3.93279	2.69592	8.99766	8.76028	8.11162
Flathead	2.47687	4.99524	6.72052	4.87259	5.70712
Haida	0.45896	1.29886	3.24887	2.46166	2.61208
Hoopa	0.74479	1.50395	4.77251	4.29007	4.35282
Itelman(KH)	2.01294	1.11885	6.13763	5.35019	5.37065
Itelman(SE)	3.22425	2.01309	7.99729	7.02583	7.07771
Kalapuya	2.57834	4.08361	7.76697	6.26083	6.26929
Kiowa	1.67452	2.25139	4.06280	2.87383	4.11627
Klamath	0.51877	0.92258	2.72104	2.41133	2.42979
Koryak	3.32202	3.09908	9.18900	9.23422	8.51087
Kutenai	3.79049	3.90369	7.75587	6.90266	8.35760
Kwakiutl	3.03833	2.29935	6.45301	5.96120	5.94806
Lillooet	1.31289	1.05901	4.16777	3.46486	3.13207

Matrix 3F. cont.

	Shoshoni	Shuswap	Sioux (Santee)	Sioux (Teton)	Sioux (Yankton)
Makah	1.55276	0.71815	4.73873	4.12802	4.52435
Malecite	0.76522	0.65894	1.21217	1.12260	0.92659
Maritime Chukchi	4.27094	4.64341	8.63197	8.65876	7.85871
Menomini	1.26288	0.70417	1.06900	1.21384	1.14353
Micmac	1.29178	1.18622	0.52386	0.57888	0.71800
Mississagua	1.61269	1.56762	0.78980	0.62783	0.68594
Modoc	3.64883	5.52328	8.27978	6.07753	6.74660
Mohawk	1.61314	1.85731	0.63363	0.87567	0.79113
Montagnais	1.34710	0.54194	2.95974	2.93998	2.61155
Munsee	1.97128	1.74376	0.71095	0.83336	0.78212
Nanaimo	2.96314	4.58415	8.20661	6.93061	7.26541
Navajo	1.16541	1.65869	4.12881	3.41766	4.33020
Nez Perce	0.85625	1.37759	3.60515	3.30070	3.96129
Nisqually	1.80744	2.03839	6.77847	5.40666	5.96500
Nivkhi	4.94886	2.52764	7.73981	8.43519	7.87310
Northern Hill Yokuts	1.27937	1.91594	4.86014	3.59890	3.66108
N. Paiute	0.56651	1.90866	4.24216	2.87208	3.58242
N. Pomo	1.69592	2.88967	5.19152	3.36260	3.75033
Ojibwa(GBay)	1.80357	1.99932	1.97563	2.27586	2.38145
Ojibwa (NWLSup)	6.88705	7.99650	11.01359	10.54306	11.52190
Okanagan	0.37222	0.53628	2.56771	2.39549	2.72324
Omaha	1.25709	2.10037	0.71294	0.25616	0.32273
Oneida	1.76735	1.84570	1.17962	0.84750	1.30587
Osage	0.98785	1.76869	1.84176	0.80577	1.55030
Pawnee	0.40027	0.79836	1.66095	1.09323	1.57037
Piegan	1.99835	2.53174	2.16574	1.44452	2.44947
Ponca	1.10961	2.53914	2.20029	1.66719	2.29173
Potawatomi	0.50926	0.67866	1.50773	1.28727	1.54728
Pueblo	1.69925	0.86616	3.32446	2.69905	2.60371
Puyallup	1.58887	1.51056	5.35649	4.09166	4.47580
Queets	3.93575	2.22737	7.49696	7.63621	8.05452
Quillayute	2.83027	1.83782	6.88322	5.96645	6.17644
Quinault	2.02195	1.32419	6.97866	6.19448	6.86875
Reindeer Chukchi	4.18662	4.54065	8.32599	8.32058	7.14449
Reindeer Evenk	12.79187	12.68242	20.06259	20.92518	18.72830
Reindeer Koryak	7.40836	7.61450	13.95489	14.38554	12.91704
San Luis Rey	5.89905	8.74046	8.65976	7.79449	7.38144
Sarcee	3.04559	4.10442	3.96565	3.68377	3.39405
Sauk	2.26352	3.78937	4.39864	4.29989	4.91930
Seneca	1.19202	1.61030	1.63824	1.23485	1.89179
Serrano	3.75463	5.68415	4.02691	3.43068	3.01508
Shawnee	0.94484	1.20852	1.40075	1.53893	1.60340

Matrix 3F. cont.

	Shoshoni	Shuswap	Sioux (Santee)	Sioux (Teton)	Sioux (Yankton)
Shoshoni	0	0.48237	2.51376	1.94523	2.19448
Shushwap	0.48237	0	2.62582	2.50537	2.48070
Sioux(Santee)	2.51376	2.62582	0	0.45159	0.21204
Sioux(Teton)	1.94523	2.50537	0.45159	0	0.23839
Sioux(Yankton)	2.19448	2.48070	0.21204	0.23839	0
S. Miwok	0.64127	1.60353	3.30600	2.18024	2.41874
Stalo	2.59588	1.29340	5.08956	4.54390	5.07901
Stockbridge	2.65219	2.00002	0.68859	1.21231	1.17769
Tahltan	0.84596	1.41633	2.71498	2.38352	2.99861
Taos	1.44203	1.13038	4.35053	4.02691	4.25937
Tenino	0.17271	0.69755	3.37410	2.89713	2.99301
Thompson	1.76691	1.03506	4.54728	4.12965	4.29610
Tonkawa	0.48188	1.24818	2.81384	2.41886	2.91468
Tsimshian	0.88290	1.02340	3.29285	2.53769	2.80896
Tundra Evenk	6.29811	4.59107	12.68747	12.26408	11.53826
Tuscarora	1.47484	1.35161	1.49907	1.36706	1.84862
Tututni	1.78880	1.21994	5.70585	5.72487	5.54996
Umatilla	4.67382	4.28973	7.33783	7.70328	8.20102
Ute	0.74251	1.44464	4.16321	2.74481	3.10268
Wasco	0.57085	0.91622	2.26126	1.62431	1.60181
Washo	0.76033	2.19081	2.25881	1.38244	1.65200
W. Mono	0.17208	0.88734	3.17468	2.28384	2.51151
Winnebago	2.36726	2.94957	0.65537	0.16542	0.25086
Yakut	2.37057	0.85489	4.69683	4.90735	4.32635
Yokuts	3.74751	6.31127	7.36383	6.26402	6.31133
Yukaghir	4.36734	2.70031	8.85260	8.91872	8.02086
Yuki	2.79287	3.64840	8.22751	6.07881	6.42367
Yurok	5.31017	5.56701	8.35166	6.72888	6.38428
Zuni	1.81867	1.19707	6.37865	5.68787	5.85112

Matrix 3F. cont.

	Southern Miwok	Stalo	Stockbridge	Tahltan	Taos
Achomawi	0.68568	6.29070	6.60266	3.32726	4.25132
Agua Caliente	5.88212	17.14384	15.14681	9.90411	12.19157
Aiwan	4.54005	8.32267	9.98530	5.71875	3.10411
Aleut	5.82360	2.31383	7.79104	5.06410	2.76349
Apache	1.49905	2.73121	3.30549	0.96271	1.55133
Arapaho	2.42065	4.51023	2.49980	0.64023	3.19442
Assiniboin	3.82186	1.73499	2.03372	2.17976	1.87478
Atsugewi	0.74826	5.88633	6.68440	3.01490	3.74326
Bannock	1.97394	8.13225	8.17867	5.07758	5.36576
Bella Coola	4.64889	2.96725	3.86203	4.84380	4.63528
Big Meadow	1.36442	4.03925	3.98151	1.69540	3.64246
Blood	8.05879	8.80536	6.56647	6.95428	9.26678
Caddo	1.02589	2.17542	2.95429	2.14168	2.34107
Carrier	2.24558	5.40789	4.86537	2.75112	2.84132
Catawba	4.93779	5.13553	2.46458	3.59376	4.64437
Cherokee	1.33586	4.56357	3.29347	2.07884	3.15993
Cheyenne	4.81624	5.28558	1.61840	1.82618	4.06392
Chickasaw	1.32845	3.92504	1.69776	2.18404	2.38056
Chilcotin	1.66751	1.29852	1.96024	1.24043	0.65360
Chippewa(MN)	1.60085	5.03418	1.69766	2.18691	4.20498
Chippewa(WI)	1.64457	3.32048	0.78820	1.90440	3.33894
Choctaw	4.36755	8.99285	5.32904	5.97018	7.08668
Chuvantsy	6.36922	8.48646	10.80889	8.83125	5.82333
Clallam	7.03046	1.19445	4.29124	3.71439	3.88463
C. Miwok	1.10338	7.44804	5.68578	3.30110	3.43290
Coahuilla	1.50631	8.76053	7.33746	3.63813	5.87176
Coeur d'Alene	3.59028	1.89376	3.15220	1.03339	2.01990
Comanche	2.61887	4.12784	5.71062	3.12654	4.49533
Concow	0.87724	2.11782	3.30324	1.59842	0.74570
Creek	5.14014	11.84217	7.64727	5.87041	8.17224
Crow	3.71613	6.57371	6.05795	3.46630	7.13920
E. Mono	0.85914	1.58095	1.76328	1.05818	1.39653
Eskimo(EC)	4.15001	4.89488	9.12687	6.14252	3.45660
Eskimo(WC)	1.17543	4.37922	4.90209	1.48423	1.23410
Even	4.89708	4.61859	9.62807	7.34586	3.88998
Evenk	5.14990	3.65384	8.33162	6.90773	3.36837
Flathead	2.08601	8.73985	8.73045	4.03287	5.95733
Haida	0.18240	4.38281	3.71372	1.63053	2.77769
Hoopa	1.76523	4.18938	5.43691	2.16349	2.04236
Itelman(KH)	2.30467	1.71532	4.73778	3.60671	1.97213
Itelman(SE)	3.50858	1.94561	6.18031	4.99026	2.49985
Kalapuya	1.18947	8.20646	8.99184	4.99317	5.19752
Kiowa	3.11945	2.74671	3.61900	1.80351	3.77521
Klamath	0.58501	3.67370	2.60727	1.02790	2.00241
Koryak	4.38132	5.99243	9.28458	5.82464	3.64660
Kutenai	6.77805	2.86859	6.27728	2.93242	3.38222
Kwakiutl	2.86996	3.16847	4.58666	3.22052	1.86310
Lillooet	1.32660	3.03035	4.40832	3.87089	2.58358

Matrix 3F. cont.

	Southern Miwok	Stalo	Stockbridge	Tahltan	Taos
Makah	2.45337	0.90666	3.00857	2.13775	1.80097
Malecite	1.41846	2.90475	1.57921	2.18730	2.86510
Maritime Chukchi	4.65390	7.77400	9.22749	5.80050	3.01585
Menomini	2.11543	1.98015	0.42113	1.47884	1.90401
Micmac	2.38765	2.52262	0.36804	1.25043	2.17716
Mississagua	1.88717	3.56385	0.77519	2.11070	3.74818
Modoc	1.64727	9.31863	9.25804	5.58874	7.59741
Mohawk	2.18317	4.72014	1.02945	1.93608	4.25662
Montagnais	2.66154	1.55854	2.70860	3.06216	1.62900
Munsee	2.75144	3.76978	0.85841	2.71289	4.51907
Nanaimo	2.00002	9.02552	8.99224	4.59540	6.85092
Navajo	2.66952	2.23409	3.29183	0.42870	0.97236
Nez Perce	2.24797	2.99879	2.92553	0.20335	1.72559
Nisqually	1.63513	3.78027	6.02511	3.32488	4.00907
Nivkhi	7.63184	1.95159	5.75071	6.63813	3.79016
Northern Hill Yokuts	0.33622	4.72207	5.26121	3.30883	3.41801
N. Paiute	0.77694	4.33657	4.96738	1.71494	2.94727
N. Pomo	0.78785	5.60994	6.41509	4.29016	4.71478
Ojibwa(GBay)	3.17012	4.73362	2.21350	2.28762	5.07505
Ojibwa (NWLSup)	9.91014	10.46363	11.88652	8.23463	11.69993
Okanagan	1.96302	2.02457	2.31021	0.67129	1.28309
Omaha	1.22810	4.95662	1.82900	2.08071	3.64690
Oneida	2.23826	3.17091	0.63484	1.31627	3.17264
Osage	1.65050	3.21928	2.32784	1.64945	3.25451
Pawnee	1.02672	2.31746	1.41242	0.41016	1.48055
Piegan	3.58750	3.10166	2.08993	1.66919	3.61625
Ponca	1.67459	5.39137	2.87460	0.68201	3.26224
Potawatomi	1.22412	2.60418	1.20856	0.66206	2.10871
Pueblo	1.86995	1.58059	2.55252	3.29293	2.14083
Puyallup	1.15255	2.85546	4.46306	2.93961	2.96988
Queets	6.90514	1.09669	4.97509	4.17170	3.20320
Quillayute	2.90806	2.33334	5.08435	4.24263	3.46700
Quinault	3.55252	1.09211	5.01616	2.49770	1.81299
Reindeer Chukchi	3.96042	8.71129	9.62634	7.06947	4.64686
Reindeer Evenk	12.59452	18.59691	21.23541	16.77184	12.87828
Reindeer Koryak	7.97939	12.48680	15.23219	10.95160	8.16133
San Luis Rey	4.47720	15.88457	12.37399	8.81281	11.58883
Sarcee	4.07295	7.77179	6.45304	5.75924	6.57816
Sauk	4.12470	6.60630	5.21401	1.62754	3.81237
Seneca	2.06764	3.16282	1.24751	0.70880	3.01681
Serrano	2.78121	11.30675	7.11877	6.30956	8.71175
Shawnee	2.12400	3.03643	1.41124	0.68036	1.12028

Matrix 3F. cont.

	Southern Miwok	Stalo	Stockbridge	Tahltan	Taos
Shoshoni	0.64127	2.59588	2.65219	0.84596	1.44203
Shuswap	1.60353	1.29340	2.00002	1.41633	1.13038
Sioux(Santee)	3.30600	5.08956	0.68859	2.71498	4.35053
Sioux(Teton)	2.18024	4.54390	1.21231	2.38352	4.02691
Sioux(Yankton)	2.41874	5.07901	1.17769	2.99861	4.25937
S. Miwok	0	4.41747	3.89456	1.91945	2.65383
Stalo	4.41747	0	3.06783	2.98960	1.59920
Stockbridge	3.89456	3.06783	0	2.14777	3.23556
Tahltan	1.91945	2.98960	2.14777	0	1.37278
Taos	2.65383	1.59920	3.23556	1.37278	0
Tenino	0.89855	3.04244	3.63573	1.20068	1.23093
Thompson	3.45889	0.88951	3.65309	2.75047	0.75348
Tonkawa	1.86459	3.42943	3.12390	0.86970	2.44767
Tsimshian	0.67891	2.89307	2.65882	1.45451	2.17219
Tundra Evenk	7.31867	5.10166	11.43235	9.76843	5.31338
Tuscarora	2.90168	2.48061	1.01752	1.47536	3.40026
Tututni	2.41652	3.12696	4.34829	2.36006	2.04103
Umatilla	7.56047	3.92545	5.65875	2.96113	1.71021
Ute	0.50168	3.25912	4.60170	2.47070	2.00450
Wasco	0.48338	3.03407	2.51629	1.61980	1.35671
Washo	0.56086	5.53683	3.61862	1.80923	3.41330
W. Mono	0.23086	3.27700	3.54443	1.35781	1.66494
Winnebago	2.04207	5.38035	1.50878	2.97474	4.62655
Yakut	3.57737	1.62495	3.60786	4.22883	2.18158
Yokuts	3.44722	11.62752	10.44564	6.20294	7.82676
Yukaghir	5.40161	3.86632	7.90057	7.46757	4.19318
Yuki	1.76462	5.76552	8.95383	5.92566	4.80508
Yurok	2.77814	8.45333	8.66066	8.12735	7.07629
Zuni	2.82805	1.43886	5.09200	2.84859	0.61801

Matrix 3F. cont.

	Tenino	Thompson	Tonkawa	Tsimshian	Tundra Evenk
Achomawi	2.06453	5.69703	3.47373	1.06617	7.55019
Agua Caliente	6.09736	12.84516	6.89391	9.57240	15.19725
Aiwan	3.28534	4.51937	6.40324	6.32792	7.07009
Aleut	5.21860	3.60911	7.05352	3.79715	5.38152
Apache	0.92119	1.77659	0.82366	2.13013	8.51123
Arapaho	1.84285	4.01916	0.55125	2.64437	12.63256
Assiniboin	2.29488	1.06662	1.92822	3.83416	8.52475
Atsugewi	2.23106	5.37819	3.65175	1.16170	8.21584
Bannock	1.90899	4.99564	2.97433	4.61304	8.14944
Bella Coola	5.53497	5.37589	6.51783	1.93641	7.61612
Big Meadow	2.55870	5.04988	2.51607	0.59041	10.00612
Blood	5.82221	7.09725	3.54673	9.41599	14.99960
Caddo	0.92494	1.64551	1.18995	1.40753	5.86767
Carrier	0.90020	2.61715	1.38902	3.98643	7.75129
Catawba	2.96139	3.82927	2.13830	5.09094	10.10042
Cherokee	0.71690	2.91101	0.68121	2.39029	7.85819
Cheyenne	3.48602	4.55827	1.92292	4.79557	14.77758
Chickasaw	1.28772	2.79614	2.20418	1.46829	7.09996
Chilcotin	0.58403	0.68723	1.29525	1.27654	4.73110
Chippewa(MN)	1.95131	4.49412	1.59978	1.76931	10.26277
Chippewa(WI)	2.27601	3.65227	2.11580	1.08235	9.56197
Choctaw	3.49473	6.29866	3.62750	5.98142	10.55054
Chuvantsy	4.32639	5.60510	7.55929	6.89465	2.45988
Clallam	5.05087	3.31427	3.98654	4.52508	8.53253
C. Miwok	1.50539	4.88538	3.37779	2.51319	8.06823
Coahuilla	1.88944	6.67842	2.10568	3.29176	10.52964
Coeur d'Alene	1.68192	2.06404	0.72079	2.79861	8.17554
Comanche	2.33983	3.55165	1.45838	3.66381	9.69929
Concow	0.39602	1.17036	1.79582	0.88413	4.05515
Creek	4.30982	8.13851	3.68372	8.08143	16.02184
Crow	4.19047	6.98740	2.07626	4.28537	15.03924
E. Mono	0.86057	1.56799	1.19722	0.52365	6.37397
Eskimo(EC)	2.61638	3.26894	5.33635	4.17349	1.00842
Eskimo(WC)	0.36465	2.43607	1.68201	1.91008	6.12400
Even	3.49899	3.22345	6.55688	4.76893	0.35126
Evenk	3.14734	2.04885	5.71633	5.17735	0.44239
Flathead	2.41470	6.41260	2.42769	4.48833	11.71558
Haida	0.71950	3.61781	1.35893	0.57071	7.20033
Hoopa	0.27421	2.08614	0.98448	2.81812	5.37345
Itelman(KH)	2.10954	1.96578	3.92955	1.31346	2.53842
Itelman(SE)	3.22018	2.31797	5.49670	2.32991	2.02684
Kalapuya	2.24341	6.19452	4.25772	2.73638	6.94428
Kiowa	2.54021	3.38852	1.03738	2.81787	10.52171
Klamath	0.79787	3.24380	1.46236	0.31869	7.21683
Koryak	2.20073	3.50099	4.51913	5.00880	2.18964
Kutenai	4.00271	3.03795	2.63294	6.10668	10.53005
Kwakiutl	3.13089	3.55243	5.34323	1.37022	5.41855
Lillooet	1.29303	1.91110	3.00511	1.75893	3.12529

Matrix 3F. cont.

	Tenino	Thompson	Tonkawa	Tsimshian	Tundra Evenk
Makah	2.06263	1.96800	2.65467	0.91728	4.82811
Malecite	1.30218	2.44132	1.42703	1.41758	6.94419
Maritime Chukchi	2.88234	4.05565	6.02097	6.04393	5.25742
Menomini	1.94333	2.24521	2.13647	1.16531	7.88710
Micmac	2.00260	2.37827	1.63310	1.96104	9.78341
Mississagua	2.65691	4.04248	2.34399	1.28174	10.30263
Modoc	4.14290	8.84825	5.12726	2.68174	11.13491
Mohawk	2.53419	4.77649	1.84123	1.80203	11.44182
Montagnais	1.36444	0.61592	2.34587	2.57050	3.70961
Munsee	3.05998	4.23204	2.30902	2.15845	10.60426
Nanaimo	3.10221	8.28766	3.74701	2.66922	9.83540
Navajo	1.32070	1.82943	1.06051	2.36465	8.72210
Nez Perce	1.14212	2.88281	0.59132	1.67431	9.11337
Nisqually	2.24198	4.39805	2.94201	1.04878	5.72297
Nivkhi	4.82274	2.12831	5.97200	5.89524	2.72874
Northern Hill Yokuts	1.45792	3.93287	3.00382	0.86572	5.64571
N. Paiute	0.73664	3.20625	0.77520	1.80600	8.00850
N. Pomo	1.95437	4.34144	2.95509	2.26818	7.12431
Ojibwa(GBay)	2.68832	5.05124	1.26106	2.62733	11.17842
Ojibwa (NWLSup)	7.28300	9.98581	4.28468	10.56751	15.61175
Okanagan	0.53910	1.38060	0.27049	1.81960	6.88959
Omaha	1.91531	3.97284	1.84006	1.97845	10.89557
Oneida	2.87773	4.01757	2.28662	1.29100	11.59428
Osage	1.77105	2.93379	0.97455	2.11415	10.20589
Pawnee	0.94803	2.16567	0.84532	0.78335	8.54123
Piegan	2.93905	3.30352	1.32126	3.48923	12.48854
Ponca	1.60283	4.54649	0.78942	2.19269	12.58813
Potawatomi	1.15829	2.75806	0.89032	0.65285	8.50995
Pueblo	2.16652	1.74656	3.53133	1.19941	4.38388
Puyallup	2.09624	3.47210	3.26591	0.43304	5.32960
Queets	4.21842	2.32531	3.96243	4.71627	5.45451
Quillayute	3.34087	3.63106	4.72170	1.28572	4.14559
Quinault	2.17905	1.84168	2.65643	2.15791	4.30989
Reindeer Chukchi	2.96936	5.01339	6.22836	5.67204	4.35565
Reindeer Evenk	10.49904	13.77220	15.47868	14.22935	7.38576
Reindeer Koryak	5.58301	8.20841	8.97984	9.75268	4.74757
San Luis Rey	5.66306	12.35558	6.31171	7.71012	15.48503
Sarcee	2.99567	4.95524	2.74629	6.36808	9.97625
Sauk	2.18051	4.75666	1.01286	5.05956	13.08487
Seneca	2.15022	3.78652	1.11412	1.36010	11.37107
Serrano	4.06712	8.76677	4.29302	5.21339	13.62881
Shawnee	1.10182	1.91269	1.25253	2.15642	8.89009

Matrix 3F. cont.

	Tenino	Thompson	Tonkawa	Tsimshian	Tundra Evenk
Shoshoni	0.17271	1.76691	0.48188	0.88290	6.29811
Shuswap	0.69755	1.03506	1.24818	1.02340	4.59107
Sioux(Santee)	3.37410	4.54728	2.81384	3.29285	12.68747
Sioux(Teton)	2.89713	4.12965	2.41886	2.53769	12.26408
Sioux(Yankton)	2.99301	4.29610	2.91468	2.80896	11.53826
S. Miwok	0.89855	3.45889	1.86459	0.67891	7.31867
Stalo	3.04244	0.88951	3.42943	2.89307	5.10166
Stockbridge	3.63573	3.65309	3.12390	2.65882	11.43235
Tahltan	1.20068	2.75047	0.86970	1.45451	9.76843
Taos	1.23093	0.75348	2.44767	2.17219	5.31338
Tenino	0	1.60581	0.73391	1.42306	5.39066
Thompson	1.60581	0	2.61594	3.22999	3.85780
Tonkawa	0.73391	2.61594	0	2.18191	8.65989
Tsimshian	1.42306	3.22999	2.18191	0	6.92990
Tundra Evenk	5.39066	3.85780	8.65989	6.92990	0
Tuscarora	2.49163	3.27356	1.24848	2.00697	10.37872
Tututni	1.76861	3.24872	3.09207	1.11296	4.56318
Umatilla	4.19546	2.81094	4.48463	6.72589	10.11404
Ute	0.77556	1.98884	2.01888	1.42982	5.35741
Wasco	0.70689	1.90337	1.92754	0.89282	6.19166
Washo	1.05961	4.00357	1.20018	1.83979	9.90171
W. Mono	0.23914	2.15015	1.07156	0.82009	5.98980
Winnebago	3.37663	5.01556	3.27748	2.38765	12.61819
Yakut	2.36941	1.37904	3.95426	2.59279	2.31938
Yokuts	3.25789	7.94290	3.68750	6.65093	12.11661
Yukaghir	3.82970	2.93918	6.42081	4.81184	0.52032
Yuki	2.63821	4.28181	4.68244	3.19934	4.70887
Yurok	5.61762	7.88578	8.73864	3.18822	7.61965
Zuni	1.45409	0.70114	3.25714	2.35293	2.55356

Matrix 3F. cont.

	Tuscarora	Tututni	Umatilla	Ute	Wasco
Achomawi	4.98414	2.18005	10.06879	1.63375	1.95037
Agua Caliente	12.05169	10.80719	17.35749	6.84430	7.87835
Aiwan	10.46658	5.92378	5.61290	3.64258	3.52668
Aleut	7.06279	3.19871	5.88782	4.80737	5.11069
Apache	2.00387	3.93344	3.83982	1.03675	1.23668
Arapaho	1.16980	4.56566	4.76985	3.06925	2.45887
Assiniboin	1.75032	5.36160	3.25457	2.79856	2.27743
Atsugewi	5.18031	2.70045	9.16755	1.42712	1.89578
Bannock	6.19138	6.26694	10.05345	1.61934	2.55778
Bella Coola	3.95922	2.36092	9.77086	5.35478	4.23968
Big Meadow	2.35357	2.36988	8.06026	2.38829	2.31763
Blood	4.27858	11.14437	10.68378	7.67561	7.50425
Caddo	1.51226	3.05330	6.48978	0.59591	0.89809
Carrier	3.86623	4.92358	5.26386	1.78271	1.72641
Catawba	2.15985	5.58227	6.31252	5.12431	3.68943
Cherokee	1.98616	3.66565	6.52437	1.50415	1.28607
Cheyenne	1.64503	6.63475	4.48188	5.39196	3.70633
Chickasaw	2.20872	2.47961	6.36851	1.90826	0.58058
Chilcotin	1.64646	1.49695	3.38395	1.34719	0.72342
Chippewa(MN)	1.21222	3.60624	8.27630	2.72435	1.57971
Chippewa(WI)	0.75680	3.10002	7.51848	2.53202	1.29266
Choctaw	4.83358	6.99066	10.96270	4.92442	3.90165
Chuvantsy	10.51001	4.09533	10.17596	5.81607	5.48488
Clallam	2.58318	4.24025	5.03278	6.35971	6.10666
C. Miwok	5.69164	3.40593	7.92192	1.84334	1.19700
Coahuilla	4.90429	4.73419	10.39274	2.45777	2.90962
Coeur d'Alene	1.30073	2.93442	2.95938	3.32490	3.15342
Comanche	2.65250	6.15018	7.79994	1.87390	3.20037
Concow	2.82359	1.18238	4.38989	0.61613	0.38002
Creek	6.49039	10.42094	10.54363	5.59701	5.15522
Crow	2.52834	7.49012	10.43239	4.17375	5.10351
E. Mono	1.02952	1.88949	5.06474	0.88346	0.53881
Eskimo(EC)	7.84724	2.12728	7.80068	3.24948	3.76131
Eskimo(WC)	4.17607	2.00314	3.98294	1.20385	0.99872
Even	8.57192	2.85574	8.73089	3.58130	4.22697
Evenk	7.45376	3.49742	7.38392	3.44154	3.94458
Flathead	5.75979	6.82573	9.91298	2.19594	3.48095
Haida	2.41743	1.77196	7.36693	0.92882	0.78953
Hoopa	3.70365	2.76776	4.64289	1.32169	1.67564
Itelman(KH)	4.00159	1.07820	6.73613	1.82236	1.87709
Itelman(SE)	5.53632	1.82122	7.41343	2.61208	2.87423
Kalapuya	7.14436	3.68389	11.29214	1.65082	2.46368
Kiowa	1.03094	4.76782	6.10523	2.93028	3.40932
Klamath	2.02442	1.02443	5.89158	1.51474	0.73488
Koryak	7.86987	2.79747	7.03032	3.57519	3.95250
Kutenai	3.78046	6.33199	2.76855	5.48770	6.05768
Kwakiutl	5.20891	1.06764	6.02740	3.21194	2.23141
Lillooet	3.68694	2.43202	7.86227	0.78876	0.93455
Makah	2.00586	1.05123	5.47290	2.33946	2.08527

Matrix 3F. cont.

	Tuscarora	Tututni	Umatilla	Ute	Wasco
Malecite	1.01744	2.79727	6.96914	1.69436	0.98335
Maritime Chukchi	9.79520	4.72885	5.61458	3.90033	3.43713
Menomini	0.87968	2.35309	5.12410	2.56097	1.11903
Micmac	0.66561	3.75370	4.65602	2.70113	1.34028
Mississagua	0.75583	3.52814	7.98549	2.84525	1.56112
Modoc	6.68486	5.13843	14.69558	2.82306	3.83487
Mohawk	0.79896	3.70712	7.88692	3.49292	2.00781
Montagnais	2.48482	2.82520	4.90677	1.76633	1.33468
Munsee	0.57234	4.27284	8.47014	3.58120	2.30126
Nanaimo	6.06456	3.43077	12.55091	3.41554	4.09687
Navajo	2.16871	3.06908	1.93153	2.36602	2.13990
Nez Perce	1.52830	2.04966	3.18895	2.73826	2.21324
Nisqually	3.55101	1.61388	9.35498	1.99274	2.71714
Nivkhi	5.41080	3.94941	6.18796	6.13947	5.59165
Northern Hill Yokuts	4.02799	2.17357	9.39142	0.70481	1.00608
N. Paiute	2.65481	3.43247	6.59163	0.77109	1.49602
N. Pomo	4.36689	4.63621	10.77271	0.61294	1.67220
Ojibwa(GBay)	0.66246	3.83627	8.08594	4.28438	3.35546
Ojibwa (NWLSup)	6.46717	10.91509	12.91816	9.66330	11.14284
Okanagan	1.10920	2.25376	3.11708	1.82111	1.44407
Omaha	1.68962	4.70447	7.65581	1.91320	1.00575
Oneida	0.67129	3.60164	6.46843	3.20845	1.84922
Osage	0.89760	4.80612	6.52599	1.63748	1.63021
Pawnee	0.82857	2.37607	4.36269	1.39361	0.72916
Piegan	0.76469	6.04786	5.26778	3.46494	3.11422
Ponca	1.76372	4.19696	5.49421	2.63790	1.96266
Potawatomi	0.53199	1.91436	5.29184	1.95752	1.06744
Pueblo	2.59052	2.27575	7.09273	1.51585	1.05041
Puyallup	3.16111	1.39930	8.49144	1.43619	1.63197
Queets	3.42687	3.31786	4.41122	5.87387	5.67583
Quillayute	3.95697	1.31240	8.87975	2.93832	2.97295
Quinault	3.13909	1.48794	4.40173	2.88722	3.25991
Reindeer Chukchi	9.69175	4.67896	9.21746	3.51735	3.32366
Reindeer Evenk	21.03957	10.02483	17.93954	12.34645	12.21024
Reindeer Koryak	14.03743	6.73654	12.16328	7.30175	7.67514
San Luis Rey	10.00460	9.82831	17.63604	5.94968	6.40634
Sarcee	4.67006	8.16247	10.10218	3.53882	3.85695
Sauk	3.50859	5.83331	3.88311	4.42562	4.02158
Seneca	0.34489	3.29163	5.67312	2.95171	2.04085
Serrano	5.85968	8.14294	14.54145	3.94840	3.72609
Shawnee	1.74644	3.13331	2.74945	2.30541	1.02810
Shoshoni	1.47484	1.78880	4.67382	0.74251	0.57085
Shuswap	1.35161	1.21994	4.28973	1.44464	0.91622

Matrix 3F. cont.

	Tuscarora	Tututni	Umatilla	Ute	Wasco
Sioux(Santee)	1.49907	5.70585	7.33783	4.16321	2.26126
Sioux(Teton)	1.36706	5.72487	7.70328	2.74481	1.62431
Sioux(Yankton)	1.84862	5.54996	8.20102	3.10268	1.60181
S. Miwok	2.90168	2.41652	7.56047	0.50168	0.48338
Stalo	2.48061	3.12696	3.92545	3.25912	3.03407
Stockbridge	1.01752	4.34829	5.65875	4.60170	2.51629
Tahltan	1.47536	2.36006	2.96113	2.47070	1.61980
Taos	3.40026	2.04103	1.71021	2.00450	1.35671
Tenino	2.49163	1.76861	4.19546	0.77556	0.70689
Thompson	3.27356	3.24872	2.81094	1.98884	1.90337
Tonkawa	1.24848	3.09207	4.48463	2.01888	1.92754
Tsimshian	2.00697	1.11296	6.72589	1.42982	0.89282
Tundra Evenk	10.37872	4.56318	10.11404	5.35741	6.19166
Tuscarora	0	3.69647	6.01877	3.39781	2.53073
Tututni	3.69647	0	5.65447	2.99512	2.26651
Umatilla	6.01877	5.65447	0	6.56643	5.42266
Ute	3.39781	2.99512	6.56643	0	0.55333
Wasco	2.53073	2.26651	5.42266	0.55333	0
Washo	2.50407	4.10733	7.39146	1.13284	0.95898
W. Mono	2.41115	1.93395	5.62382	0.31579	0.36446
Winnebago	2.00363	5.76827	9.12924	2.92338	1.62944
Yakut	3.60214	1.88288	6.12516	2.86604	2.23763
Yokuts	7.83529	8.38661	11.95582	3.64859	4.60901
Yukaghir	7.26280	2.98186	9.00120	4.18501	4.29371
Yuki	6.77701	4.67890	11.22089	0.91875	2.53020
Yurok	8.77001	5.15238	15.61737	3.35883	3.35911
Zuni	4.50136	1.69491	3.48922	1.71056	1.83826

Matrix 3F. cont.

	Washo	W. Mono	Winnebago	Yakut	Yokuts
Achomawi	2.08752	1.19456	4.51899	4.93373	4.66144
Agua Caliente	4.67455	6.01225	10.42214	13.26612	0.89658
Aiwan	5.17505	3.76640	8.83134	6.60859	5.89334
Aleut	8.71093	5.06211	9.87227	4.20990	15.18458
Apache	1.16156	0.87789	2.75492	4.20066	4.32291
Arapaho	1.32166	1.92007	2.48209	6.00669	4.87924
Assiniboin	3.14029	2.67959	3.04964	3.29104	7.64832
Atsugewi	2.19069	1.25293	4.52229	5.52964	5.22555
Bannock	1.41252	1.73490	4.90321	6.11952	0.61025
Bella Coola	7.14722	4.77381	5.62322	3.02385	15.20039
Big Meadow	2.42495	1.68761	3.37087	5.09167	7.40982
Blood	5.30110	6.69445	6.56513	8.63861	6.26364
Caddo	1.22513	0.62802	2.16142	2.15767	4.47011
Carrier	1.23398	1.38647	3.77408	4.32061	1.90941
Catawba	3.47517	3.81136	3.70322	3.90854	6.43683
Cherokee	0.58346	0.84056	2.29533	3.44308	2.28091
Cheyenne	3.00901	3.97980	2.70997	6.58115	7.48893
Chickasaw	1.41615	1.17189	1.39376	2.07060	5.23204
Chilcotin	2.12267	0.86527	2.91438	1.00905	6.17654
Chippewa(MN)	1.05820	1.63955	0.99404	3.81316	4.75156
Chippewa(WI)	1.71501	1.74038	0.66583	2.98139	7.09707
Choctaw	2.88996	3.88542	4.05600	5.47700	3.54225
Chuvantsy	7.82888	5.28377	11.31387	3.40739	8.11475
Clallam	7.89455	5.59446	8.03206	3.98821	14.56530
C. Miwok	1.36222	1.24846	3.59062	4.84472	2.82197
Coahuilla	1.01735	1.59798	4.59312	7.02270	0.95844
Coeur d'Alene	3.38305	2.33191	5.08536	3.62281	7.32721
Comanche	2.05775	2.04620	4.23255	5.88018	4.16919
Concow	1.80285	0.38525	3.28234	1.37791	5.21740
Creek	2.49773	4.66410	5.01026	10.23236	1.76429
Crow	2.76000	3.58728	4.51043	8.98455	5.64182
E. Mono	1.37212	0.55728	1.75643	1.90536	5.89761
Eskimo(EC)	6.11673	3.15709	9.62803	2.08905	7.54050
Eskimo(WC)	1.53938	0.61366	4.40324	3.53527	3.45598
Even	7.22083	3.90315	10.16653	1.86012	9.20000
Evenk	6.80720	3.82142	9.26711	1.28210	8.82167
Flathead	1.32425	2.01603	5.34737	8.66192	0.94318
Haida	0.66664	0.27228	2.41950	3.33297	3.40451
Hoopa	1.62525	0.81572	5.01095	3.23969	2.43550
Itelman(KH)	4.40505	1.87055	5.38741	0.91646	9.02736
Itelman(SE)	6.08731	2.97569	7.06370	1.27284	11.00928
Kalapuya	2.28478	1.55572	5.87627	5.77550	2.77646
Kiowa	2.72528	2.43013	3.90209	5.22070	6.78423
Klamath	1.20673	0.54673	2.37047	2.76274	4.98865
Koryak	5.49324	3.13758	9.71448	2.90361	5.66211
Kutenai	6.34495	4.94728	8.73114	6.64012	10.21544
Kwakiutl	5.24128	2.77220	5.63575	2.59343	11.22925
Lillooet	2.35740	1.01768	3.47792	1.10994	5.16337
Makah	4.00225	1.91518	4.45312	1.41777	9.57499

Matrix 3F. cont.

	Washo	W. Mono	Winnebago	Yakut	Yokuts
Malecite	1.35728	1.12691	1.34655	1.86926	5.19310
Maritime Chukchi	5.35661	3.67638	8.87784	4.95238	5.97403
Menomini	2.42422	1.79502	1.39659	1.88824	8.24077
Micmac	1.93030	1.94912	1.01961	3.07121	7.26643
Mississagua	1.89134	2.04556	0.60218	3.37390	7.49261
Modoc	2.84381	2.67067	5.48220	8.22752	4.77553
Mohawk	1.66232	2.21541	0.96931	4.13058	6.41362
Montagnais	3.05105	1.70340	3.48586	0.59553	6.72573
Munsee	2.37118	2.67424	1.02065	3.44898	7.68098
Nanaimo	2.92077	2.43821	6.67475	7.26864	3.94921
Navajo	2.61395	1.69575	4.37723	4.30172	6.64672
Nez Perce	2.19136	1.48975	4.05842	4.17409	6.02986
Nisqually	3.30128	1.63353	5.43186	3.43117	6.78103
Nivkhi	8.99084	5.86429	9.34605	1.01368	13.87752
Northern Hill Yokuts	1.57488	0.65887	3.26177	3.12346	4.29806
N. Paiute	0.66832	0.47909	3.37406	4.62057	2.39118
N. Pomo	1.29057	1.04718	3.31384	4.60859	2.90900
Ojibwa(GBay)	2.44557	2.76198	2.81057	4.46615	6.33464
Ojibwa (NWLSup)	8.08268	8.29636	12.44192	11.59136	7.80888
Okanagan	1.70551	1.00204	3.23735	2.51093	5.02963
Omaha	0.54496	1.37215	0.31687	4.47806	4.26883
Oneida	2.26011	2.30909	0.97899	4.20996	8.59953
Osage	1.00859	1.37124	1.40295	4.43618	4.79185
Pawnee	1.05167	0.73249	1.46689	3.07225	5.59684
Piegan	2.50835	2.89893	2.46432	5.61052	7.22586
Ponca	0.76009	1.47940	2.15068	6.20218	3.93158
Potawatomi	1.31509	0.97917	1.57112	2.77572	5.96650
Pueblo	3.21887	1.67393	2.65371	0.87370	8.51400
Puyallup	2.96862	1.30924	3.89909	2.46933	7.55656
Queets	7.95433	5.16230	8.89545	2.49161	13.41478
Quillayute	5.33350	2.77758	5.83900	1.84426	10.87095
Quinault	5.05554	2.48916	6.97289	2.21060	9.58709
Reindeer Chukchi	4.79498	3.39256	8.18085	4.35554	4.65228
Reindeer Evenk	14.56197	11.66472	20.52366	11.00944	12.01679
Reindeer Koryak	8.95660	6.77164	14.59888	6.99498	6.65103
San Luis Rey	3.39306	5.09150	7.46923	12.00572	1.19826
Sarcee	2.37345	3.31097	4.46780	5.99802	2.19776
Sauk	2.47131	3.01392	5.50788	7.67152	3.93684
Seneca	1.78002	1.86596	1.67731	4.47351	7.02138
Serrano	1.58543	3.34721	3.16599	8.36876	1.86597
Shawnee	1.62636	1.43061	2.08924	3.27604	5.73341
Shoshoni	0.76033	0.17208	2.36726	2.37057	3.74751
Shuswap	2.19081	0.88734	2.94957	0.85489	6.31127

Matrix 3F. cont.

	Washo	W. Mono	Winnebago	Yakut	Yokuts
Sioux(Santee)	2.25881	3.17468	0.65537	4.69683	7.36383
Sioux(Teton)	1.38244	2.28384	0.16542	4.90735	6.26402
Sioux(Yankton)	1.65200	2.51151	0.25086	4.32635	6.31133
S. Miwok	0.56086	0.23086	2.04207	3.57737	3.44722
Stalo	5.53683	3.27700	5.38035	1.62495	11.62752
Stockbridge	3.61862	3.54443	1.50878	3.60786	10.44564
Tahltan	1.80923	1.35781	2.97474	4.22883	6.20294
Taos	3.41330	1.66494	4.62655	2.18158	7.82676
Tenino	1.05961	0.23914	3.37663	2.36941	3.25789
Thompson	4.00357	2.15015	5.01556	1.37904	7.94290
Tonkawa	1.20018	1.07156	3.27748	3.95426	3.68750
Tsimshian	1.83979	0.82009	2.38765	2.59279	6.65093
Tundra Evenk	9.90171	5.98980	12.61819	2.31938	12.11661
Tuscarora	2.50407	2.41115	2.00363	3.60214	7.83529
Tututni	4.10733	1.93395	5.76827	1.88288	8.38661
Umatilla	7.39146	5.62382	9.12924	6.12516	11.95582
Ute	1.13284	0.31579	2.92338	2.86604	3.64859
Wasco	0.95898	0.36446	1.62944	2.23763	4.60901
Washo	0	0.62376	1.54101	4.96272	2.13558
W. Mono	0.62376	0	2.48365	2.67959	3.23913
Winnebago	1.54101	2.48365	0	5.18828	6.66543
Yakut	4.96272	2.67959	5.18828	0	9.49019
Yokuts	2.13558	3.23913	6.66543	9.49019	0
Yukaghir	7.44367	4.32102	9.14052	0.87378	10.31205
Yuki	3.15798	1.82522	6.00601	4.44990	4.38610
Yurok	5.24155	3.94989	5.47446	5.57443	9.25253
Zuni	4.32796	1.80142	6.21843	1.37111	8.08509

Matrix 3F. cont.

	Yukaghir	Yuki	Yurok	Zuni
Achomawi	5.98256	1.97118	2.38168	3.76075
Agua Caliente	13.23325	6.77332	11.07768	12.09058
Aiwan	6.93119	5.16789	7.83038	3.45566
Aleut	5.44202	6.12781	7.66034	1.83874
Apache	6.88044	3.54384	7.36524	2.42026
Arapaho	9.76814	6.70446	9.96247	5.01190
Assiniboin	6.49833	6.32577	10.09210	3.02154
Atsugewi	6.93203	1.96042	2.63863	3.48316
Bannock	6.73826	2.08517	6.13865	5.12517
Bella Coola	5.42313	7.24193	5.14187	4.21637
Big Meadow	7.83746	4.14336	4.80930	3.98021
Blood	11.61147	11.07719	17.45304	10.45065
Caddo	4.05709	2.09179	4.87834	2.19870
Carrier	5.94253	4.01519	8.23904	3.57146
Catawba	6.75204	8.91936	11.90203	5.96702
Cherokee	5.42909	3.61731	6.71347	3.72483
Cheyenne	11.19551	10.44315	13.19565	6.75896
Chickasaw	4.37230	4.45914	4.45829	3.17131
Chilcotin	2.95909	3.80392	5.86207	0.96971
Chippewa(MN)	6.81906	5.46697	6.03624	5.27727
Chippewa(WI)	6.32768	5.39726	5.18137	4.32814
Choctaw	7.21960	7.27461	9.47445	7.84499
Chuvantsy	1.80287	6.02486	7.84329	4.23243
Clallam	6.82271	9.51408	13.23144	3.93595
C. Miwok	6.13051	3.35980	3.82755	4.01206
Coahuilla	8.32580	3.42682	6.43727	6.10433
Coeur d'Alene	6.27557	6.46656	10.97152	2.72088
Comanche	8.13914	3.30932	8.80600	4.51739
Concow	2.72804	2.24612	3.91077	0.66340
Creek	12.89181	8.57124	12.95102	10.06284
Crow	12.41528	6.26937	10.96827	7.88885
E. Mono	4.34575	3.05024	4.58832	1.74038
Eskimo(EC)	0.90627	3.14087	5.79250	1.59448
Eskimo(WC)	4.84834	3.09914	5.63566	1.68659
Even	0.50036	3.16836	5.56078	1.65336
Evenk	0.36242	3.66213	6.94110	1.49293
Flathead	10.18997	3.05376	7.87189	6.25125
Haida	5.08192	2.32707	3.55753	2.92479
Hoopa	4.13070	2.88119	7.27628	2.02428
Itelman(KH)	1.62802	2.58578	3.46188	0.82193
Itelman(SE)	1.60596	3.04045	3.93965	0.94891
Kalapuya	5.86174	1.27822	2.79472	4.32860
Kiowa	8.37323	5.47969	9.98291	4.34909
Klamath	4.89762	3.63269	4.10021	2.53423
Koryak	1.82729	3.96609	7.67770	2.29114
Kutenai	9.46431	8.88291	15.86713	4.14218
Kwakiutl	4.16725	4.99254	3.72751	1.74153
Lillooet	1.77029	1.41798	2.88147	1.68302
Makah	3.27602	4.13818	5.42165	1.38203

Matrix 3F. cont.

	Yukaghir	Yuki	Yurok	Zuni
Malecite	4.22920	3.94267	5.21010	3.24908
Maritime Chukchi	4.84131	5.41159	7.77386	3.05582
Menomini	5.06905	5.79183	5.85701	2.90947
Micmac	6.78330	6.42593	7.52832	3.71976
Mississagua	6.92800	5.80575	5.46418	4.83045
Modoc	9.40263	2.40890	3.06081	6.89933
Mohawk	7.73265	6.80370	6.94480	5.67564
Montagnais	2.06397	3.80328	6.20420	1.45291
Munsee	7.00707	6.69410	7.05620	5.56075
Nanaimo	7.99102	3.46633	5.10749	6.20798
Navajo	7.17350	5.58242	9.41410	2.10507
Nez Perce	6.97829	5.87753	8.92691	2.81460
Nisqually	4.37410	2.26215	3.96352	2.86936
Nivkhi	1.64696	8.16424	11.03365	2.68065
Northern Hill Yokuts	4.09675	1.04243	1.65902	2.74909
N. Paiute	6.39966	2.11485	5.91895	3.09167
N. Pomo	5.67331	0.65108	3.03642	3.98922
Ojibwa(GBay)	7.63497	7.35398	9.40346	6.04243
Ojibwa (NWLSup)	13.30949	11.58533	20.58226	11.53552
Okanagan	4.87579	4.65550	8.17611	1.99239
Omaha	7.79014	4.70140	5.51365	5.00191
Oneida	8.33651	6.74140	6.63967	4.71011
Osage	7.69058	4.19664	7.20111	4.16855
Pawnee	6.15466	4.27204	5.89142	2.53332
Piegan	9.72917	7.15654	10.92999	5.18086
Ponca	9.72672	5.94513	8.38298	5.05307
Potawatomi	5.77205	4.80540	5.92928	3.03021
Pueblo	2.64198	3.01672	3.15418	1.72636
Puyallup	3.84950	2.11408	2.48948	2.17124
Queets	4.20020	8.52098	12.58571	2.71084
Quillayute	2.87241	3.57384	3.65666	2.17986
Quinault	3.48583	4.48610	7.84837	1.09154
Reindeer Chukchi	3.58828	3.94680	5.59586	3.91352
Reindeer Evenk	7.54048	11.33419	12.76780	10.74186
Reindeer Koryak	4.61481	6.94034	10.56403	6.48647
San Luis Rey	12.79752	6.21610	8.57548	11.81240
Sarcee	7.55893	5.27802	10.18650	6.91155
Sauk	10.71458	8.20032	13.48476	5.73973
Seneca	8.31237	6.35657	7.82010	4.44183
Serrano	10.36781	5.22317	6.56104	9.40657
Shawnee	6.42908	6.01942	7.88479	2.76749
Shoshoni	4.36734	2.79287	5.31017	1.81867
Shuswap	2.70031	3.64840	5.56701	1.19707

Matrix 3F. cont.

	Yukaghir	Yuki	Yurok	Zuni
Sioux(Santee)	8.85260	8.22751	8.35166	6.37865
Sioux(Teton)	8.91872	6.07881	6.72888	5.68787
Sioux(Yankton)	8.02086	6.42367	6.38428	5.85112
S. Miwok	5.40161	1.76462	2.77814	2.82805
Stalo	3.86632	5.76552	8.45333	1.43886
Stockbridge	7.90057	8.95383	8.66066	5.09200
Tahltan	7.46757	5.92566	8.12735	2.84859
Taos	4.19318	4.80508	7.07629	0.61801
Tenino	3.82970	2.63821	5.61762	1.45409
Thompson	2.93918	4.28181	7.88578	0.70114
Tonkawa	6.42081	4.68244	8.73864	3.25714
Tsimshian	4.81184	3.19934	3.18822	2.35293
Tundra Evenk	0.52032	4.70887	7.61965	2.55356
Tuscarora	7.26280	6.77701	8.77001	4.50136
Tututni	2.98186	4.67890	5.15238	1.69491
Umatilla	9.00120	11.22089	15.61737	3.48922
Ute	4.18501	0.91875	3.35883	1.71056
Wasco	4.29371	2.53020	3.35911	1.83826
Washo	7.44367	3.15798	5.24155	4.32796
W. Mono	4.32102	1.82522	3.94989	1.80142
Winnebago	9.14052	6.00601	5.47446	6.21843
Yakut	0.87378	4.44990	5.57443	1.37111
Yokuts	10.31205	4.38610	9.25253	8.08509
Yukaghir	0	4.32692	6.18035	2.13735
Yuki	4.32692	0	2.74077	3.15908
Yurok	6.18035	2.74077	0	5.86450
Zuni	2.13735	3.15908	5.86450	0

Matrix 4F. Squared Distance Matrix (Head Data)

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Achomawi	0	2.14719	3.76847	2.82491	3.32576
Agua Caliente	2.14719	0	9.90876	8.32492	3.30830
Aiwan	3.76847	9.90876	0	2.46197	10.41926
Aleut	2.82491	8.32492	2.46197	0	5.52846
Apache	3.32576	3.30830	10.41926	5.52846	0
Arapaho	4.10587	5.84672	4.19010	6.06159	7.96601
Assiniboin	9.04267	11.11040	7.16103	7.81818	12.04105
Atsugewi	0.31609	3.34841	3.30009	1.47402	3.50093
Bannock	5.99817	6.90412	9.44124	13.21653	9.77374
Bella Coola	3.64257	8.64941	3.22689	0.85190	6.15587
Big Meadow	1.23717	4.02905	5.20313	4.90671	4.86615
Blood	3.73103	6.05363	3.58783	4.23276	7.78027
Caddo	4.17171	4.35322	6.09491	5.63470	7.57479
Carrier	2.17459	6.06010	1.65779	1.51804	6.39744
Catawba	7.43860	7.90903	8.64848	9.92946	8.30997
Cherokee	4.21751	5.64770	3.97962	6.20841	6.80082
Cheyenne	4.76092	7.07609	3.91711	4.35253	8.52968
Chickasaw	6.73446	8.89568	7.06687	8.74858	7.04636
Chilcotin	0.55841	2.14434	4.53570	2.19978	2.06550
Chippewa(MN)	4.17307	6.54153	4.06962	4.79228	8.04095
Chippewa(WI)	1.62867	3.89323	3.70521	3.62548	4.42750
Choctaw	2.87381	3.46333	4.11490	5.62532	5.04144
Chuvantsy	7.29470	15.15923	0.92670	3.44281	15.42514
Clallam	4.46573	6.36291	12.82686	6.02532	2.67720
C. Miwok	2.06728	2.27946	8.13925	5.01095	4.10491
Coahuilla	4.16789	3.31110	12.44352	10.49225	4.65702
Coeur d'Alene	2.84801	5.07598	6.24997	7.46191	6.63424
Comanche	3.96910	5.02661	4.93800	4.37196	8.07869
Concow	4.34945	4.30177	7.54047	10.43104	8.36475
Creek	5.45401	6.62219	4.64125	7.35967	8.69059
Crow	5.69652	8.50459	5.29376	4.58338	10.68952
E. Mono	2.60591	2.83612	6.10771	5.50511	6.39264
Eskimo(EC)	4.13084	7.16174	3.34736	5.29136	7.27228
Eskimo(WC)	7.58274	13.54465	1.69697	5.85687	13.69239
Even	4.28185	10.63256	1.96742	2.74479	8.45376
Evenk	6.05116	12.32917	2.67239	4.55264	9.97693
Flathead	8.75919	6.63851	16.28797	14.86028	11.10761
Haida	3.86032	7.69072	6.64271	4.97673	5.91946
Hoopa	1.80929	2.62039	4.81432	5.32017	5.66505
Itelman(KH)	5.92476	10.96600	3.12074	7.05890	10.53053
Itelman(SE)	6.04768	10.59710	3.32640	6.67484	9.47798
Kalapuya	5.84419	4.82140	11.75725	9.05125	7.46899
Kiowa	2.48166	4.92023	2.18776	2.90506	5.92568
Klamath	1.55739	2.35762	7.40390	3.36289	2.02128
Klickitat	5.33067	6.60473	6.07836	5.22296	9.40654
Koryak	3.75432	8.53578	0.85986	2.94649	8.01678
Kutenai	7.95620	7.76117	9.54700	9.20320	11.33246
Kwakiutl	2.28094	7.25632	1.11101	1.67564	7.27462

Matrix 4F. cont.

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Lillooet	1.87667	3.18887	6.33352	3.07332	0.65131
Makah	2.12996	5.92573	5.92357	2.82146	2.74694
Malecite	3.63511	5.93419	3.62323	5.44724	7.61393
Maritime Chukchi	2.01821	6.87201	0.63846	2.65858	7.99920
Menomini	1.93662	3.49491	3.78205	4.65961	4.72703
Micmac	4.20764	6.79906	2.61362	5.03118	8.25415
Mississagua	3.36115	6.17330	3.73017	3.31968	5.60479
Modoc	2.31159	4.35346	7.15201	3.14152	0.64241
Mohawk	5.09325	7.24546	6.05821	6.67848	7.30878
Montagnais	5.53152	6.70870	7.90050	6.70074	6.56688
Munsee	2.95306	5.49624	3.86496	5.46880	6.77436
Nanaimo	6.43560	9.81369	14.05526	7.00714	7.65957
Navajo	2.58797	2.79957	7.01675	5.70081	1.49203
Nez Perce	1.19228	2.40495	4.83790	2.99205	3.10786
Nisqually	2.95398	7.09597	7.41040	1.94566	3.85180
Nivkhi	0.74131	3.76014	2.64585	2.49501	3.28975
N. Hill Yokuts	2.09572	2.75225	4.20817	6.63451	8.07744
N. Paiute	1.51396	1.69373	5.46412	5.95952	3.60948
N. Pomo	5.48408	3.49992	10.64966	12.86471	6.60689
Ojibwa(GBay)	1.89798	5.12237	3.00524	2.62246	4.67592
Ojibwa (NWLSup)	3.70480	8.62876	2.86479	3.43001	7.67173
Okanagan	3.16570	5.49017	5.05298	5.03866	6.60915
Omaha	2.51205	4.28986	3.74088	3.34277	4.14809
Oneida	2.76943	6.54558	2.08363	3.59436	7.58521
Osage	3.42538	3.42698	10.94702	4.82696	0.80601
Pawnee	3.30833	5.14155	3.15684	4.18663	6.42696
Piegan	4.45112	6.47491	3.87820	4.57582	7.69694
Ponca	3.08282	5.35677	3.07301	3.17056	6.96635
Potawatomi	3.16971	6.86574	4.56351	3.14495	2.86481
Pueblo	3.64791	4.05299	5.05705	5.73659	4.63535
Puyallup	1.77805	4.63321	7.37860	2.64930	2.31118
Queets	6.17445	8.60148	14.31970	5.90604	3.85462
Quillayute	4.16481	5.62541	12.49480	6.02829	1.42848
Quinault	7.48280	8.37952	18.42457	9.75785	3.81700
Reindeer Chukchi	1.64958	6.36940	0.84540	2.23186	6.83319
Reindeer Evenk	3.88435	8.15598	1.31014	3.28688	7.86150
Reindeer Koryak	2.62963	6.56802	0.79241	2.11388	7.31847
San Luis Rey	1.85592	0.63064	10.36190	7.23620	2.76572
Sarcee	5.26504	7.20241	4.53890	6.49308	9.63106
Sauk	3.23090	5.03108	4.56692	5.06114	5.00215
Seneca	3.55765	6.92738	2.60732	5.02531	8.78698
Serrano	2.51278	3.01548	7.07727	8.05996	6.52327

Matrix 4F. cont.

	Achomawi	Agua Caliente	Aiwan	Aleut	Apache
Shawnee	2.30125	2.82887	4.63974	5.62722	4.72429
Shoshoni	4.81054	4.06350	7.89213	8.98273	6.35786
Shuswap	1.27867	1.95485	6.03827	4.38713	2.44702
Sioux(Santee)	6.21526	8.73753	4.39496	5.26371	9.33319
Sioux(Teton)	5.67752	8.72146	4.10065	4.09310	9.18654
Sioux(Yankton)	5.91644	8.05554	4.90141	4.91521	8.31911
S. Miwok	1.66290	3.13914	8.00913	3.96310	3.15219
Stalo	2.47049	4.22204	9.88083	5.43998	1.94771
Stockbridge	3.45392	5.28131	4.20408	6.82364	8.46048
Tahltan	5.33170	11.86772	2.97487	1.25793	8.86146
Taos	7.31628	10.00332	4.95287	9.30227	10.89968
Tenino	1.28733	2.70323	7.22143	2.87370	1.27699
Thompson	2.20167	3.95120	4.94419	4.63221	2.93612
Tonkawa	4.66056	4.45750	7.91820	4.68807	5.00255
Tsimshian	3.17427	6.17989	6.78205	5.60554	5.29220
Tundra Evenk	3.38142	9.23159	0.76725	1.49229	7.59672
Tuscarora	3.33908	6.58858	3.26624	5.11064	7.28391
Tututni	9.23846	15.87438	6.54866	4.16842	10.65179
Umatilla	5.05592	3.48125	11.34847	7.14392	4.72465
Ute	5.04949	3.25408	8.91385	10.99244	7.17415
Wasco	2.52213	3.69132	7.98698	3.34788	2.93523
Washo	1.45936	1.92200	4.99929	4.82729	4.52608
W. Mono	6.71867	8.64035	4.42034	9.71512	13.00088
Winnebago	1.14498	2.71478	4.49782	2.21265	1.72001
Yakut	3.51071	9.27964	1.20714	1.02345	7.11622
Yokuts	2.39583	2.07751	10.82717	7.89542	2.66423
Yukaghir	4.88860	11.25797	1.10510	2.85529	9.89487
Yuki	8.54209	8.55545	9.67750	14.32697	11.21133
Yurok	1.26769	2.06655	6.19497	7.03680	5.26002
Zuni	4.83312	5.23532	7.97890	8.35065	3.95287

Matrix 4F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
Achomawi	4.10587	9.04267	0.31609*	5.99817	3.64257
Agua Caliente	5.84672	11.11040	3.34841	6.90412	8.64941
Aiwan	4.19010	7.16103	3.30009	9.44124	3.22689
Aleut	6.06159	7.81818	1.47402	13.21653	0.85190
Apache	7.96601	12.04105	3.50093	9.77374	6.15587
Arapaho	0	2.62855	4.20767	5.17445	4.11807
Assiniboin	2.62855	0	7.94462	13.27377	5.82849
Atsugewi	4.20767	7.94462	0	8.11799	2.11660
Bannock	5.17445	13.27377	8.11799	0	12.59428
Bella Coola	4.11807	5.82849	2.11660	12.59428	0
Big Meadow	4.05536	9.42134	1.69910	3.54282	5.12716
Blood	0.70486	1.35782	3.18559	8.13310	2.90364
Caddo	6.08551	6.37041	4.11259	13.89341	6.94709
Carrier	5.55704	8.05592	1.77633	11.55050	3.18405
Catawba	7.17643	7.16755	8.23234	9.19324	11.89208
Cherokee	1.95913	3.77801	4.78996	5.33893	6.37211
Cheyenne	1.02075	1.87864	3.99097	10.27308	2.41209
Chickasaw	6.46665	8.92998	7.67053	5.87991	10.32208
Chilcotin	4.56474	7.67877	0.48778*	8.42704	3.19823
Chippewa(MN)	2.02037	1.57236	3.73266	8.51393	4.56621
Chippewa(WI)	1.97863	4.26342	1.68515	4.91874	3.75775
Choctaw	2.40670	5.51885	3.68233	5.40814	6.03649
Chuvantsy	6.98048	7.86780	5.95681	15.72100	4.24327
Clallam	13.41647	19.70855	4.11308	15.06589	7.01232
Cmiwok	7.63556	12.97394	2.19635	12.26134	5.38224
Coahuilla	5.50037	12.32556	5.15430	4.40103	8.73184
Coeur d'Alene	2.89539	8.83668	3.68881	1.61332	6.58997
Comanche	4.69746	5.05406	3.44181	14.22938	4.66510
Concow	2.94042	7.00379	5.80985	2.15568	10.22739
Creek	1.01926	2.27177	5.84574	5.99033	6.43937
Crow	3.16619	2.18033	4.28604	14.44712	3.03996
E. Mono	3.75551	8.36558	2.77788	9.93816	4.46422
Eskimo(EC)	2.33986	3.82364	4.34014	5.16963	5.65214
Eskimo(WC)	3.64316	6.91260	7.25816	9.62516	4.95228
Even	5.32927	6.91709	3.63657	8.67628	4.06343
Evenk	5.03948	6.37184	5.58488	8.02705	5.43882
Flathead	8.98922	8.93810	9.26099	11.76125	14.72820
Haida	3.86410	7.04726	3.32552	6.19666	3.80651
Hoopa	5.58341	8.61254	2.55756	7.99968	7.37411
Itelman(KH)	5.36672	9.12119	6.61275	4.99034	8.41820
Itelman(SE)	5.36225	8.43656	6.64332	5.86073	8.11915
Kalapuya	12.35040	12.79816	6.16131	17.05463	12.22505
Kiowa	0.96631	2.68351	2.22049	7.31283	2.38564
Klamath	7.81338	11.04215	1.41512	12.02900	4.88094
Klickitat	6.88908	5.60550	4.63744	16.75131	6.51532
Koryak	2.45225	4.59430	3.49727	7.11666	3.25781
Kutenai	4.33751	1.73227	7.27856	14.39120	8.08136
Kwakiutl	2.09657	4.83587	1.59880	7.56233	1.26200

Matrix 4F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
Lillooet	4.92089	7.85784	1.79236	7.96099	3.67319
Makah	7.10858	13.38223	1.91406	8.56047	3.15231
Malecite	2.71028	3.65438	3.88196	6.23868	6.19886
Maritime Chukchi	4.50642	8.40435	2.13423	7.28603	4.22827
Menomini	1.68369	4.34024	2.39941	4.04023	4.85335
Micmac	1.77534	2.72733	4.30880	6.83420	5.19165
Mississagua	1.90853	2.10828	2.78985	7.71750	3.04672
Modoc	7.56030	11.30554	2.21102	9.48739	4.54641
Mohawk	3.04505	3.25990	5.08078	6.34288	6.67702
Montagnais	3.42958	2.43872	5.07819	8.97039	6.17027
Munsee	1.16336	4.01921	3.25354	3.34941	4.84672
Nanaimo	17.73755	20.25133	5.36845	21.08764	10.03170
Navajo	4.98476	9.09500	3.43040	5.45133	6.62804
Nez Perce	2.72994	4.61665	0.96877	7.64698	3.03684
Nisqually	9.32470	12.16115	1.67255	14.48820	2.84403
Nivkhi	2.81997	7.19025	0.98520	4.42523	3.03393
N. Hill Yokuts	2.88671	7.97627	3.07646	5.79565	6.61526
N. Paiute	2.28114	6.57114	2.48269	3.07650	6.04296
N. Pomo	4.55622	10.55256	7.62534	1.95357	12.48781
Ojibwa(GBay)	1.90597	3.84195	1.56267	5.86678	2.53324
Ojibwa (NWLSup)	4.24847	5.24131	3.23369	7.62541	4.46555
Okanagan	1.31238	3.13751	2.89147	5.64380	3.77099
Omaha	0.96512	2.64577	2.28704	6.40431	2.55178
Oneida	1.58647	3.34789	2.56219	5.74858	3.51417
Osage	8.97265	12.34568	3.04404	13.51722	5.27264
Pawnee	0.92907	1.89306	3.18546	7.05436	3.65717
Piegan	0.66468	1.04447	3.91889	8.60911	3.10219
Ponca	1.23519	2.83424	2.48359	9.48025	1.91690
Potawatomi	4.51954	8.50656	3.06240	6.22179	3.38434
Pueblo	4.43153	7.13378	4.39135	7.85534	6.88794
Puyallup	8.01856	12.76140	1.21483	11.16889	3.24689
Queets	15.22357	19.62829	5.02223	19.68808	6.78045
Quillayute	11.33428	17.05853	3.94108	12.34905	6.54807
Quinault	17.28341	23.85828	7.11285	18.20664	10.41584
Reindeer Chukchi	4.72795	9.01283	1.76574	7.25401	3.83470
Reindeer Evenk	2.34686	3.79540	3.64830	7.23586	3.68346
Reindeer Koryak	2.57522	4.29757	2.26674	8.68956	2.69303
San Luis Rey	6.45481	11.85651	2.53875	7.92142	7.19606
Sarcee	1.72767	1.38592	5.11729	7.96534	5.97762
Sauk	1.05614	3.16820	3.37397	4.33602	4.26763
Seneca	1.38824	3.16349	3.59519	5.17572	4.75965
Serrano	2.34881	7.34916	3.43328	2.60751	7.06270

Matrix 4F. cont.

	Arapaho	Assiniboin	Atsugewi	Bannock	Bella Coola
Shawnee	1.60668	4.28038	2.96600	4.24256	5.63259
Shoshoni	0.96973	4.15300	5.57023	4.12634	6.97845
Shuswap	3.55773	6.28170	1.57351	5.81347	4.91390
Sioux(Santee)	1.19733	0.53406	5.39591	10.34098	3.57242
Sioux(Teton)	1.53564	1.28275	4.50074	11.78150	2.14448
Sioux(Yankton)	1.23610	0.95242	5.00775	10.84741	2.90244
S. Miwok	7.08852	12.54907	1.41643*	10.80614	3.83445
Stalo	8.29250	13.23285	2.52260	8.10730	6.12752
Stockbridge	2.37265	4.50508	4.09347	4.51629	7.22503
Tahltan	4.97303	5.04492	3.41349	14.02402	0.74636
Taos	5.37168	7.69574	8.36206	6.28433	10.70781
Tenino	7.24626	11.17941	1.05730	10.65878	3.90845
Thompson	3.53609	6.78995	2.73776	4.23298	5.44898
Tonkawa	6.30304	6.85595	4.00740	16.06651	4.71677
Tsimshian	3.37946	7.86245	3.10787	4.44584	4.32473
Tundra Evenk	4.64017	6.40790	2.71219	9.57372	2.78740
Tuscarora	3.10288	5.06328	3.64635	4.92662	6.01901
Tututni	11.97980	9.31366	7.46085	19.66200	6.90583
Umatilla	6.78843	9.74245	4.72199	15.09028	5.76059
Ute	2.15657	6.00293	6.47873	3.51638	9.77719
Wasco	9.57574	12.29485	2.08305	15.07953	5.21377
Washo	1.87922	6.61536	1.87231	5.91210	3.78886
W. Mono	1.40962	4.51144	7.55200	5.13120	8.41843
Winnebago	3.00836	5.62683	0.91973	7.51253	2.30984
Yakut	3.28526	4.89529	2.42039	9.83998	0.96972
Yokuts	7.03870	12.15132	3.19860	5.82663	8.38942
Yukaghir	4.71272	5.77488	4.19304	9.57236	3.98456
Yuki	4.06632	8.67282	10.42873	2.08675	13.50150
Yurok	4.97820	10.71402	2.56490	3.32292	8.21463
Zuni	7.19303	11.75616	6.22658	5.76218	10.17057

Matrix 4F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Achomawi	1.23717	3.73103	4.17171	2.17459	7.43860
Agua Caliente	4.02905	6.05363	4.35322	6.06010	7.90903
Aiwan	5.20313	3.58783	6.09491	1.65779	8.64848
Aleut	4.90671	4.23276	5.63470	1.51804	9.92946
Apache	4.86615	7.78027	7.57479	6.39744	8.30997
Arapaho	4.05536	0.70486	6.08551	5.55704	7.17643
Assiniboin	9.42134	1.35782	6.37041	8.05592	7.16755
Atsugewi	1.69910	3.18559	4.11259	1.77633	8.23234
Bannock	3.54282	8.13310	13.89341	11.55050	9.19324
Bella Coola	5.12716	2.90364	6.94709	3.18405	11.89208
Big Meadow	0	4.24389	8.18361	5.47016	8.05474
Blood	4.24389	0	4.07071	4.13411	6.42578
Caddo	8.18361	4.07071	0	2.42990	5.42741
Carrier	5.47016	4.13411	2.42990	0	7.11893
Catawba	8.05474	6.42578	5.42741	7.11893	0
Cherokee	4.89311	2.25250	4.14763	4.11227	1.97844
Cheyenne	6.30367	0.55533	4.56804	4.28718	9.06338
Chickasaw	6.29935	7.05580	8.83191	7.19621	1.55336
Chilcotin	2.54282	3.49634	2.74307	1.77478	6.01083
Chippewa(MN)	4.35189	0.69739	3.57356	4.26666	3.67040
Chippewa(WI)	1.32691	1.47577	4.43519	3.55946	3.82830
Choctaw	4.63739	2.85604	2.95388	2.97934	2.91631
Chuvantsy	9.29183	5.25182	7.86937	3.11594	12.15491
Clallam	6.46924	12.64000	12.18748	8.38211	17.60751
C. Miwok	5.73686	6.96291	4.60744	3.94836	13.32790
Coahuilla	2.74896	7.03709	12.10955	11.44228	12.87363
Coeur d'Alene	0.70672	4.18752	10.32893	7.82802	8.65918
Comanche	7.89122	2.78170	0.57545	2.14986	7.82096
Concow	3.04526	3.94065	7.16061	8.10195	4.12654
Creek	5.89280	1.45692	4.82589	5.46246	3.54440
Crow	7.26338	1.12531	4.37916	5.08090	10.74484
E. Mono	5.71188	3.77048	3.88635	3.89931	12.19250
Eskimo(EC)	3.61456	2.22694	5.72199	4.46189	2.28871
Eskimo(WC)	8.63706	4.52046	9.93512	5.07998	11.17009
Even	3.78341	4.22312	8.00648	3.60991	5.77905
Evenk	4.95155	4.51592	9.59381	5.26095	5.29772
Flathead	7.34696	7.32335	8.80444	13.96647	7.83304
Haida	1.55228	3.73019	11.18478	8.02243	10.01382
Hoopa	4.09849	4.55634	1.56862	2.16834	3.68496
Itelman(KH)	5.07509	6.09993	9.83438	5.66443	4.56938
Itelman(SE)	5.80282	5.94438	8.83100	5.16336	3.56035
Kalapuya	9.62863	9.43524	2.29744	5.74317	6.13270
Kiowa	3.91112	0.56445	2.93400	2.10153	5.24185
Klamath	4.54407	6.21940	3.32813	2.88985	8.41880
Klickitat	9.28379	4.00811	0.41771	2.75465	6.50084
Koryak	4.46219	2.29204	5.63478	2.36406	5.17173
Kutenai	9.14278	2.22298	3.73153	8.08616	6.70810
Kwakiutl	2.66275	1.53274	5.94694	2.44213	8.54727
Lillooet	3.09507	4.40180	5.10864	3.70958	5.51130

Matrix 4F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Makah	3.04432	7.33868	9.99423	4.70592	12.76650
Malecite	3.72489	1.95992	3.72695	3.82907	1.85775
Maritime Chukchi	3.38807	3.97026	4.75746	1.12706	6.48328
Menomini	1.95819	1.65541	3.97325	3.57516	2.83047
Micmac	4.99206	1.42135	3.62762	3.25864	2.76415
Mississagua	3.35600	0.87494	4.42250	3.83312	3.81630
Modoc	3.77959	6.90349	6.72225	4.06794	7.10893
Mohawk	3.75890	2.37321	6.50733	6.69956	2.49181
Montagnais	4.70072	2.12003	5.85176	7.37695	3.69524
Munsee	1.71422	1.47632	6.56508	5.30548	4.72004
Nanaimo	8.06919	14.06075	11.23767	9.13348	16.64386
Navajo	3.69110	5.48409	5.49517	4.62120	3.69083
Nez Perce	2.23037	1.63269	2.76542	2.94227	5.28848
Nisqually	4.26440	7.18160	8.35290	4.81530	13.28735
Nivkhi	1.13965	2.93722	5.28479	2.37383	5.50717
N. Hill Yokuts	4.07073	3.31936	3.34552	3.38025	8.00641
N. Paiute	1.79945	2.86473	4.41787	4.40188	3.99814
N. Pomo	5.00940	6.82776	8.91845	9.91611	5.40473
Ojibwa(GBay)	1.58630	1.25738	5.05168	3.30839	4.78735
Ojibwa (NWLSup)	2.89510	2.98927	6.57031	3.98767	4.21555
Okanagan	1.97793	0.93964	6.53159	5.97036	6.66188
Omaha	3.18964	0.74917	3.95808	3.37555	4.68670
Oneida	2.34581	1.02285	5.11524	3.42602	4.75104
Osage	6.04607	7.87011	6.60420	5.98384	11.22338
Pawnee	4.32135	0.50244	2.97442	3.11105	3.80965
Piegan	5.33603	0.16975	4.07577	4.28848	6.09143
Ponca	4.98815	0.62332	3.29662	2.76956	8.32413
Potawatomi	3.18663	4.99407	8.85254	4.54608	6.76198
Pueblo	6.41021	4.51709	2.66915	2.77082	2.81998
Puyallup	3.15123	6.99347	8.01235	4.64065	12.71359
Queets	8.56145	13.36427	12.82213	9.33809	19.64258
Quillayute	5.13917	10.95617	12.02252	8.69817	14.81426
Quinault	8.98243	16.52493	16.48011	13.12258	21.66919
Reindeer Chukchi	3.19867	4.29586	4.87238	0.94526	6.74407
Reindeer Evenk	4.55253	1.96279	4.92647	2.50783	3.99233
Reindeer Koryak	4.49411	1.70897	2.91932	0.91064	5.28025
San Luis Rey	3.15367	6.30679	6.01707	6.68163	10.52662
Sarcee	5.32049	0.86846	4.08659	5.25155	3.53474
Sauk	2.60030	1.33286	5.86316	5.12787	3.88116
Seneca	2.88381	1.12338	5.50812	4.33099	4.45052
Serrano	1.23507	3.15182	7.53367	7.41187	7.78244
Shawnee	2.79222	1.77184	3.39535	3.91500	2.71697
Shoshoni	4.51056	2.23963	6.79120	7.96999	6.21205

Matrix 4F. cont.

	Big Meadow	Blood	Caddo	Carrier	Catawba
Shuswap	1.62680	2.90573	3.88307	4.04953	4.04323
Sioux(Santee)	7.01754	0.54026	5.12501	5.28287	6.56990
Sioux(Teton)	6.94571	0.62121	5.26696	4.75663	9.20289
Sioux(Yankton)	7.10328	0.66752	5.14740	5.26741	7.80412
S. Miwok	3.60746	6.47291	7.09820	4.97975	14.09996
Stalo	1.93960	7.76970	9.97485	7.50985	10.36693
Stockbridge	2.97423	2.13687	4.58843	4.86740	2.89301
Tahltan	5.91997	3.10151	8.23164	4.09746	11.31037
Taos	7.60785	6.02496	7.44880	6.13820	2.06115
Tenino	3.43231	6.09205	5.07350	3.47289	9.33520
Thompson	2.09037	3.67618	5.61615	4.16820	2.70870
Tonkawa	9.22483	4.58913	1.75454	3.43276	9.10901
Tsimshian	1.00992	3.87711	10.97681	7.97529	10.06631
Tundra Evenk	4.45949	3.52377	5.60849	1.53139	5.95857
Tuscarora	2.64967	2.69766	5.57546	4.17493	2.46431
Tututni	10.55197	8.54892	8.79306	5.65837	7.05784
Umatilla	8.92729	6.12535	5.13164	6.76124	14.09183
Ute	5.04350	3.59690	6.22822	8.37917	5.06955
Wasco	6.34612	7.46514	3.45939	2.88002	9.88357
Washo	3.06544	2.36927	4.18239	3.74215	8.91580
W. Mono	6.77809	2.70466	7.25993	6.91639	6.77436
Winnebago	2.54373	2.37663	3.55159	2.50335	5.62602
Yakut	4.27062	2.36441	6.52561	2.35708	8.15278
Yokuts	1.74235	6.96285	8.38068	8.22467	8.26515
Yukaghir	5.11380	3.60861	6.97123	2.95992	5.72456
Yuki	6.72086	6.58219	11.70589	11.69569	5.04815
Yurok	1.22317	5.27620	5.73629	5.03507	5.79207
Zuni	6.00445	8.18227	7.24116	5.96727	2.95830

Matrix 4F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa (MN)
Achomawi	4.21751	4.76092	6.73446	0.55841	4.17307
Agua Caliente	5.64770	7.07609	8.89568	2.14434	6.54153
Aiwan	3.97962	3.91711	7.06687	4.53570	4.06962
Aleut	6.20841	4.35253	8.74858	2.19978	4.79228
Apache	6.80082	8.52968	7.04636	2.06550	8.04095
Arapaho	1.95913	1.02075	6.46665	4.56474	2.02037
Assiniboin	3.77801	1.87864	8.92998	7.67877	1.57236
Atsugewi	4.78996	3.99097	7.67053	0.48778	3.73266
Bannock	5.33893	10.27308	5.87991	8.42704	8.51393
Bella Coola	6.37211	2.41209	10.32208	3.19823	4.56621
Big Meadow	4.89311	6.30367	6.29935	2.54282	4.35189
Blood	2.25250	0.55533	7.05580	3.49634	0.69739
Caddo	4.14763	4.56804	8.83191	2.74307	3.57356
Carrier	4.11227	4.28718	7.19621	1.77478	4.26666
Catawba	1.97844	9.06338	1.55336	6.01083	3.67040
Cherokee	0	3.41204	1.91786	3.85080	1.70200
Cheyenne	3.41204	0	9.34555	4.36453	2.26616
Chickasaw	1.91786	9.34555	0	6.19038	5.10507
Chilcotin	3.85080	4.36453	6.19038	0	3.55900
Chippewa(MN)	1.70200	2.26616	5.10507	3.55900	0
Chippewa(WI)	1.66867	3.21911	3.61395	1.65188	1.05041
Choctaw	0.53793	3.50847	2.87267	2.54244	2.81516
Chuvantsy	7.12687	5.26416	11.31585	7.69140	5.69531
Clallam	14.28827	12.96493	15.32345	4.11009	13.96124
Cmiwok	8.89976	6.51883	13.65230	1.96118	8.74412
Coahuilla	8.40079	8.34731	10.94065	5.31830	8.60695
Coeur d'Alene	4.50458	6.10705	6.22276	4.61429	4.78345
Comanche	4.64080	2.57298	10.62439	2.82796	3.32344
Concow	2.23651	6.38688	4.22419	5.35370	3.25649
Creek	0.44198	2.25169	3.79197	5.18747	1.51452
Crow	5.95860	1.16011	12.78012	4.99436	2.23586
E. Mono	6.22322	2.90245	12.61258	2.89593	6.15134
Eskimo(EC)	0.60484	4.05599	1.66892	4.04245	1.23811
Eskimo(WC)	4.47207	3.83011	8.19391	8.52326	6.14221
Even	3.75897	6.09398	4.00381	4.43924	3.15388
Evenk	3.22446	6.43095	3.08971	6.23431	3.36933
Flathead	8.78311	10.97171	11.88185	8.13756	5.40662
Haida	6.14175	5.51310	7.69257	4.51025	4.22839
Hoopa	2.96130	6.17738	5.31338	1.59622	3.50181
Itelman(KH)	2.52373	8.08908	1.90307	6.87033	4.94266
Itelman(SE)	1.94890	7.67638	1.19946	6.39525	4.70573
Kalapuya	8.22381	11.48126	10.58441	3.94664	7.24570
Kiowa	1.30090	0.80048	5.21614	2.18863	1.22973
Klamath	6.81175	6.93052	9.23274	0.54248	6.27780
Klickitat	5.29055	4.57785	10.44460	3.62009	3.31490
Koryak	1.54830	2.93617	3.60145	3.90255	2.35221
Kutenai	4.94972	3.42605	10.85566	6.40485	1.77078
Kwakiutl	3.57945	2.02890	7.05579	2.88251	2.45406

Matrix 4F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa (MN)
Lillooet	3.79004	5.31420	4.58258	0.84062	4.38034
Makah	8.10616	7.54037	9.15436	2.61648	8.81448
Malecite	0.79089	3.99579	2.68855	3.40482	0.65931
Maritime Chukchi	3.23123	4.99803	5.33725	2.83711	3.79680
Menomini	0.76625	3.27098	2.68227	1.98807	1.20284
Micmac	0.36667	2.51463	3.09800	3.90858	0.90885
Mississagua	1.62788	2.23052	4.00992	2.62766	0.44278
Modoc	5.76859	7.90419	5.50435	1.31962	6.69630
Mohawk	1.74575	4.84290	2.85260	4.59343	0.95359
Montagnais	2.95279	4.27658	5.09161	4.32810	0.99751
Munsee	1.57554	3.22149	3.77253	3.62474	1.39051
Nanaimo	16.85700	16.44466	17.72230	5.57462	12.82283
Navajo	2.53664	6.66633	2.54247	1.91075	5.09259
Nez Perce	2.94189	2.75597	6.07903	0.61456	1.68820
Nisqually	10.34648	8.02968	12.29463	2.36228	7.68081
Nivkhi	2.37475	4.03531	3.72165	1.17160	3.15233
N. Hill Yokuts	3.50474	3.74333	8.50671	3.17887	4.35145
N. Paiute	1.63434	4.30778	3.64182	1.82132	2.85008
N. Pomo	3.25332	8.51831	4.43945	6.23071	6.80284
Ojibwa(GBay)	2.04683	2.70232	4.08755	1.85075	1.10888
Ojibwa (NWLSup)	2.85215	5.27588	3.58012	3.69401	1.64566
Okanagan	3.09632	2.48673	6.43653	3.47666	1.24942
Omaha	1.31225	1.31322	4.33727	1.96417	1.25651
Oneida	1.68581	2.55738	4.32988	3.15775	0.75747
Osage	8.98401	8.06162	11.03831	1.90570	8.68773
Pawnee	0.72153	1.16687	4.31976	2.79392	0.65248
Piegan	1.87617	0.37943	6.60388	3.89037	0.98289
Ponca	3.11405	0.23573	8.65290	2.80489	2.13123
Potawatomi	3.67695	5.75989	3.40589	2.96928	5.32807
Pueblo	1.32431	4.98888	3.03946	2.67544	4.14514
Puyallup	9.15942	7.58085	11.09533	1.65607	8.00535
Queets	16.52638	13.51798	18.14288	5.08095	14.64169
Quillayute	11.99289	11.67364	12.31402	3.66616	11.95436
Quinault	18.69049	17.07097	19.28879	6.89614	17.94238
Reindeer Chukchi	3.43215	5.15847	5.25312	2.36465	4.28394
Reindeer Evenk	1.05718	2.85853	3.05251	3.75563	1.65657
Reindeer Koryak	1.82989	2.12852	5.12067	2.47584	1.85160
San Luis Rey	7.60007	7.33627	10.92345	1.99529	7.19816
Sarcee	1.34266	2.38948	5.03301	4.83372	0.22514
Sauk	1.05601	2.64606	3.03297	3.10534	1.34446
Seneca	1.40561	2.77958	4.19727	4.09961	0.77763
Serrano	4.05922	4.98498	7.23906	3.85029	3.69542

Matrix 4F. cont.

	Cherokee	Cheyenne	Chickasaw	Chilcotin	Chippewa (MN)
Shawnee	0.62300	3.14044	3.01148	2.17674	1.48315
Shoshoni	2.20665	2.95460	5.87280	4.92621	3.23253
Shuswap	2.76111	4.70518	4.43106	0.87612	2.35912
Sioux(Santee)	2.34206	0.63860	7.09945	5.36203	1.27771
Sioux(Teton)	3.86436	0.20009	9.53728	4.96468	2.07204
Sioux(Yankton)	2.99224	0.32615	8.15874	4.95453	1.93642
S. Miwok	9.38121	6.53124	13.15974	1.87663	8.28308
Stalo	8.56097	9.73799	8.68123	2.52691	7.72243
Stockbridge	1.23213	4.36736	3.58920	3.93296	1.11473
Tahltan	6.66356	3.33113	9.98482	4.81360	3.87747
Taos	1.22519	7.84384	1.22256	7.33690	4.43225
Tenino	7.01977	6.78174	8.95481	0.59219	6.52639
Thompson	1.53057	5.48680	1.54326	1.95869	2.86900
Tonkawa	6.12956	3.77478	11.34352	2.60694	5.58205
Tsimshian	5.78248	5.50586	7.48870	4.18566	4.70727
Tundra Evenk	3.16109	4.45052	4.55958	3.27821	3.09826
Tuscarora	1.22607	4.99902	2.07423	3.56531	1.37744
Tututni	7.96855	10.45247	7.35855	7.06050	6.08121
Umatilla	9.16483	4.89137	15.36284	3.77528	8.54947
Ute	2.13437	4.79103	5.43430	5.35238	3.97090
Wasco	8.33776	7.86296	11.02315	1.15781	7.54706
Washo	3.75899	2.28929	8.51422	1.93455	4.13333
W. Mono	1.89833	3.31438	6.27698	7.79554	3.43190
Winnebago	2.88357	2.98571	5.22048	0.41985	2.78899
Yakut	3.79376	2.66420	6.32712	3.38585	2.97126
Yokuts	7.01058	9.33704	7.85931	2.67836	6.61876
Yukaghir	3.15913	4.97271	4.37626	4.94752	2.79462
Yuki	2.59885	8.57448	3.36444	9.57017	6.15451
Yurok	4.00426	7.54796	5.51161	2.41624	4.73074
Zuni	2.78652	9.68942	1.40485	4.26786	7.05480

Matrix 4F. cont.

	Chippewa (WI)	Choctaw	Chuvantsy	Clallam	C. Miwok
Achomawi	1.62867	2.87381	7.29470	4.46573	2.06728
Agua Caliente	3.89323	3.46333	15.15923	6.36291	2.27946
Aiwan	3.70521	4.11490	0.92670	12.82686	8.13925
Aleut	3.62548	5.62532	3.44281	6.02532	5.01095
Apache	4.42750	5.04144	15.42514	2.67720	4.10491
Arapaho	1.97863	2.40670	6.98048	13.41647	7.63556
Assiniboin	4.26342	5.51885	7.86780	19.70855	12.97394
Atsugewi	1.68515	3.68233	5.95681	4.11308	2.19635
Bannock	4.91874	5.40814	15.72100	15.06589	12.26134
Bella Coola	3.75775	6.03649	4.24327	7.01232	5.38224
Big Meadow	1.32691	4.63739	9.29183	6.46924	5.73686
Blood	1.47577	2.85604	5.25182	12.64000	6.96291
Caddo	4.43519	2.95388	7.86937	12.18748	4.60744
Carrier	3.55946	2.97934	3.11594	8.38211	3.94836
Catawba	3.82830	2.91631	12.15491	17.60751	13.32790
Cherokee	1.66867	0.53793	7.12687	14.28827	8.89976
Cheyenne	3.21911	3.50847	5.26416	12.96493	6.51883
Chickasaw	3.61395	2.87267	11.31585	15.32345	13.65230
Chilcotin	1.65188	2.54244	7.69140	4.11009	1.96118
Chippewa(MN)	1.05041	2.81516	5.69531	13.96124	8.74412
Chippewa(WI)	0	2.03616	6.76022	8.73447	6.05269
Choctaw	2.03616	0	7.76653	11.32499	5.82262
Chuvantsy	6.76022	7.76653	0	17.38021	11.72655
Clallam	8.73447	11.32499	17.38021	0	3.56385
C. Miwok	6.05269	5.82262	11.72655	3.56385	0
Coahuilla	4.62096	7.24409	18.53136	6.82703	6.25597
Coeur d'Alene	1.90854	4.70363	10.89876	9.74879	8.09491
Comanche	4.40540	3.49006	6.08295	11.61752	3.86647
Concow	2.03012	2.74108	12.26194	15.03966	9.87131
Creek	2.25332	1.27913	7.41239	16.61293	9.89489
Crow	4.03907	6.31048	5.47583	13.89440	7.29479
E. Mono	4.93511	4.02275	9.13367	7.84710	1.37539
Eskimo(EC)	1.00510	1.82002	6.07622	13.94515	10.30621
Eskimo(WC)	6.27156	5.08575	2.85673	18.21613	12.28067
Even	2.29287	4.98432	3.44699	11.96128	10.95595
Evenk	2.85749	5.03729	4.34205	15.18002	13.76392
Flathead	5.43876	9.53666	20.23618	17.25873	12.90047
Haida	2.00055	6.97148	9.86407	8.13490	9.00492
Hoopa	2.45581	1.87738	8.04243	9.60629	4.32855
Itelman(KH)	3.59808	3.72855	6.15079	16.54814	13.74517
Itelman(SE)	3.59751	3.02580	6.32842	16.15138	13.31984
Kalapuya	6.80594	6.57142	14.65589	11.37049	6.47364
Kiowa	1.30782	1.27554	4.23741	10.54472	5.26271
Klamath	3.90509	4.66776	10.75090	2.93242	1.37666
Klickitat	5.01320	4.59244	6.72734	13.66118	6.07790
Koryak	2.09485	2.20256	2.60110	12.80048	8.79584
Kutenai	4.36527	5.81256	10.77414	18.25056	10.37444
Kwakiutl	1.71104	3.80981	2.63654	9.32965	6.11481

Matrix 4F. cont.

	Chippewa (WI)	Choctaw	Chuvantsy	Clallam	C. Miwok
Lillooet	1.94156	2.85581	10.22659	3.95452	3.93757
Makah	4.58569	6.44501	9.81193	2.06024	3.83473
Malecite	0.90320	1.73080	6.08835	14.02576	9.10808
Maritime Chukchi	2.56192	2.90506	2.64018	10.36520	6.30674
Menomini	0.25047	1.01227	7.21938	10.09362	6.33308
Micmac	1.57549	1.18303	4.68974	14.99340	9.02506
Mississagua	0.58157	2.56195	5.76409	10.91459	7.83316
Modoc	3.36079	4.43776	11.21549	2.72155	4.30695
Mohawk	0.99736	3.37264	8.88855	14.32378	11.43247
Montagnais	1.46781	4.32795	10.46225	13.25855	10.38383
Munsee	0.50647	2.47649	7.08530	11.92146	8.45968
Nanaimo	9.45096	15.06246	16.52425	4.56320	7.49209
Navajo	2.39203	1.57152	11.96903	6.64919	5.42848
Nez Perce	0.72226	2.43680	7.71537	6.35789	3.31595
Nisqually	4.86391	9.07303	9.62926	2.19083	4.13325
Nivkhi	0.84442	1.90468	6.12911	6.09789	4.45194
N. Hill Yokuts	3.31552	2.14862	7.59235	11.29316	3.69905
N. Paiute	0.93960	1.07516	9.98859	8.45949	4.81123
N. Pomo	4.24675	2.68659	17.06191	13.93722	9.47876
Ojibwa(GBay)	0.18433	2.57935	5.54147	8.51840	6.36987
Ojibwa (NWLSup)	1.14588	4.18818	4.67493	11.95093	10.22010
Okanagan	0.73310	3.94577	7.75676	10.79064	7.63065
Omaha	0.80068	1.44015	6.49514	9.17981	5.54768
Oneida	0.58467	2.62777	4.10540	12.04224	8.07135
Osage	5.57862	6.66432	15.03771	1.73662	2.35357
Pawnee	1.14222	1.12478	5.36840	12.38155	6.76230
Piegan	1.95580	2.45723	5.59507	13.38546	7.44255
Ponca	2.49928	2.73729	4.67549	10.50095	4.49624
Potawatomi	2.51234	3.53586	8.28553	6.36985	7.35488
Pueblo	3.28892	0.39257	8.66761	11.03166	5.93603
Puyallup	4.37102	7.31121	10.80467	0.99581	2.43221
Queets	10.14758	13.74191	17.83524	0.59387	4.65350
Quillayute	6.92537	9.73690	17.46320	0.47279	4.43519
Quinault	11.90662	15.47789	23.77093	0.60841	6.00263
Reindeer Chukchi	2.60954	2.82504	3.11350	8.83977	5.50748
Reindeer Evenk	1.73720	1.87988	3.05723	13.33533	9.05441
Reindeer Koryak	1.95584	1.82458	2.19307	11.24693	6.04519
San Luis Rey	3.99649	5.40846	15.36593	3.91901	1.77588
Sarcee	1.63612	2.65304	6.32782	16.66895	10.19834
Sauk	0.57666	1.77946	7.92408	10.94639	7.91501
Seneca	0.87818	2.56340	4.79927	14.13577	9.28052
Serrano	1.66911	3.91224	11.60155	10.16907	6.42309

Matrix 4F. cont.

	Chippewa (WI)	Choctaw	Chuvantsy	Clallam	C. Miwok
Shawnee	0.70798	0.60205	8.34724	10.70833	6.00171
Shoshoni	2.48747	2.31161	12.26245	13.15456	7.92025
Shuswap	0.60972	2.32211	9.90827	6.33397	4.32675
Sioux(Santee)	2.88266	3.39101	5.58945	15.76794	9.65467
Sioux(Teton)	3.42954	4.43070	4.89666	13.78541	7.97022
Sioux(Yankton)	3.21796	3.59332	6.26758	14.08764	8.30795
S. Miwok	4.91501	6.97978	11.67940	1.74926	0.93468
Stalo	3.52677	7.45857	14.63019	2.37377	5.14215
Stockbridge	0.98927	2.07110	7.19813	14.53964	9.06358
Tahltan	3.93233	7.44560	3.04232	10.41621	9.04271
Taos	4.24669	2.29435	8.19899	19.57328	14.23492
Tenino	3.51508	5.05715	10.85788	1.66654	1.59599
Thompson	0.81648	1.58216	9.07552	8.12519	6.86865
Tonkawa	5.70914	4.23949	9.94577	8.40930	2.87001
Tsimshian	1.95628	6.15489	10.72348	7.47594	7.84878
Tundra Evenk	2.50446	3.60404	1.97990	10.75911	8.27533
Tuscarora	0.76604	2.29598	6.06123	12.98404	9.70470
Tututni	6.59496	9.32675	6.46556	14.84589	14.98489
Umatilla	7.26969	6.50291	14.70404	6.49565	1.83208
Ute	3.07157	1.94891	13.91168	14.65845	8.30910
Wasco	5.39568	5.92020	10.79328	3.25681	1.62211
Washo	2.50321	2.32553	8.66308	7.14641	2.15358
W. Mono	4.07391	2.72039	7.17753	20.29865	11.73206
Winnebago	1.15672	2.06681	7.69690	4.82929	2.95791
Yakut	2.46055	4.26709	2.26660	9.71970	7.58689
Yokuts	2.92549	5.91992	16.29519	4.82711	5.12456
Yukaghir	2.77742	4.39483	2.02237	14.05188	11.18781
Yuki	4.86977	3.66919	15.09365	20.58222	15.38579
Yurok	1.93467	3.11365	10.94866	8.21571	5.08820
Zuni	4.27840	2.02687	13.30562	10.63742	8.94894

Matrix 4F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Achomawi	4.16789	2.84801	3.96910	4.34945	5.45401
Agua Caliente	3.31110	5.07598	5.02661	4.30177	6.62219
Aiwan	12.44352	6.24997	4.93800	7.54047	4.64125
Aleut	10.49225	7.46191	4.37196	10.43104	7.35967
Apache	4.65702	6.63424	8.07869	8.36475	8.69059
Arapaho	5.50037	2.89539	4.69746	2.94042	1.01926
Assiniboin	12.32556	8.83668	5.05406	7.00379	2.27177
Atsugewi	5.15430	3.68881	3.44181	5.80985	5.84574
Bannock	4.40103	1.61332	14.22938	2.15568	5.99033
Bella Coola	8.73184	6.58997	4.66510	10.22739	6.43937
Big Meadow	2.74896	0.70672	7.89122	3.04526	5.89280
Blood	7.03709	4.18752	2.78170	3.94065	1.45692
Caddo	12.10955	10.32893	0.57545	7.16061	4.82589
Carrier	11.44228	7.82802	2.14986	8.10195	5.46246
Catawba	12.87363	8.65918	7.82096	4.12654	3.54440
Cherokee	8.40079	4.50458	4.64080	2.23651	0.44198
Cheyenne	8.34731	6.10705	2.57298	6.38688	2.25169
Chickasaw	10.94065	6.22276	10.62439	4.22419	3.79197
Chilcotin	5.31830	4.61429	2.82796	5.35370	5.18747
Chippewa(MN)	8.60695	4.78345	3.32344	3.25649	1.51452
Chippewa(WI)	4.62096	1.90854	4.40540	2.03012	2.25332
Choctaw	7.24409	4.70363	3.49006	2.74108	1.27913
Chuvantsy	18.53136	10.89876	6.08295	12.26194	7.41239
Clallam	6.82703	9.74879	11.61752	15.03966	16.61293
C. Miwok	6.25597	8.09491	3.86647	9.87131	9.89489
Coahuilla	0	2.21763	11.39525	4.90454	8.56837
Coeur d'Alene	2.21763	0	9.73411	2.05610	4.82880
Comanche	11.39525	9.73411	0	7.96227	4.63300
Concow	4.90454	2.05610	7.96227	0	2.49503
Creek	8.56837	4.82880	4.63300	2.49503	0
Crow	10.50905	8.16835	2.31378	8.34872	4.68166
E. Mono	5.94005	6.50456	2.40559	7.33016	5.93998
Eskimo(EC)	8.38772	3.48852	6.05916	2.33014	1.20973
Eskimo(WC)	14.34240	7.82233	7.95308	9.11094	4.15566
Even	11.34623	5.08138	7.78210	6.48881	5.08422
Evenk	12.34341	5.36983	9.42387	6.19130	4.27703
Flathead	8.09251	8.01817	10.06082	4.90371	8.72840
Haida	3.69097	1.74271	9.87211	5.34726	6.33041
Hoopa	8.50824	5.97568	2.81189	3.79650	4.50753
Itelman(KH)	11.99177	4.86246	10.42334	4.55117	3.96988
Itelman(SE)	12.42300	5.72600	9.60975	4.91470	3.48574
Kalapuya	13.80746	13.28564	4.56582	9.53847	10.34754
Kiowa	7.16711	4.21988	2.06954	3.97400	1.22384
Klamath	6.77539	7.54825	3.67255	8.42227	8.58437
Klickitat	14.36702	11.84258	0.62890	8.89897	5.73389
Koryak	10.24855	4.74597	4.99320	5.07743	2.10730
Kutenai	11.36218	9.58795	3.34457	6.24910	3.77756
Kwakiutl	7.39694	3.37572	4.34225	5.63992	3.69278

Matrix 4F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Lillooet	4.72944	4.62694	5.35309	5.80681	5.27977
Makah	5.12823	4.74787	8.90787	9.64271	9.76533
Malecite	8.72506	4.13073	4.35432	2.01196	1.37959
Maritime Chukchi	10.13724	4.81344	4.56102	5.44958	4.55345
Menomini	4.99740	2.13646	4.26648	1.29985	1.36378
Micmac	9.74553	4.94687	3.65532	2.98290	0.54771
Mississagua	7.10526	3.88048	4.02773	3.67188	1.79138
Modoc	6.14322	6.02341	7.20564	8.07348	7.99882
Mohawk	7.59262	3.71368	6.97737	2.32838	2.08399
Montagnais	7.21711	5.01325	6.01685	3.67503	2.90955
Munsee	4.78367	1.21166	6.17310	1.36716	1.62926
Nanaimo	12.95064	13.35590	11.72957	16.74304	19.67148
Navajo	5.08158	4.42860	6.57043	4.05708	4.27050
Nez Perce	4.40324	3.54553	2.53037	3.74261	3.45005
Nisqually	7.72640	7.60036	7.32851	12.01905	11.92390
Nivkhi	4.56524	1.98597	5.07818	3.47788	3.55434
N. Hill Yokuts	6.43789	4.34593	2.96783	3.38845	3.64407
N. Paiute	3.17400	1.86546	4.87536	1.19555	2.37914
N. Pomo	4.31871	3.55405	10.10725	1.49185	3.92667
Ojibwa(GBay)	5.27930	2.23680	4.55088	3.16773	2.51685
Ojibwa (NWLSup)	9.42635	4.00315	6.63514	4.41887	3.86717
Okanagan	4.17449	1.82305	5.53318	2.67040	2.66455
Omaha	5.24323	3.30882	3.28911	3.40425	1.32757
Oneida	7.19095	2.61260	4.54654	2.76085	1.84896
Osage	5.72899	8.63486	6.47189	10.85480	10.53637
Pawnee	7.46758	4.33888	2.51846	3.08769	0.55884
Piegan	7.79439	5.04528	2.82136	4.42678	1.03434
Ponca	7.38487	5.36629	1.64484	5.78177	2.46302
Potawatomi	6.11623	3.78180	8.50062	6.38582	5.11834
Pueblo	9.41219	7.13240	3.67473	4.74491	2.62210
Puyallup	5.03888	5.80118	7.14817	10.04371	10.74520
Queets	9.28768	12.54026	11.86208	18.21647	18.65600
Quillayute	4.87972	7.64068	11.66127	12.42063	14.09081
Quinault	7.58701	12.38479	15.96171	18.43884	21.10119
Reindeer Chukchi	9.50621	4.75854	4.67440	5.82860	4.93798
Reindeer Evenk	10.27279	4.85879	4.57745	4.46600	1.59129
Reindeer Koryak	10.07378	5.52238	2.32330	5.30038	2.35001
San Luis Rey	2.17260	4.60761	6.02069	5.77592	8.50660
Sarcee	9.36093	5.10685	3.89753	2.77771	0.86542
Sauk	4.73518	2.12713	5.56726	2.00972	1.14774
Seneca	7.57002	2.67453	5.06353	2.13235	1.35837
Serrano	1.88237	0.70512	7.15164	1.22977	3.99712

Matrix 4F. cont.

	Coahuilla	Coeur d'Alene	Comanche	Concow	Creek
Shawnee	4.99734	2.76180	3.80682	1.20969	1.06482
Shoshoni	3.67838	2.98027	6.26684	2.00432	1.49671
Shuswap	3.60146	2.77941	4.40089	2.63527	3.78870
Sioux(Santee)	9.92307	6.54453	3.69846	5.73936	1.27721
Sioux(Teton)	9.63517	6.91242	3.15437	7.39285	2.65977
Sioux(Yankton)	9.03231	6.71959	3.42091	6.52122	1.84783
S. Miwok	4.02712	5.78669	5.87545	9.48993	10.32390
Stalo	3.06572	3.91605	10.08242	7.33327	10.38633
Stockbridge	7.28953	2.92366	5.10702	0.93072	1.57776
Tahltan	11.61219	7.47401	6.05946	10.79396	6.71531
Taos	13.58178	7.10862	8.82639	3.96188	2.45161
Tenino	5.17023	6.09062	5.00206	8.29749	8.72550
Thompson	5.07192	2.63883	6.40381	2.50791	2.94902
Tonkawa	10.45696	11.32079	1.24275	10.35568	6.46553
Tsimshian	2.24485	0.87671	9.76615	4.35733	5.99165
Tundra Evenk	11.65818	5.99191	5.14793	7.08455	4.38978
Tuscarora	8.03257	3.01251	6.15112	2.04373	2.15018
Tututni	19.94292	13.83114	9.35669	13.97457	10.05276
Umatilla	6.81019	10.33453	3.80463	11.20570	8.95749
Ute	4.46706	3.58633	6.60301	1.13504	1.83419
Wasco	9.17342	9.95622	3.73304	10.91177	10.27478
Washo	3.36553	3.27241	3.11926	4.11952	3.67165
W. Mono	9.99435	4.95245	6.52770	2.94869	1.03107
Winnebago	4.44558	3.82666	3.23447	4.80487	3.73607
Yakut	9.82836	5.32295	5.03911	7.67376	4.24655
Yokuts	1.84833	2.99107	9.09758	4.28341	8.45734
Yukaghir	13.04094	6.18389	6.53252	6.82323	4.12597
Yuki	8.03533	4.18971	12.56581	1.70222	2.72551
Yurok	3.93861	2.07764	6.63318	1.84965	5.41151
Zuni	8.67784	6.48938	9.17568	4.88099	5.10528

Matrix 4F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even
Achomawi	5.69652	2.60591	4.13084	7.58274	4.28185
Agua Caliente	8.50459	2.83612	7.16174	13.54465	10.63256
Aiwan	5.29376	6.10771	3.34736	1.69697	1.96742
Aleut	4.58338	5.50511	5.29136	5.85687	2.74479
Apache	10.68952	6.39264	7.27228	13.69239	8.45376
Arapaho	3.16619	3.75551	2.33986	3.64316	5.32927
Assiniboin	2.18033	8.36558	3.82364	6.91260	6.91709
Atsugewi	4.28604	2.77788	4.34014	7.25816	3.63657
Bannock	14.44712	9.93816	5.16963	9.62516	8.67628
Bella Coola	3.03996	4.46422	5.65214	4.95228	4.06343
Big Meadow	7.26338	5.71188	3.61456	8.63706	3.78341
Blood	1.12531	3.77048	2.22694	4.52046	4.22312
Caddo	4.37916	3.88635	5.72199	9.93512	8.00648
Carrier	5.08090	3.89931	4.46189	5.07998	3.60991
Catawba	10.74484	12.19250	2.28871	11.17009	5.77905
Cherokee	5.95860	6.22322	0.60484	4.47207	3.75897
Cheyenne	1.16011	2.90245	4.05599	3.83011	6.09398
Chickasaw	12.78012	12.61258	1.66892	8.19391	4.00381
Chilcotin	4.99436	2.89593	4.04245	8.52326	4.43924
Chippewa(MN)	2.23586	6.15134	1.23811	6.14221	3.15388
Chippewa(WI)	4.03907	4.93511	1.00510	6.27156	2.29287
Choctaw	6.31048	4.02275	1.82002	5.08575	4.98432
Chuvantsy	5.47583	9.13367	6.07622	2.85673	3.44699
Clallam	13.89440	7.84710	13.94515	18.21613	11.96128
C. Miwok	7.29479	1.37539	10.30621	12.28067	10.95595
Coahuilla	10.50905	5.94005	8.38772	14.34240	11.34623
Coeur d'Alene	8.16835	6.50456	3.48852	7.82233	5.08138
Comanche	2.31378	2.40559	6.05916	7.95308	7.78210
Concow	8.34872	7.33016	2.33014	9.11094	6.48881
Creek	4.68166	5.93998	1.20973	4.15566	5.08422
Crow	0	4.26384	5.87156	7.25936	6.88786
E. Mono	4.26384	0	7.96595	7.94050	10.09884
Eskimo(EC)	5.87156	7.96595	0	4.52699	1.76980
Eskimo(WC)	7.25936	7.94050	4.52699	0	4.69931
Even	6.88786	10.09884	1.76980	4.69931	0
Evenk	8.04687	11.86278	1.30934	4.09110	0.39964
Flathead	9.05508	11.96056	8.21768	21.31796	12.62397
Haida	6.21285	8.10510	4.08081	8.78047	3.85874
Hoopa	6.74236	4.48698	3.66172	9.23927	5.34324
Itelman(KH)	11.16653	11.64653	1.49049	4.03284	1.90573
Itelman(SE)	10.96302	11.38363	1.30177	4.04507	2.05746
Kalapuya	10.09480	8.65381	9.27014	18.82154	11.09754
Kiowa	2.26707	2.85835	1.72253	3.16735	3.35409
Klamath	7.05766	3.68605	7.33755	12.62811	7.42708
Klickitat	3.33965	5.18610	6.30444	10.35652	7.69739
Koryak	5.06254	6.39879	1.11518	1.56743	1.30053
Kutenai	2.17701	7.09029	5.48675	11.80263	9.37621
Kwakiutl	2.90916	4.24603	2.64945	2.80671	1.88909
Lillooet	6.99859	5.01317	3.84140	9.25992	4.67169

Matrix 4F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even
Makah	9.75399	5.49108	7.46303	8.79141	5.75565
Malecite	4.82560	7.02487	0.42936	5.91997	2.45948
Maritime Chukchi	6.28650	5.44827	2.73586	3.57303	1.84381
Menomini	4.81845	4.77201	0.68341	5.72629	2.89856
Micmac	4.16841	6.03590	0.56129	3.48380	2.79932
Mississagua	2.83009	5.98767	0.94361	5.54950	2.18550
Modoc	9.64868	6.64713	5.53489	10.93942	5.16394
Mohawk	5.59450	9.32004	0.71447	7.96371	2.96686
Montagnais	4.21112	8.55631	2.16616	10.18463	4.73920
Munsee	4.74409	5.96779	0.81863	5.07466	2.73763
Nanaimo	13.40744	12.76050	14.87552	23.52694	11.11500
Navajo	9.66764	5.94103	3.24471	9.13167	5.59918
Nez Perce	2.95130	2.96338	2.91376	8.12670	4.26075
Nisqually	7.19416	6.77458	8.89999	12.89178	6.01580
Nivkhi	5.95487	4.15654	1.95615	5.00279	2.22983
N. Hill Yokuts	5.36664	1.63856	4.81956	6.25503	7.46775
N. Paiute	6.41063	3.78746	2.13265	7.48967	5.07010
N. Pomo	12.53799	7.54865	4.60123	11.05076	10.11583
Ojibwa(GBay)	3.49194	5.14128	1.10535	5.26256	1.64808
Ojibwa (NWLSup)	5.51293	9.15735	1.03444	5.93651	0.43472
Okanagan	2.91277	5.30537	2.14641	6.75792	3.80237
Omaha	2.95986	3.58679	1.50900	4.67309	3.52302
Oneida	3.29751	5.74575	0.74031	3.93719	1.48522
Osage	8.95767	4.99137	9.62789	15.15217	10.13032
Pawnee	2.57268	4.00477	1.14198	4.01989	3.58449
Piegan	1.54326	3.97097	2.24790	4.07456	4.71345
Ponca	1.21455	1.81313	3.76374	3.95616	5.31171
Potawatomi	8.81004	7.37626	2.99569	5.73167	2.83259
Pueblo	7.91441	5.01136	2.95003	6.49780	5.86061
Puyallup	7.98502	4.87836	8.45083	12.04338	6.75443
Queets	13.28840	9.26734	15.84911	20.33642	13.04989
Quillayute	13.06646	8.04478	11.47641	16.99945	10.44033
Quinault	17.80479	11.19988	18.19117	24.30770	16.42196
Reindeer Chukchi	6.69978	5.11164	3.02774	3.80583	1.98551
Reindeer Evenk	4.71347	6.62003	0.67519	2.22167	1.32120
Reindeer Koryak	3.30417	4.16215	1.88578	2.60596	2.15019
San Luis Rey	8.04220	3.01562	8.32887	14.61560	10.48039
Sarcee	2.87503	6.69308	1.21696	5.77306	4.05999
Sauk	4.62105	5.64059	0.78209	5.26214	3.21061
Seneca	3.76978	6.30670	0.63057	3.98887	2.12497
Serrano	6.26899	4.60382	3.79309	9.16174	6.63700
Shawnee	4.97689	4.19221	1.14588	6.23784	4.27812
Shoshoni	5.72600	4.58491	3.19746	7.34783	8.01569

Matrix 4F. cont.

	Crow	E. Mono	Eskimo(EC)	Eskimo(WC)	Even
Shuswap	5.39262	4.50709	2.58864	9.59618	4.34728
Sioux(Santee)	1.82049	5.62434	2.59395	4.01954	5.03046
Sioux(Teton)	0.94534	4.32616	4.05299	4.08680	5.56172
Sioux(Yankton)	1.64366	4.57176	3.51111	4.42010	5.94157
S. Miwok	7.03813	2.57795	9.53608	12.18169	9.08889
Stalo	10.33780	7.68245	7.30705	14.73327	6.81624
Stockbridge	5.27273	6.61852	0.88498	6.43758	3.41522
Tahltan	3.16007	7.67294	4.97057	5.00848	2.59480
Taos	11.20421	11.47555	1.48918	5.35478	4.20818
Tenino	7.31718	3.90988	7.08364	11.93354	6.71918
Thompson	7.67041	6.61074	1.21423	7.19807	2.81531
Tonkawa	4.30599	2.66475	8.08930	10.64851	10.11583
Tsimshian	6.83657	6.90402	4.20341	8.62135	4.65496
Tundra Evenk	5.57245	7.35541	2.11998	3.17334	0.58763
Tuscarora	6.17495	8.04051	0.26506	5.61140	1.44700
Tututni	9.64767	15.83686	5.91205	11.08508	3.01366
Umatilla	5.91165	1.72845	11.36691	13.56202	14.09154
Ute	7.68945	5.22019	3.56982	9.00309	9.22284
Wasco	7.64493	4.36631	8.97754	13.66082	8.43717
Washo	4.14566	0.64472	4.85907	6.43876	7.23477
W. Mono	6.24647	6.52832	2.70836	3.15973	6.59985
Winnebago	4.24228	3.00469	3.05964	7.08523	4.03270
Yakut	3.79975	6.06810	2.73159	2.66029	1.32545
Yokuts	10.04599	6.73128	6.49661	15.44951	8.19250
Yukaghir	5.95949	9.42666	1.68491	3.11833	0.34015
Yuki	12.99947	11.39612	3.16677	8.37795	8.56554
Yurok	8.77480	5.21908	3.88025	10.20126	5.65610
Zuni	13.70976	9.29241	3.70978	9.68816	6.43011

Matrix 4F. cont.

	Evenk	Flathead	Haida	Hoopa	Itelman (KH)
Achomawi	6.05116	8.75919	3.86032	1.80929	5.92476
Agua Caliente	12.32917	6.63851	7.69072	2.62039	10.96600
Aiwan	2.67239	16.28797	6.64271	4.81432	3.12074
Aleut	4.55264	14.86028	4.97673	5.32017	7.05890
Apache	9.97693	11.10761	5.91946	5.66505	10.53053
Arapaho	5.03948	8.98922	3.86410	5.58341	5.36672
Assiniboin	6.37184	8.93810	7.04726	8.61254	9.12119
Atsugewi	5.58488	9.26099	3.32552	2.55756	6.61275
Bannock	8.02705	11.76125	6.19666	7.99968	4.99034
Bella Coola	5.43882	14.72820	3.80651	7.37411	8.41820
Big Meadow	4.95155	7.34696	1.55228	4.09849	5.07509
Blood	4.51592	7.32335	3.73019	4.55634	6.09993
Caddo	9.59381	8.80444	11.18478	1.56862	9.83438
Carrier	5.26095	13.96647	8.02243	2.16834	5.66443
Catawba	5.29772	7.83304	10.01382	3.68496	4.56938
Cherokee	3.22446	8.78311	6.14175	2.96130	2.52373
Cheyenne	6.43095	10.97171	5.51310	6.17738	8.08908
Chickasaw	3.08971	11.88185	7.69257	5.31338	1.90307
Chilcotin	6.23431	8.13756	4.51025	1.59622	6.87033
Chippewa(MN)	3.36933	5.40662	4.22839	3.50181	4.94266
Chippewa(WI)	2.85749	5.43876	2.00055	2.45581	3.59808
Choctaw	5.03729	9.53666	6.97148	1.87738	3.72855
Chuvantsy	4.34205	20.23618	9.86407	8.04243	6.15079
Clallam	15.18002	17.25873	8.13490	9.60629	16.54814
C. Miwok	13.76392	12.90047	9.00492	4.32855	13.74517
Coahuilla	12.34341	8.09251	3.69097	8.50824	11.99177
Coeur d'Alene	5.36983	8.01817	1.74271	5.97568	4.86246
Comanche	9.42387	10.06082	9.87211	2.81189	10.42334
Concow	6.19130	4.90371	5.34726	3.79650	4.55117
Creek	4.27703	8.72840	6.33041	4.50753	3.96988
Crow	8.04687	9.05508	6.21285	6.74236	11.16653
E. Mono	11.86278	11.96056	8.10510	4.48698	11.64653
Eskimo(EC)	1.30934	8.21768	4.08081	3.66172	1.49049
Eskimo(WC)	4.09110	21.31796	8.78047	9.23927	4.03284
Even	0.39964	12.62397	3.85874	5.34324	1.90573
Evenk	0	13.61215	4.49374	6.79026	1.18272
Flathead	13.61215	0	8.37566	7.34597	14.84135
Haida	4.49374	8.37566	0	8.16063	6.75274
Hoopa	6.79026	7.34597	8.16063	0	5.74607
Itelman(KH)	1.18272	14.84135	6.75274	5.74607	0
Itelman(SE)	1.26945	14.95329	7.30691	5.40163	0.19956
Kalapuya	13.59360	7.60200	14.00945	2.31692	13.69596
Kiowa	3.75199	9.31901	4.43206	3.01639	4.45021
Klamath	9.98837	9.63673	7.13039	2.57415	10.77852
Klickitat	9.44697	9.19669	11.41270	2.73172	10.88441
Koryak	1.22401	13.28199	4.97557	4.31812	1.63375
Kutenai	9.87393	4.41797	8.66014	6.12703	12.17858
Kwakiutl	2.71582	11.63026	2.70315	4.77897	4.18188

Matrix 4F. cont.

	Evenk	Flathead	Haida	Hoopa	Itelman (KH)
Lillooet	5.83529	9.08411	3.79805	3.54322	6.71291
Makah	7.57406	16.14202	4.04555	6.97624	8.30423
Malecite	2.47782	6.10038	4.99910	2.20691	2.64455
Maritime Chukchi	2.86832	13.22209	6.11413	2.43453	2.47553
Menomini	3.12407	5.90720	3.25606	1.98363	2.97292
Micmac	2.50155	8.96841	5.89011	3.01947	2.56763
Mississagua	2.41697	6.55690	2.65400	3.86331	4.23762
Modoc	6.74778	11.85654	4.98834	4.41185	7.54238
Mohawk	2.62167	4.91563	3.32161	4.66247	3.77883
Montagnais	4.80501	3.56716	3.49093	5.34742	7.00174
Munsee	2.62168	6.49740	2.03121	4.10711	2.90556
Nanaimo	15.26634	13.14622	10.20836	8.91455	18.36583
Navajo	6.09236	9.56187	5.68510	2.98469	5.15022
Nez Perce	5.57600	5.23388	3.08244	2.12411	6.81106
Nisqually	8.84519	12.69987	4.40551	6.97675	11.93803
Nivkhi	3.06485	9.68558	2.62684	2.58302	3.03356
N. Hill Yokuts	8.54026	9.67921	7.84696	2.12719	6.83667
N. Paiute	5.54399	6.03546	3.98734	1.95904	4.51832
N. Pomo	9.58584	8.49181	8.00362	5.26112	6.54305
Ojibwa(GBay)	2.20657	6.93642	1.52271	3.37678	3.56984
Ojibwa (NWLSup)	0.82951	8.48205	2.99398	4.15874	2.36980
Okanagan	4.16359	5.18239	1.29200	5.11054	5.75964
Omaha	3.77109	7.74511	2.99998	3.58529	4.76558
Oneida	1.72699	7.60090	2.67046	3.47775	2.66889
Osage	12.52262	11.57362	7.05552	6.12406	14.02771
Pawnee	3.62847	7.72239	4.67259	3.04442	4.26503
Piegan	4.71360	8.53061	4.61261	5.00436	6.15355
Ponca	6.09922	10.25772	5.11973	4.40214	7.39267
Potawatomi	3.13107	13.75374	3.05039	6.04651	3.75398
Pueblo	6.12930	11.47005	9.14286	1.98341	4.76901
Puyallup	9.35594	12.46548	4.20902	5.97590	11.06360
Queets	16.66612	18.10713	9.09254	11.52006	19.60152
Quillayute	12.94071	14.58692	5.93973	9.12856	14.34513
Quinault	19.92088	18.76268	10.12339	13.58153	21.74867
Reindeer Chukchi	3.13090	13.74386	5.91670	2.46083	2.72586
Reindeer Evenk	1.17349	11.70638	5.02127	3.82519	1.67502
Reindeer Koryak	2.79631	11.64484	5.77102	2.60895	3.36180
San Luis Rey	12.67776	6.83898	5.84606	4.08404	12.48402
Sarcee	3.81351	5.90510	5.37989	4.04785	4.78592
Sauk	2.95737	6.81101	2.34152	4.23479	3.52092
Seneca	2.02880	7.37332	3.35647	3.78718	2.54444
Serrano	7.22080	4.99030	2.82640	4.43632	6.67130

Matrix 4F. cont.

	Evenk	Flathead	Haida	Hoopa	Itelman (KH)
Shawnee	4.42385	5.78725	4.39760	1.87462	3.87123
Shoshoni	7.53226	6.96682	4.76287	5.77643	7.04514
Shuswap	5.44525	4.46448	3.03391	1.91757	5.92051
Sioux(Santee)	4.70172	9.96561	5.51093	6.58237	6.62640
Sioux(Teton)	5.81983	11.27368	5.29415	7.16327	8.30005
Sioux(Yankton)	5.85375	10.56009	5.45420	6.95513	7.92923
S. Miwok	11.80412	11.91517	5.34331	5.76086	12.86459
Stalo	8.81633	8.70838	2.88998	6.21500	10.02201
Stockbridge	3.43356	5.28409	4.76839	2.38533	2.99642
Tahltan	3.65017	14.68857	3.79123	8.48625	7.45466
Taos	3.08595	13.35194	9.86036	4.78960	1.22091
Tenino	9.12447	10.20313	5.24864	3.65050	10.18516
Thompson	3.06931	7.64718	3.33964	2.70019	2.82932
Tonkawa	11.93692	11.80604	10.51235	4.44079	13.28896
Tsimshian	5.26976	8.34627	0.24408	7.54232	6.61186
Tundra Evenk	1.26048	14.00324	5.16947	4.12097	2.41361
Tuscarora	1.42194	7.19320	3.80249	2.85581	1.51132
Tututni	3.99387	16.18462	9.66556	8.41695	7.56500
Umatilla	16.21995	12.40363	10.02693	7.21342	17.31291
Ute	8.76469	6.30376	6.91387	4.59596	7.02006
Wasco	11.34872	11.80934	9.02706	3.36895	12.50251
Washo	8.36311	9.20306	4.88842	3.46122	8.00123
W. Mono	5.59460	11.91012	8.15070	6.16771	4.17957
Winnebago	5.20937	8.12141	3.22401	2.71975	6.22058
Yakut	1.96661	14.02237	3.54377	5.81583	4.03800
Yokuts	9.84129	5.14541	3.77052	4.59943	9.84256
Yukaghir	0.53128	13.83861	5.32148	5.25323	1.83949
Yuki	6.81823	10.78084	8.32209	7.89057	4.13092
Yurok	6.87041	6.27478	4.99853	1.73546	5.29674
Zuni	6.34919	12.79297	9.01007	3.85593	4.12840

Matrix 4F. cont.

	Itelman (SE)	Kalapuya	Kiowa	Klamath	Klickitat
Achomawi	6.04768	5.84419	2.48166	1.55739	5.33067
Agua Caliente	10.59710	4.82140	4.92023	2.35762	6.60473
Aiwan	3.32640	11.75725	2.18776	7.40390	6.07836
Aleut	6.67484	9.05125	2.90506	3.36289	5.22296
Apache	9.47798	7.46899	5.92568	2.02128	9.40654
Arapaho	5.36225	12.35040	0.96631	7.81338	6.88908
Assiniboin	8.43656	12.79816	2.68351	11.04215	5.60550
Atsugewi	6.64332	6.16131	2.22049	1.41512	4.63744
Bannock	5.86073	17.05463	7.31283	12.02900	16.75131
Bella Coola	8.11915	12.22505	2.38564	4.88094	6.51532
Big Meadow	5.80282	9.62863	3.91112	4.54407	9.28379
Blood	5.94438	9.43524	0.56445	6.21940	4.00811
Caddo	8.83100	2.29744	2.93400	3.32813	0.41771
Carrier	5.16336	5.74317	2.10153	2.88985	2.75465
Catawba	3.56035	6.13270	5.24185	8.41880	6.50084
Cherokee	1.94890	8.22381	1.30090	6.81175	5.29055
Cheyenne	7.67638	11.48126	0.80048	6.93052	4.57785
Chickasaw	1.19946	10.58441	5.21614	9.23274	10.44460
Chilcotin	6.39525	3.94664	2.18863	0.54248	3.62009
Chippewa(MN)	4.70573	7.24570	1.22973	6.27780	3.31490
Chippewa(WI)	3.59751	6.80594	1.30782	3.90509	5.01320
Choctaw	3.02580	6.57142	1.27554	4.66776	4.59244
Chuvantsy	6.32842	14.65589	4.23741	10.75090	6.72734
Clallam	16.15138	11.37049	10.54472	2.93242	13.66118
C. Miwok	13.31984	6.47364	5.26271	1.37666	6.07790
Coahuilla	12.42300	13.80746	7.16711	6.77539	14.36702
Coeur d'Alene	5.72600	13.28564	4.21988	7.54825	11.84258
Comanche	9.60975	4.56582	2.06954	3.67255	0.62890
Concow	4.91470	9.53847	3.97400	8.42227	8.89897
Creek	3.48574	10.34754	1.22384	8.58437	5.73389
Crow	10.96302	10.09480	2.26707	7.05766	3.33965
E. Mono	11.38363	8.65381	2.85835	3.68605	5.18610
Eskimo(EC)	1.30177	9.27014	1.72253	7.33755	6.30444
Eskimo(WC)	4.04507	18.82154	3.16735	12.62811	10.35652
Even	2.05746	11.09754	3.35409	7.42708	7.69739
Evenk	1.26945	13.59360	3.75199	9.98837	9.44697
Flathead	14.95329	7.60200	9.31901	9.63673	9.19669
Haida	7.30691	14.00945	4.43206	7.13039	11.41270
Hoopa	5.40163	2.31692	3.01639	2.57415	2.73172
Itelman(KH)	0.19956	13.69596	4.45021	10.77852	10.88441
Itelman(SE)	0	12.62896	4.04450	10.04920	9.92414
Kalapuya	12.62896	0	7.98700	3.19896	2.98322
Kiowa	4.04450	7.98700	0	4.54838	3.38191
Klamath	10.04920	3.19896	4.54838	0	4.30773
Klickitat	9.92414	2.98322	3.38191	4.30773	0
Koryak	1.44633	10.95995	1.12134	7.07624	5.96166
Kutenai	11.52523	7.49006	3.75593	8.48225	3.15066
Kwakiutl	4.46223	11.06456	1.16157	5.50339	5.88184

Matrix 4F. cont.

	Itelman (SE)	Kalapuya	Kiowa	Klamath	Klickitat
Lillooet	5.89498	6.18507	2.97582	1.62486	6.29517
Makah	8.26089	12.24040	5.38671	3.42826	11.32628
Malecite	2.46811	6.49701	1.65896	6.21862	4.13331
Maritime Chukchi	2.69983	8.30666	2.26637	5.11141	5.30773
Menomini	2.83043	6.68082	1.14235	4.40686	4.98397
Micmac	2.17663	8.28365	0.83389	7.00647	4.08345
Mississagua	3.86987	7.88815	1.00923	5.16217	4.36367
Modoc	6.72700	6.81541	4.82421	1.64553	8.01962
Mohawk	3.60340	8.89921	2.83094	7.69321	6.74069
Montagnais	6.53987	7.96942	3.09175	6.77502	5.76255
Munsee	3.21426	10.33668	1.65234	6.83627	7.29897
Nanaimo	18.36662	7.36923	13.13490	4.09318	10.87974
Navajo	4.29440	6.54677	3.49295	3.15099	7.57489
Nez Perce	6.47158	4.72441	1.39724	1.80557	3.27263
Nisqually	11.78748	8.82810	6.32963	2.29742	8.18972
Nivkhi	3.02444	7.93316	1.63572	3.09951	6.41380
N. Hill Yokuts	7.02777	7.47963	2.30838	4.99536	4.90221
N. Paiute	4.37675	6.54568	2.02562	3.73000	6.17308
N. Pomo	6.35416	11.17121	5.71808	8.74791	11.98623
Ojibwa(GBay)	3.55841	8.10587	1.12676	4.23801	5.30388
Ojibwa (NWLSup)	2.52434	8.97068	2.75031	6.56220	6.29318
Okanagan	6.05388	10.25047	1.87203	6.24954	6.71834
Omaha	4.25856	8.16941	0.41157	4.22727	4.59707
Oneida	2.90210	9.15549	1.05782	6.20298	5.19341
Osage	12.95103	6.65431	6.32923	1.09852	7.87259
Pawnee	3.77804	7.69049	0.23068	5.40247	3.42444
Piegan	5.70206	9.96300	0.47667	6.68198	4.16717
Ponca	7.03399	9.18769	0.45301	4.87961	3.48907
Potawatomi	3.29642	11.86240	3.29236	5.09002	10.05730
Pueblo	3.62663	5.56945	2.24961	4.22653	4.38983
Puyallup	10.93442	8.71593	5.70264	1.59596	8.79363
Queets	18.98723	11.90814	11.72694	3.51189	13.47367
Quillayute	13.88463	11.32501	9.26493	3.09671	13.59807
Quinault	21.29685	14.42295	14.72726	5.17073	18.15548
Reindeer Chukchi	2.84201	8.18318	2.33974	4.37109	5.59601
Reindeer Evenk	1.38084	9.82590	0.98441	6.89272	5.18403
Reindeer Koryak	3.05316	7.65639	0.57382	4.82300	3.08803
San Luis Rey	12.37432	6.19125	5.61804	1.94419	7.84435
Sarcee	4.56371	8.51296	1.45680	8.02114	4.05122
Sauk	3.28907	9.66383	1.24889	5.98892	6.71910
Seneca	2.83010	9.89064	1.30496	7.50287	5.73309
Serrano	7.33125	10.16114	3.56540	6.27484	8.99897

Matrix 4F. cont.

	Itelman (SE)	Kalapuya	Kiowa	Klamath	Klickitat
Shawnee	3.53588	6.27913	1.17707	4.45127	4.68188
Shoshoni	6.74669	11.53436	2.42471	7.74837	8.45353
Shuswap	5.64018	4.59116	2.41562	2.12146	4.90871
Sioux(Santee)	6.03829	11.72217	1.01869	8.51371	4.88896
Sioux(Teton)	7.82650	12.22062	1.13252	7.68515	4.80155
Sioux(Yankton)	7.22989	11.87224	1.05396	7.72402	5.04435
S. Miwok	12.82164	8.69266	5.41495	1.69362	8.21722
Stalo	10.09467	8.94526	6.99228	2.93643	11.19423
Stockbridge	3.21318	7.43100	2.12365	6.94245	5.30405
Tahltan	7.34003	13.48921	3.10523	7.19274	7.00997
Taos	0.75903	11.26142	4.26450	11.03524	8.82776
Tenino	9.64452	5.26912	4.55217	0.32810*	6.11541
Thompson	2.45158	7.09563	2.46828	4.02309	6.98004
Tonkawa	11.81725	4.99206	3.33806	2.52991	2.30530
Tsimshian	7.22670	13.84996	4.30080	6.72233	11.78515
Tundra Evenk	2.23782	9.54166	2.09360	5.78153	5.47379
Tuscarora	1.59878	8.07701	2.21985	6.59626	6.10021
Tututni	6.61337	10.03660	7.34564	8.83548	7.35326
Umatilla	16.21121	8.58835	5.32308	3.37214	6.38256
Ute	6.74561	9.92144	3.39949	8.00886	8.39491
Wasco	11.58180	3.29054	5.52138	0.21187	4.18469
Washo	7.88725	8.41307	1.65786	3.38313	5.65454
W. Mono	4.34914	14.39478	2.49820	11.97581	8.41704
Winnebago	5.61821	5.87883	1.40238	1.51622	4.40884
Yakut	3.88703	11.70453	1.57457	5.97764	6.19229
Yokuts	9.98386	7.14974	6.54492	3.30976	10.11009
Yukaghir	1.84735	11.32583	2.65158	8.17373	6.55686
Yuki	4.16909	16.02264	6.00486	13.82255	14.15750
Yurok	5.75437	6.15202	4.28690	3.96895	7.53587
Zuni	3.15825	8.15508	5.38231	5.97035	9.78208

Matrix 4F. cont.

	Koryak	Kutenai	Kwakiutl	Lillooet	Makah
Achomawi	3.75432	7.95620	2.28094	1.87667	2.12996
Agua Caliente	8.53578	7.76117	7.25632	3.18887	5.92573
Aiwan	0.85986	9.54700	1.11101	6.33352	5.92357
Aleut	2.94649	9.20320	1.67564	3.07332	2.82146
Apache	8.01678	11.33246	7.27462	0.65131	2.74694
Arapaho	2.45225	4.33751	2.09657	4.92089	7.10858
Assiniboin	4.59430	1.73227	4.83587	7.85784	13.38223
Atsugewi	3.49727	7.27856	1.59880	1.79236	1.91406
Bannock	7.11666	14.39120	7.56233	7.96099	8.56047
Bella Coola	3.25781	8.08136	1.26200	3.67319	3.15231
Big Meadow	4.46219	9.14278	2.66275	3.09507	3.04432
Blood	2.29204	2.22298	1.53274	4.40180	7.33868
Caddo	5.63478	3.73153	5.94694	5.10864	9.99423
Carrier	2.36406	8.08616	2.44213	3.70958	4.70592
Catawba	5.17173	6.70810	8.54727	5.51130	12.76650
Cherokee	1.54830	4.94972	3.57945	3.79004	8.10616
Cheyenne	2.93617	3.42605	2.02890	5.31420	7.54037
Chickasaw	3.60145	10.85566	7.05579	4.58258	9.15436
Chilcotin	3.90255	6.40485	2.88251	0.84062	2.61648
Chippewa(MN)	2.35221	1.77078	2.45406	4.38034	8.81448
Chippewa(WI)	2.09485	4.36527	1.71104	1.94156	4.58569
Choctaw	2.20256	5.81256	3.80981	2.85581	6.44501
Chuvantsy	2.60110	10.77414	2.63654	10.22659	9.81193
Clallam	12.80048	18.25056	9.32965	3.95452	2.06024
C. Miwok	8.79584	10.37444	6.11481	3.93757	3.83473
Coahuilla	10.24855	11.36218	7.39694	4.72944	5.12823
Coeur d'Alene	4.74597	9.58795	3.37572	4.62694	4.74787
Comanche	4.99320	3.34457	4.34225	5.35309	8.90787
Concow	5.07743	6.24910	5.63992	5.80681	9.64271
Creek	2.10730	3.77756	3.69278	5.27977	9.76533
Crow	5.06254	2.17701	2.90916	6.99859	9.75399
E. Mono	6.39879	7.09029	4.24603	5.01317	5.49108
Eskimo(EC)	1.11518	5.48675	2.64945	3.84140	7.46303
Eskimo(WC)	1.56743	11.80263	2.80671	9.25992	8.79141
Even	1.30053	9.37621	1.88909	4.67169	5.75565
Evenk	1.22401	9.87393	2.71582	5.83529	7.57406
Flathead	13.28199	4.41797	11.63026	9.08411	16.14202
Haida	4.97557	8.66014	2.70315	3.79805	4.04555
Hoopa	4.31812	6.12703	4.77897	3.54322	6.97624
Itelman(KH)	1.63375	12.17858	4.18188	6.71291	8.30423
Itelman(SE)	1.44633	11.52523	4.46223	5.89498	8.26089
Kalapuya	10.95995	7.49006	11.06456	6.18507	12.24040
Kiowa	1.12134	3.75593	1.16157	2.97582	5.38671
Klamath	7.07624	8.48225	5.50339	1.62486	3.42826
Klickitat	5.96166	3.15066	5.88184	6.29517	11.32628
Koryak	0	7.39664	1.17435	4.31458	5.76316
Kutenai	7.39664	0	6.75765	7.84081	14.64592
Kwakiutl	1.17435	6.75765	0	3.96114	3.77633
Lillooet	4.31458	7.84081	3.96114	0	2.30262

Matrix 4F. cont.

	Koryak	Kutenai	Kwakiutl	Lillooet	Makah
Makah	5.76316	14.64592	3.77633	2.30262	0
Malecite	1.82167	3.77699	2.99845	4.11194	8.46164
Maritime Chukchi	1.25668	9.26290	1.58246	4.65928	4.80617
Menomini	1.88904	4.47366	2.30913	2.24031	5.41959
Micmac	0.92187	4.00611	2.47130	4.53384	8.44767
Mississagua	1.74624	3.15124	1.76914	2.56897	6.13892
Modoc	5.56340	11.26344	5.15972	0.40421	1.74722
Mohawk	3.13403	3.98766	3.92815	4.09306	8.95073
Montagnais	4.77443	2.34953	4.67501	3.80792	9.39376
Munsee	2.00673	5.15494	1.88136	3.74950	6.05493
Nanaimo	15.04445	16.12423	11.13154	7.30220	7.60304
Navajo	4.37900	9.07327	5.47629	0.86270	3.95526
Nez Perce	3.59051	3.51191	2.34322	1.32453	4.12471
Nisqually	7.74620	11.49632	4.47675	2.96662	2.22049
Nivkhi	1.72756	8.01335	1.42637	1.37668	2.00560
N. Hill Yokuts	4.33421	6.60476	3.69572	5.66965	6.98447
N. Paiute	3.51609	5.89231	3.56904	2.04582	4.80862
N. Pomo	7.29237	10.02812	8.62765	5.56039	9.33578
Ojibwa(GBay)	1.59037	4.76837	1.01946	1.98855	4.02360
Ojibwa (NWLSup)	1.68235	6.54596	1.98807	4.02918	6.41748
Okanagan	3.33682	3.70567	1.88756	3.76998	6.10932
Omaha	1.77749	3.74713	1.68668	1.80933	4.68410
Oneida	1.04856	4.52942	0.92153	3.96387	6.09225
Osage	9.55521	10.61845	7.47313	1.50361	3.13764
Pawnee	1.41967	2.76884	1.96312	3.31312	6.98724
Piegan	2.18213	2.41358	2.02193	4.39711	7.78254
Ponca	2.53861	3.63376	1.47547	4.09382	5.88865
Potawatomi	2.58522	11.29218	2.97899	1.42185	1.94257
Pueblo	3.08682	7.18720	5.29587	2.81893	6.91313
Puyallup	7.43245	11.98469	4.42385	2.05642	0.94741
Queets	14.44767	18.03716	10.31486	4.99297	3.49976
Quillayute	11.33209	16.24924	8.46578	2.60190	1.77368
Quinault	17.81237	21.76944	13.49231	6.07149	4.26213
Reindeer Chukchi	1.40181	9.92591	1.63761	3.91567	3.75996
Reindeer Evenk	0.10575	6.17653	1.48148	4.11935	6.50691
Reindeer Koryak	0.57327	5.51478	1.08059	3.84070	5.64939
San Luis Rey	9.39204	8.65982	6.69156	2.92232	4.32647
Sarcee	2.53508	1.84562	3.19861	5.66695	10.57534
Sauk	2.00177	4.57617	2.32113	2.48413	5.63884
Seneca	1.30153	4.37362	1.54538	4.92809	7.55449
Serrano	5.55770	6.43357	3.91293	4.60323	6.20190
Shawnee	2.49858	4.03920	3.13708	2.45658	6.24289
Shoshoni	4.84700	4.78605	4.85929	4.43314	8.10713

Matrix 4F. cont.

	Koryak	Kutenai	Kwakiutl	Lillooet	Makah
Shuswap	4.19019	4.92625	3.49241	1.05494	4.22369
Sioux(Santee)	2.43101	2.66317	2.65847	5.59989	9.44252
Sioux(Teton)	2.96688	3.29806	2.08073	5.65951	8.17182
Sioux(Yankton)	3.01122	2.99455	2.73981	5.08708	8.47176
S. Miwok	8.37194	10.93909	4.81611	3.02467	1.87484
Stalo	8.49887	12.02518	6.00345	1.95340	2.26543
Stockbridge	2.58215	4.18539	3.25161	4.99848	8.81472
Tahltan	2.93842	7.92207	1.36088	5.29821	5.39345
Taos	2.49526	9.75219	6.32891	7.16360	11.57709
Tenino	6.72120	9.54017	4.74967	1.06826	1.85640
Thompson	2.56175	7.34008	3.43583	1.21434	4.13280
Tonkawa	7.05577	5.26386	6.30128	3.79415	7.54364
Tsimshian	5.12487	9.16625	2.88189	3.55978	3.47631
Tundra Evenk	0.62165	8.64691	1.30238	4.02063	4.90602
Tuscarora	1.54990	5.87144	2.61243	3.88739	7.09806
Tututni	5.47210	11.05993	6.86360	6.92873	10.68017
Umatilla	10.45339	7.73085	7.86915	4.71493	6.79258
Ute	5.86162	5.43917	6.54920	5.33922	9.81273
Wasco	8.10114	9.58383	6.46548	2.53634	4.23198
Washo	4.33839	6.09832	2.79850	3.07471	3.97167
W. Mono	2.86446	6.48614	4.24464	8.86141	11.69386
Winnebago	3.07094	5.57225	2.29779	0.40472	2.47427
Yakut	0.90078	7.80367	0.51203	3.75411	3.98670
Yokuts	8.92272	9.63195	6.89239	2.56844	4.50605
Yukaghir	0.65772	8.53879	1.71693	5.60193	7.01417
Yuki	5.86542	10.49303	8.44126	8.47831	12.66310
Yurok	5.36767	8.66495	4.70478	3.69326	5.28787
Zuni	5.02051	12.26205	7.85684	2.99540	6.66871

Matrix 4F. cont.

	Malecite	Maritime Chukchi	Menomini	Micmac	Mississagua
Achomawi	3.63511	2.01821	1.93662	4.20764	3.36115
Agua Caliente	5.93419	6.87201	3.49491	6.79906	6.17330
Aiwan	3.62323	0.63846	3.78205	2.61362	3.73017
Aleut	5.44724	2.65858	4.65961	5.03118	3.31968
Apache	7.61393	7.99920	4.72703	8.25415	5.60479
Arapaho	2.71028	4.50642	1.68369	1.77534	1.90853
Assiniboin	3.65438	8.40435	4.34024	2.72733	2.10828
Atsugewi	3.88196	2.13423	2.39941	4.30880	2.78985
Bannock	6.23868	7.28603	4.04023	6.83420	7.71750
Bella Coola	6.19886	4.22827	4.85335	5.19165	3.04672
Big Meadow	3.72489	3.38807	1.95819	4.99206	3.35600
Blood	1.95992	3.97026	1.65541	1.42135	0.87494
Caddo	3.72695	4.75746	3.97325	3.62762	4.42250
Carrier	3.82907	1.12706	3.57516	3.25864	3.83312
Catawba	1.85775	6.48328	2.83047	2.76415	3.81630
Cherokee	0.79089	3.23123	0.76625	0.36667	1.62788
Cheyenne	3.99579	4.99803	3.27098	2.51463	2.23052
Chickasaw	2.68855	5.33725	2.68227	3.09800	4.00992
Chilcotin	3.40482	2.83711	1.98807	3.90858	2.62766
Chippewa(MN)	0.65931	3.79680	1.20284	0.90885	0.44278
Chippewa(WI)	0.90320	2.56192	0.25047	1.57549	0.58157
Choctaw	1.73080	2.90506	1.01227	1.18303	2.56195
Chuvantsy	6.08835	2.64018	7.21938	4.68974	5.76409
Clallam	14.02576	10.36520	10.09362	14.99340	10.91459
C. Miwok	9.10808	6.30674	6.33308	9.02506	7.83316
Coahuilla	8.72506	10.13724	4.99740	9.74553	7.10526
Coeur d'Alene	4.13073	4.81344	2.13646	4.94687	3.88048
Comanche	4.35432	4.56102	4.26648	3.65532	4.02773
Concow	2.01196	5.44958	1.29985	2.98290	3.67188
Creek	1.37959	4.55345	1.36378	0.54771	1.79138
Crow	4.82560	6.28650	4.81845	4.16841	2.83009
E. Mono	7.02487	5.44827	4.77201	6.03590	5.98767
Eskimo(EC)	0.42936	2.73586	0.68341	0.56129	0.94361
Eskimo(WC)	5.91997	3.57303	5.72629	3.48380	5.54950
Even	2.45948	1.84381	2.89856	2.79932	2.18550
Evenk	2.47782	2.86832	3.12407	2.50155	2.41697
Flathead	6.10038	13.22209	5.90720	8.96841	6.55690
Haida	4.99910	6.11413	3.25606	5.89011	2.65400
Hoopa	2.20691	2.43453	1.98363	3.01947	3.86331
Itelman(KH)	2.64455	2.47553	2.97292	2.56763	4.23762
Itelman(SE)	2.46811	2.69983	2.83043	2.17663	3.86987
Kalapuya	6.49701	8.30666	6.68082	8.28365	7.88815
Kiowa	1.65896	2.26637	1.14235	0.83389	1.00923
Klamath	6.21862	5.11141	4.40686	7.00647	5.16217
Klickitat	4.13331	5.30773	4.98397	4.08345	4.36367
Koryak	1.82167	1.25668	1.88904	0.92187	1.74624
Kutenai	3.77699	9.26290	4.47366	4.00611	3.15124
Kwakiutl	2.99845	1.58246	2.30913	2.47130	1.76914

Matrix 4F. cont.

	Malecite	Maritime Chukchi	Menomini	Micmac	Mississagua
Lillooet	4.11194	4.65928	2.24031	4.53384	2.56897
Makah	8.46164	4.80617	5.41959	8.44767	6.13892
Malecite	0	2.59943	0.59622	0.50388	1.01314
Maritime Chukchi	2.59943	0	2.50001	2.43172	3.48453
Menomini	0.59622	2.50001	0	0.99631	0.92259
Micmac	0.50388	2.43172	0.99631	0	1.16254
Mississagua	1.01314	3.48453	0.92259	1.16254	0
Modoc	5.94548	5.11874	3.83758	6.59624	4.36994
Mohawk	0.80827	5.09738	1.09277	1.70823	0.79363
Montagnais	1.86039	7.00670	1.88861	2.81634	0.84828
Munsee	1.16050	3.17768	0.52732	1.50377	1.08786
Nanaimo	13.15743	10.95518	11.67130	16.04686	11.31507
Navajo	3.64165	4.75273	1.84967	3.98696	3.54838
Nez Perce	2.22784	3.55569	1.14409	2.79486	1.21829
Nisqually	8.65539	6.24593	6.65394	9.62881	5.64737
Nivkhi	2.36139	1.48363	0.96972	2.54405	1.95001
N. Hill Yokuts	3.76966	2.92674	2.60612	3.40069	4.95795
N. Paiute	1.94915	3.50712	0.48361	2.44619	2.38374
N. Pomo	4.85247	7.96292	2.85261	5.27438	6.37001
Ojibwa(GBay)	1.30542	2.42746	0.66413	1.67638	0.37362
Ojibwa (NWLSup)	1.22615	2.28605	1.72339	2.04042	1.14239
Okanagan	2.16377	4.63759	1.31115	2.64962	0.96242
Omaha	1.75303	3.46030	0.79022	1.31632	0.56144
Oneida	0.78213	1.86764	0.81360	0.93256	0.67773
Osage	9.26212	8.82970	6.31138	9.79354	6.54333
Pawnee	0.99156	3.03746	0.82392	0.41539	0.68788
Piegan	2.20696	4.46467	1.88339	1.25546	1.02407
Ponca	3.44846	3.60677	2.58554	2.29478	2.03228
Potawatomi	4.55593	3.87282	2.73974	4.30776	2.94114
Pueblo	2.77045	3.59495	2.14153	2.14972	3.65054
Puyallup	8.40159	5.76620	5.64437	9.14347	5.85335
Queets	15.68414	12.32954	12.04839	16.68634	11.55334
Quillayute	11.97207	10.06185	8.14674	13.04711	8.82668
Quinault	18.32627	15.40837	13.60703	19.83363	14.38939
Reindeer Chukchi	3.03956	0.09083	2.58226	2.83210	3.62982
Reindeer Evenk	1.16745	1.52019	1.48426	0.48157	1.26114
Reindeer Koryak	1.71673	0.89611	1.82725	0.95043	1.71390
San Luis Rey	7.27806	7.53581	4.34015	8.43451	6.32377
Sarcee	0.69469	4.38663	1.40616	0.67850	0.98567
Sauk	1.32851	3.96470	0.47401	1.33956	0.65575
Seneca	0.65169	2.37782	0.85229	0.75253	0.99310
Serrano	3.50503	5.32450	1.72286	4.43926	3.57034

Matrix 4F. cont.

	Malecite	Maritime Chukchi	Menomini	Micmac	Mississagua
Shawnee	0.88800	3.23502	0.16792	1.09125	1.37777
Shoshoni	3.49084	7.08604	1.82867	3.07079	2.94742
Shuswap	2.07607	3.95620	0.84154	3.19475	1.68603
Sioux(Santee)	2.76434	5.50910	2.82086	1.52992	1.33131
Sioux(Teton)	4.12379	5.52365	3.74688	2.69802	1.93680
Sioux(Yankton)	3.72744	6.05546	3.24424	2.29865	1.70905
S. Miwok	9.01624	6.40416	5.88569	9.40355	6.69368
Stalo	7.44224	7.24497	4.69830	9.27219	5.55509
Stockbridge	0.33444	2.91190	0.61391	1.04090	1.72640
Tahltan	5.57328	4.37971	5.30369	4.90262	2.64904
Taos	2.04970	3.97432	2.86412	1.71485	4.42632
Tenino	6.56867	5.15366	4.25898	7.32527	4.85895
Thompson	1.65858	3.17227	0.63080	2.31146	1.70346
Tonkawa	6.84346	7.23240	5.63419	5.95663	5.19128
Tsimshian	5.11324	5.90874	2.90517	5.90957	3.14698
Tundra Evenk	2.55498	0.89811	2.81229	2.16419	2.24074
Tuscarora	0.33662	2.16513	0.64875	1.03853	1.23350
Tututni	6.00351	6.46059	7.61830	6.59221	4.93853
Umatilla	10.34660	10.37299	7.42312	9.50796	7.67618
Ute	3.35713	7.22522	1.93941	3.33487	4.18573
Wasco	7.66381	5.85482	6.00251	8.28004	6.40029
Washo	4.50000	4.08681	2.32305	3.96068	3.66431
W. Mono	2.93734	4.70069	2.90560	1.70078	4.21785
Winnebago	3.01960	3.38727	1.45071	3.09819	1.57768
Yakut	3.49964	2.05111	3.10680	2.68038	1.79924
Yokuts	6.00666	7.54726	3.48819	8.09133	5.38548
Yukaghir	2.24546	1.51068	3.07118	1.95922	2.23951
Yuki	4.16757	8.21316	3.33994	4.10392	6.01788
Yurok	3.13916	3.33934	1.74223	4.58427	4.53092
Zuni	4.36043	5.40680	3.10040	4.60551	5.59576

Matrix 4F. cont.

	Modoc	Mohawk	Montagnais	Munsee	Nanaimo
Achomawi	2.31159	5.09325	5.53152	2.95306	6.43560
Agua Caliente	4.35346	7.24546	6.70870	5.49624	9.81369
Aiwan	7.15201	6.05821	7.90050	3.86496	14.05526
Aleut	3.14152	6.67848	6.70074	5.46880	7.00714
Apache	0.64241	7.30878	6.56688	6.77436	7.65957
Arapaho	7.56030	3.04505	3.42958	1.16336	17.73755
Assiniboin	11.30554	3.25990	2.43872	4.01921	20.25133
Atsugewi	2.21102	5.08078	5.07819	3.25354	5.36845
Bannock	9.48739	6.34288	8.97039	3.34941	21.08764
Bella Coola	4.54641	6.67702	6.17027	4.84672	10.03170
Big Meadow	3.77959	3.75890	4.70072	1.71422	8.06919
Blood	6.90349	2.37321	2.12003	1.47632	14.06075
Caddo	6.72225	6.50733	5.85176	6.56508	11.23767
Carrier	4.06794	6.69956	7.37695	5.30548	9.13348
Catawba	7.10893	2.49181	3.69524	4.72004	16.64386
Cherokee	5.76859	1.74575	2.95279	1.57554	16.85700
Cheyenne	7.90419	4.84290	4.27658	3.22149	16.44466
Chickasaw	5.50435	2.85260	5.09161	3.77253	17.72230
Chilcotin	1.31962	4.59343	4.32810	3.62474	5.57462
Chippewa(MN)	6.69630	0.95359	0.99751	1.39051	12.82283
Chippewa(WI)	3.36079	0.99736	1.46781	0.50647	9.45096
Choctaw	4.43776	3.37264	4.32795	2.47649	15.06246
Chuvantsy	11.21549	8.88855	10.46225	7.08530	16.52425
Clallam	2.72155	14.32378	13.25855	11.92146	4.56320
C. Miwok	4.30695	11.43247	10.38383	8.45968	7.49209
Coahuilla	6.14322	7.59262	7.21711	4.78367	12.95064
Coeur d'Alene	6.02341	3.71368	5.01325	1.21166	13.35590
Comanche	7.20564	6.97737	6.01685	6.17310	11.72957
Concow	8.07348	2.32838	3.67503	1.36716	16.74304
Creek	7.99882	2.08399	2.90955	1.62926	19.67148
Crow	9.64868	5.59450	4.21112	4.74409	13.40744
E. Mono	6.64713	9.32004	8.55631	5.96779	12.76050
Eskimo(EC)	5.53489	0.71447	2.16616	0.81863	14.87552
Eskimo(WC)	10.93942	7.96371	10.18463	5.07466	23.52694
Even	5.16394	2.96686	4.73920	2.73763	11.11500
Evenk	6.74778	2.62167	4.80501	2.62168	15.26634
Flathead	11.85654	4.91563	3.56716	6.49740	13.14622
Haida	4.98834	3.32161	3.49093	2.03121	10.20836
Hoopa	4.41185	4.66247	5.34742	4.10711	8.91455
Itelman(KH)	7.54238	3.77883	7.00174	2.90556	18.36583
Itelman(SE)	6.72700	3.60340	6.53987	3.21426	18.36662
Kalapuya	6.81541	8.89921	7.96942	10.33668	7.36923
Kiowa	4.82421	2.83094	3.09175	1.65234	13.13490
Klamath	1.64553	7.69321	6.77502	6.83627	4.09318
Klickitat	8.01962	6.74069	5.76255	7.29897	10.87974
Koryak	5.56340	3.13403	4.77443	2.00673	15.04445
Kutenai	11.26344	3.98766	2.34953	5.15494	16.12423
Kwakiutl	5.15972	3.92815	4.67501	1.88136	11.13154
Lillooet	0.40421	4.09306	3.80792	3.74950	7.30220

Matrix 4F. cont.

	Modoc	Mohawk	Montagnais	Munsee	Nanaimo
Makah	1.74722	8.95073	9.39376	6.05493	7.60304
Malecite	5.94548	0.80827	1.86039	1.16050	13.15743
Maritime Chukchi	5.11874	5.09738	7.00670	3.17768	10.95518
Menomini	3.83758	1.09277	1.88861	0.52732	11.67130
Micmac	6.59624	1.70823	2.81634	1.50377	16.04686
Mississagua	4.36994	0.79363	0.84828	1.08786	11.31507
Modoc	0	6.14984	6.13631	5.66944	6.00445
Mohawk	6.14984	0	0.60911	1.03583	13.71589
Montagnais	6.13631	0.60911	0	2.06956	12.36834
Munsee	5.66944	1.03583	2.06956	0	13.70203
Nanaimo	6.00445	13.71589	12.36834	13.70203	0
Navajo	1.43820	4.09173	4.72364	3.64602	11.15408
Nez Perce	2.67592	2.64067	2.02790	2.09322	7.19411
Nisqually	2.49799	8.77878	7.77130	7.58884	2.55350
Nivkhi	1.95894	3.15914	4.20307	1.50981	9.05850
N. Hill Yokuts	7.41600	6.51823	7.30846	3.56836	14.20142
N. Paiute	3.49704	2.60105	3.25773	1.34968	11.63784
N. Pomo	7.50814	5.24810	6.60094	3.73858	19.88213
Ojibwa(GBay)	3.31659	1.24894	1.66950	0.65575	9.48490
Ojibwa (NWLSup)	5.03048	1.34928	2.60065	1.61242	10.22301
Okanagan	5.92638	1.49109	1.44223	0.60148	11.87046
Omaha	3.62994	1.91086	1.86242	1.20606	12.33410
Oneida	5.67310	1.29604	2.27855	0.49323	12.21016
Osage	1.52590	9.42716	7.71405	8.58404	5.69969
Pawnee	5.50066	1.80985	2.06306	1.33395	14.31478
Piegan	7.00261	2.64504	2.37896	1.90923	15.83941
Ponca	6.20382	4.72190	4.27515	2.93613	13.50590
Potawatomi	1.65059	4.29644	5.35599	3.17015	11.50342
Pueblo	3.96732	4.78636	5.62918	4.41027	14.71368
Puyallup	1.64735	8.78112	8.09650	6.72741	3.78486
Queets	3.78749	15.61623	13.66610	13.92459	3.71216
Quillayute	1.79320	11.35891	10.39957	9.59724	5.44166
Quinault	4.70183	17.66077	15.89432	15.46004	5.68930
Reindeer Chukchi	4.13511	5.45876	7.26315	3.42811	10.17496
Reindeer Evenk	5.55590	2.32414	3.78087	1.74834	14.84273
Reindeer Koryak	5.11426	3.70076	4.62919	2.56783	12.35072
San Luis Rey	3.77133	7.88761	6.86959	5.82758	7.11957
Sarcee	8.40194	1.14587	1.48969	1.46848	16.10837
Sauk	4.42198	0.90679	1.44244	0.41721	13.88799
Seneca	6.97985	1.19174	2.38188	0.40722	14.41764
Serrano	6.55973	3.48412	3.98047	1.34077	12.74979
Shawnee	4.30710	1.58538	2.17131	1.00106	12.97887
Shoshoni	7.21034	3.20084	3.23849	1.85025	18.60596

Matrix 4F. cont.

	Modoc	Mohawk	Montagnais	Munsee	Nanaimo
Shuswap	2.15602	2.17275	2.03835	1.91236	7.27166
Sioux(Santee)	8.43019	2.98006	2.69643	2.66281	18.07399
Sioux(Teton)	8.26196	4.55017	3.84222	3.50045	16.39845
Sioux(Yankton)	7.83194	3.89372	3.19759	3.21193	17.47754
S. Miwok	3.19120	9.95692	8.91279	7.01607	5.57293
Stalo	1.75586	6.56963	6.23887	5.45142	4.45855
Stockbridge	7.04601	1.17669	2.41850	0.81085	14.00199
Tahltan	6.29737	5.66198	5.52781	4.77749	10.89731
Taos	8.71154	3.60082	6.36533	3.75384	21.40385
Tenino	0.94864	7.37853	6.59166	6.11714	3.98045
Thompson	2.05487	1.72466	2.73920	1.52141	10.55122
Tonkawa	5.22524	8.73615	6.91623	8.21886	11.09947
Tsimshian	4.76073	3.74559	4.10110	1.81681	10.84187
Tundra Evenk	4.50676	4.03602	5.52534	3.27689	11.09224
Tuscarora	5.27624	0.82200	2.39053	0.82944	12.55044
Tututni	6.92748	6.41398	6.95849	8.91857	10.61042
Umatilla	6.29518	11.54079	9.11112	9.44827	12.13118
Ute	8.07509	3.75636	4.22939	2.52782	19.38087
Wasco	2.31505	9.55622	8.40353	8.81000	3.95599
Washo	4.71407	5.83671	5.63476	3.02575	12.08189
W. Mono	11.83051	4.49829	6.26595	2.45540	24.11589
Winnebago	1.30645	3.43816	3.06399	2.60383	7.72944
Yakut	4.64123	4.22894	4.98047	2.96113	11.61457
Yokuts	3.15448	5.42359	5.14500	4.42132	6.59019
Yukaghir	6.46038	3.38714	5.21895	3.01503	13.46569
Yuki	11.04600	4.12721	6.48261	3.09793	25.89204
Yurok	4.49736	4.39611	5.59209	2.64429	9.25133
Zuni	3.36146	5.39547	7.14258	5.25197	15.29907

Matrix 4F. cont.

	Navajo	Nez Perce	Nisqually	Nivkhi	N. Hill Yokuts
Achomawi	2.58797	1.19228	2.95398	0.74131	2.09572
Agua Caliente	2.79957	2.40495	7.09597	3.76014	2.75225
Aiwan	7.01675	4.83790	7.41040	2.64585	4.20817
Aleut	5.70081	2.99205	1.94566	2.49501	6.63451
Apache	1.49203	3.10786	3.85180	3.28975	8.07744
Arapaho	4.98476	2.72994	9.32470	2.81997	2.88671
Assiniboin	9.09500	4.61665	12.16115	7.19025	7.97627
Atsugewi	3.43040	0.96877	1.67255	0.98520	3.07646
Bannock	5.45133	7.64698	14.48820	4.42523	5.79565
Bella Coola	6.62804	3.03684	2.84403	3.03393	6.61526
Big Meadow	3.69110	2.23037	4.26440	1.13965	4.07073
Blood	5.48409	1.63269	7.18160	2.93722	3.31936
Caddo	5.49517	2.76542	8.35290	5.28479	3.34552
Carrier	4.62120	2.94227	4.81530	2.37383	3.38025
Catawba	3.69083	5.28848	13.28735	5.50717	8.00641
Cherokee	2.53664	2.94189	10.34648	2.37475	3.50474
Cheyenne	6.66633	2.75597	8.02968	4.03531	3.74333
Chickasaw	2.54247	6.07903	12.29463	3.72165	8.50671
Chilcotin	1.91075	0.61456	2.36228	1.17160	3.17887
Chippewa(MN)	5.09259	1.68820	7.68081	3.15233	4.35145
Chippewa(WI)	2.39203	0.72226	4.86391	0.84442	3.31552
Choctaw	1.57152	2.43680	9.07303	1.90468	2.14862
Chuvantsy	11.96903	7.71537	9.62926	6.12911	7.59235
Clallam	6.64919	6.35789	2.19083	6.09789	11.29316
C. Miwok	5.42848	3.31595	4.13325	4.45194	3.69905
Coahuilla	5.08158	4.40324	7.72640	4.56524	6.43789
Coeur d'Alene	4.42860	3.54553	7.60036	1.98597	4.34593
Comanche	6.57043	2.53037	7.32851	5.07818	2.96783
Concow	4.05708	3.74261	12.01905	3.47788	3.38845
Creek	4.27050	3.45005	11.92390	3.55434	3.64407
Crow	9.66764	2.95130	7.19416	5.95487	5.36664
E. Mono	5.94103	2.96338	6.77458	4.15654	1.63856
Eskimo(EC)	3.24471	2.91376	8.89999	1.95615	4.81956
Eskimo(WC)	9.13167	8.12670	12.89178	5.00279	6.25503
Even	5.59918	4.26075	6.01580	2.22983	7.46775
Evenk	6.09236	5.57600	8.84519	3.06485	8.54026
Flathead	9.56187	5.23388	12.69987	9.68558	9.67921
Haida	5.68510	3.08244	4.40551	2.62684	7.84696
Hoopa	2.98469	2.12411	6.97675	2.58302	2.12719
Itelman(KH)	5.15022	6.81106	11.93803	3.03356	6.83667
Itelman(SE)	4.29440	6.47158	11.78748	3.02444	7.02777
Kalapuya	6.54677	4.72441	8.82810	7.93316	7.47963
Kiowa	3.49295	1.39724	6.32963	1.63572	2.30838
Klamath	3.15099	1.80557	2.29742	3.09951	4.99536
Klickitat	7.57489	3.27263	8.18972	6.41380	4.90221
Koryak	4.37900	3.59051	7.74620	1.72756	4.33421
Kutenai	9.07327	3.51191	11.49632	8.01335	6.60476
Kwakiutl	5.47629	2.34322	4.47675	1.42637	3.69572

Matrix 4F. cont.

	Navajo	Nez Perce	Nisqualli	Nivkhi	N. Hill Yokuts
Lillooet	0.86270	1.32453	2.96662	1.37668	5.66965
Makah	3.95526	4.12471	2.22049	2.00560	6.98447
Malecite	3.64165	2.22784	8.65539	2.36139	3.76966
Maritime Chukchi	4.75273	3.55569	6.24593	1.48363	2.92674
Menomini	1.84967	1.14409	6.65394	0.96972	2.60612
Micmac	3.98696	2.79486	9.62881	2.54405	3.40069
Mississagua	3.54838	1.21829	5.64737	1.95001	4.95795
Modoc	1.43820	2.67592	2.49799	1.95894	7.41600
Mohawk	4.09173	2.64067	8.77878	3.15914	6.51823
Montagnais	4.72364	2.02790	7.77130	4.20307	7.30846
Munsee	3.64602	2.09322	7.58884	1.50981	3.56836
Nanaimo	11.15408	7.19411	2.55350	9.05850	14.20142
Navajo	0	2.53247	6.52119	1.63872	4.97104
Nez Perce	2.53247	0	3.29782	1.47208	3.03956
Nisqually	6.52119	3.29782	0	3.89901	9.12096
Nivkhi	1.63872	1.47208	3.89901	0	3.00215
N. Hill Yokuts	4.97104	3.03956	9.12096	3.00215	0
N. Paiute	1.24542	1.36569	6.91782	1.15087	2.03528
N. Pomo	2.77199	5.48918	14.11041	4.45820	4.48806
Ojibwa(GBay)	2.96210	0.92982	4.18644	0.82993	4.03736
Ojibwa (NWLSup)	4.84934	2.86765	5.90456	2.04884	6.39433
Okanagan	4.88599	1.47016	6.04043	2.31978	4.34735
Omaha	2.39573	0.93958	5.63411	1.38221	3.38109
Oneida	4.48385	1.90848	6.50293	1.51582	3.50775
Osage	3.55805	3.01150	2.55647	4.54710	8.15776
Pawnee	3.44767	1.53251	7.71610	2.16281	2.82508
Piegan	5.20951	2.07770	8.15896	3.28136	3.73438
Ponca	5.39995	1.80209	6.25138	2.87664	2.54032
Potawatomi	1.88349	3.47161	4.73492	1.11944	7.09250
Pueblo	1.48934	3.25016	9.31385	2.74322	3.47215
Puyallup	4.62207	2.85131	0.58411	2.81288	7.05383
Queets	8.94638	7.08751	1.71045	8.02323	13.90476
Quillayute	4.85059	5.21975	2.34173	4.93753	10.94354
Quinault	9.22387	9.04486	3.96001	9.43251	15.62257
Reindeer Chukchi	4.09445	3.38471	5.43642	1.16130	3.06553
Reindeer Evenk	4.08926	3.19406	7.98976	1.86632	4.34571
Reindeer Koryak	4.34795	2.36510	6.33887	1.76957	2.80494
San Luis Rey	3.76441	2.21152	4.62323	3.75116	4.05409
Sarcee	5.71291	2.64491	10.21677	3.93952	4.25815
Sauk	2.43976	1.68364	7.22314	1.51312	4.18172
Seneca	4.94319	2.52426	8.38598	2.11169	3.46036
Serrano	4.40449	2.40437	7.90553	2.56727	2.77599

Matrix 4F. cont.

	Navajo	Nez Perce	Nisqualli	Nivkhi	N. Hill Yokuts
Shawnee	1.71910	1.28434	7.76027	1.50722	2.20591
Shoshoni	3.65196	3.00201	10.89089	3.64515	3.68164
Shuswap	1.49670	0.43503	4.10001	1.29467	3.61967
Sioux(Santee)	6.55157	3.23065	9.63743	4.49855	5.39740
Sioux(Teton)	7.49414	3.10946	7.91231	4.58634	5.29070
Sioux(Yankton)	6.36717	3.01064	8.76385	4.50359	5.34727
S. Miwok	5.32454	2.79780	1.91980	3.47381	5.15339
Stalo	3.61587	3.03320	2.20468	2.91242	8.29812
Stockbridge	4.20095	2.51086	9.56006	2.52131	2.91856
Tahltan	8.51834	4.09186	4.00969	4.01881	8.69871
Taos	4.63838	6.94803	15.07271	4.49308	6.41840
Tenino	2.84386	1.77220	1.36389	2.40606	5.54029
Thompson	0.71220	1.84580	5.91802	0.81223	4.62301
Tonkawa	5.35800	2.86977	6.32736	5.73511	5.22126
Tsimshian	4.86297	2.97596	4.87296	2.19214	6.52496
Tundra Evenk	4.92986	3.62438	5.47650	1.83521	5.62241
Tuscarora	3.42309	2.65924	7.95269	1.70666	4.47304
Tututni	9.14102	7.34423	7.50261	7.20498	14.46434
Umatilla	6.59176	3.83050	6.63442	6.88614	5.76213
Ute	3.52910	3.71711	12.94190	4.27910	3.06385
Wasco	4.49033	2.80693	2.47404	4.34035	6.22935
Washo	3.47184	1.61914	5.91408	2.04924	1.19127
W. Mono	7.22981	5.97510	15.35294	4.92143	3.15102
Winnebago	1.47292	0.45134	2.83884	0.93176	3.64740
Yakut	5.50697	3.15456	4.51133	1.93650	5.87478
Yokuts	3.06157	2.55056	4.80120	3.19553	6.16456
Yukaghir	6.30741	4.66050	7.49710	2.75489	6.73739
Yuki	5.28887	7.83811	18.05619	5.76727	6.67735
Yurok	2.88348	2.53816	6.86850	1.83630	2.39227
Zuni	0.78982	5.34188	10.59256	3.13460	6.61215

Matrix 4F. cont.

	N. Paiute	N. Pomo	Ojibwa (Gbay)	Ojibwa (Nwlsup)	Okanagan
Achomawi	1.51396	5.48408	1.89798	3.70480	3.16570
Agua Caliente	1.69373	3.49992	5.12237	8.62876	5.49017
Aiwan	5.46412	10.64966	3.00524	2.86479	5.05298
Aleut	5.95952	12.86471	2.62246	3.43001	5.03866
Apache	3.60948	6.60689	4.67592	7.67173	6.60915
Arapaho	2.28114	4.55622	1.90597	4.24847	1.31238
Assiniboin	6.57114	10.55256	3.84195	5.24131	3.13751
Atsugewi	2.48269	7.62534	1.56267	3.23369	2.89147
Bannock	3.07650	1.95357	5.86678	7.62541	5.64380
Bella Coola	6.04296	12.48781	2.53324	4.46555	3.77099
Big Meadow	1.79945	5.00940	1.58630	2.89510	1.97793
Blood	2.86473	6.82776	1.25738	2.98927	0.93964
Caddo	4.41787	8.91845	5.05168	6.57031	6.53159
Carrier	4.40188	9.91611	3.30839	3.98767	5.97036
Catawba	3.99814	5.40473	4.78735	4.21555	6.66188
Cherokee	1.63434	3.25332	2.04683	2.85215	3.09632
Cheyenne	4.30778	8.51831	2.70232	5.27588	2.48673
Chickasaw	3.64182	4.43945	4.08755	3.58012	6.43653
Chilcotin	1.82132	6.23071	1.85075	3.69401	3.47666
Chippewa(MN)	2.85008	6.80284	1.10888	1.64566	1.24942
Chippewa(WI)	0.93960	4.24675	0.18433*	1.14588	0.73310
Choctaw	1.07516	2.68659	2.57935	4.18818	3.94577
Chuvantsy	9.98859	17.06191	5.54147	4.67493	7.75676
Clallam	8.45949	13.93722	8.51840	11.95093	10.79064
Cmiwok	4.81123	9.47876	6.36987	10.22010	7.63065
Coahuilla	3.17400	4.31871	5.27930	9.42635	4.17449
Coeur d'Alene	1.86546	3.55405	2.23680	4.00315	1.82305
Comanche	4.87536	10.10725	4.55088	6.63514	5.53318
Concow	1.19555	1.49185	3.16773	4.41887	2.67040
Creek	2.37914	3.92667	2.51685	3.86717	2.66455
Crow	6.41063	12.53799	3.49194	5.51293	2.91277
E. Mono	3.78746	7.54865	5.14128	9.15735	5.30537
Eskimo(EC)	2.13265	4.60123	1.10535	1.03444	2.14641
Eskimo(WC)	7.48967	11.05076	5.26256	5.93651	6.75792
Even	5.07010	10.11583	1.64808	0.43472	3.80237
Evenk	5.54399	9.58584	2.20657	0.82951	4.16359
Flathead	6.03546	8.49181	6.93642	8.48205	5.18239
Haida	3.98734	8.00362	1.52271	2.99398	1.29200
Hoopa	1.95904	5.26112	3.37678	4.15874	5.11054
Itelman(KH)	4.51832	6.54305	3.56984	2.36980	5.75964
Itelman(SE)	4.37675	6.35416	3.55841	2.52434	6.05388
Kalapuya	6.54568	11.17121	8.10587	8.97068	10.25047
Kiowa	2.02562	5.71808	1.12676	2.75031	1.87203
Klamath	3.73000	8.74791	4.23801	6.56220	6.24954
Klickitat	6.17308	11.98623	5.30388	6.29318	6.71834
Koryak	3.51609	7.29237	1.59037	1.68235	3.33682
Kutenai	5.89231	10.02812	4.76837	6.54596	3.70567
Kwakiutl	3.56904	8.62765	1.01946	1.98807	1.88756

Matrix 4F. cont.

	N. Paiute	N. Pomo	Ojibwa (Gbay)	Ojibwa (Nwlsup)	Okanagan
Lillooet	2.04582	5.56039	1.98855	4.02918	3.76998
Makah	4.80862	9.33578	4.02360	6.41748	6.10932
Malecite	1.94915	4.85247	1.30542	1.22615	2.16377
Maritime Chukchi	3.50712	7.96292	2.42746	2.28605	4.63759
Menomini	0.48361	2.85261	0.66413	1.72339	1.31115
Micmac	2.44619	5.27438	1.67638	2.04042	2.64962
Mississagua	2.38374	6.37001	0.37362	1.14239	0.96242
Modoc	3.49704	7.50814	3.31659	5.03048	5.92638
Mohawk	2.60105	5.24810	1.24894	1.34928	1.49109
Montagnais	3.25773	6.60094	1.66950	2.60065	1.44223
Munsee	1.34968	3.73858	0.65575	1.61242	0.60148
Nanaimo	11.63784	19.88213	9.48490	10.22301	11.87046
Navajo	1.24542	2.77199	2.96210	4.84934	4.88599
Nez Perce	1.36569	5.48918	0.92982	2.86765	1.47016
Nisqually	6.91782	14.11041	4.18644	5.90456	6.04043
Nivkhi	1.15087	4.45820	0.82993	2.04884	2.31978
N. Hill Yokuts	2.03528	4.48806	4.03736	6.39433	4.34735
N. Paiute	0	1.51241	1.68719	3.68282	2.17830
N. Pomo	1.51241	0	5.64628	8.25207	5.64938
Ojibwa(GBay)	1.68719	5.64628	0	0.87738	0.68875
Ojibwa (NWLSup)	3.68282	8.25207	0.87738	0	2.26972
Okanagan	2.17830	5.64938	0.68875	2.26972	0
Omaha	1.44279	4.62189	0.68167	2.60755	1.19433
Oneida	2.25493	6.07566	0.44346	0.75664	0.94424
Osage	5.16509	9.76694	5.65016	9.21948	7.35986
Pawnee	1.86346	4.98700	1.16874	2.55336	1.66065
Piegan	3.10081	6.68655	1.68818	3.60514	1.56917
Ponca	3.31443	7.73255	2.13771	4.59227	2.34639
Potawatomi	3.15820	6.26878	2.00872	3.27200	4.12702
Pueblo	2.16128	4.04994	3.84302	5.31202	6.07330
Puyallup	5.02882	10.67981	4.03515	6.57626	5.70915
Queets	10.94336	17.96957	9.57681	12.96444	11.84503
Quillayute	6.70381	11.18921	6.78005	10.09990	8.63533
Quinault	11.42589	16.74402	11.79245	15.96136	13.68457
Reindeer Chukchi	3.35136	7.79186	2.43447	2.56316	4.85530
Reindeer Evenk	3.19382	6.83383	1.38183	1.36624	3.00199
Reindeer Koryak	3.17257	7.71518	1.64487	2.16771	3.32332
San Luis Rey	2.57471	5.52757	4.85629	8.59772	4.97715
Sarcee	3.05367	6.16645	1.84246	2.42134	1.70576
Sauk	1.19518	3.40776	0.64826	2.08738	0.87066
Seneca	2.29997	5.45916	0.90170	1.18391	1.10749
Serrano	1.18297	2.85448	2.39133	4.73798	1.42208

Matrix 4F. cont.

	N. Paiute	N. Pomo	Ojibwa (Gbay)	Ojibwa (Nwlsup)	Okanagan
Shawnee	0.35005	2.18218	1.31435	2.85948	1.80801
Shoshoni	1.52881	2.10650	3.02015	6.14317	2.11218
Shuswap	0.74671	3.82522	1.15390	2.79733	1.86772
Sioux(Santee)	4.54310	8.33560	2.39338	4.03355	2.29635
Sioux(Teton)	5.31232	10.14524	2.66745	4.81569	2.52579
Sioux(Yankton)	4.60659	8.53616	2.65008	4.98471	2.49783
S. Miwok	4.66387	9.75636	4.85438	8.46317	5.73548
Stalo	3.90773	7.89833	3.71766	5.82555	4.82206
Stockbridge	1.55612	3.82622	1.63305	1.88604	1.85237
Tahltan	7.57968	14.73387	2.49190	3.04336	3.78500
Taos	4.23487	5.13339	4.73855	3.93031	6.82013
Tenino	3.53692	8.44656	3.60307	6.10122	5.44848
Thompson	0.89351	3.04516	1.17270	2.04268	2.67093
Tonkawa	5.52368	10.47757	5.75674	9.03699	7.16101
Tsimshian	3.03701	6.19863	1.72887	3.72323	1.37406
Tundra Evenk	4.67489	9.94864	1.82604	1.27978	4.32083
Tuscarora	1.99256	4.84345	1.02130	0.61322	2.11913
Tututni	10.82167	18.15544	5.64652	3.47509	9.25629
Umatilla	6.04375	10.19026	7.42897	12.60719	7.63200
Ute	1.25282	0.92989	4.17603	7.02361	3.45050
Wasco	5.46854	11.33265	5.57379	7.82191	8.04742
Washo	1.53861	4.34926	2.77894	6.19998	2.83685
W. Mono	3.80760	4.83622	4.37785	5.68350	4.06783
Winnebago	1.48874	5.38505	1.12708	3.28768	2.35815
Yakut	4.87677	10.43584	1.42928	1.91962	3.11842
Yokuts	2.25399	4.68101	3.82658	6.25061	4.09557
Yukaghir	5.47641	10.53617	2.07208	0.89522	4.23843
Yuki	3.37106	1.62115	5.85475	7.09094	5.67504
Yurok	1.00291	3.01785	2.97863	4.27177	3.69144
Zuni	2.64468	3.09347	5.08018	6.04815	7.81671

Matrix 4F. cont.

	Omaha	Oneida	Osage	Pawnee	Piegan
Achomawi	2.51205	2.76943	3.42538	3.30833	4.45112
Agua Caliente	4.28986	6.54558	3.42698	5.14155	6.47491
Aiwan	3.74088	2.08363	10.94702	3.15684	3.87820
Aleut	3.34277	3.59436	4.82696	4.18663	4.57582
Apache	4.14809	7.58521	0.80601	6.42696	7.69694
Arapaho	0.96512	1.58647	8.97265	0.92907	0.66468
Assiniboin	2.64577	3.34789	12.34568	1.89306	1.04447
Atsugewi	2.28704	2.56219	3.04404	3.18546	3.91889
Bannock	6.40431	5.74858	13.51722	7.05436	8.60911
Bella Coola	2.55178	3.51417	5.27264	3.65717	3.10219
Big Meadow	3.18964	2.34581	6.04607	4.32135	5.33603
Blood	0.74917	1.02285	7.87011	0.50244	0.16975
Caddo	3.95808	5.11524	6.60420	2.97442	4.07577
Carrier	3.37555	3.42602	5.98384	3.11105	4.28848
Catawba	4.68670	4.75104	11.22338	3.80965	6.09143
Cherokee	1.31225	1.68581	8.98401	0.72153	1.87617
Cheyenne	1.31322	2.55738	8.06162	1.16687	0.37943
Chickasaw	4.33727	4.32988	11.03831	4.31976	6.60388
Chilcotin	1.96417	3.15775	1.90570	2.79392	3.89037
Chippewa(MN)	1.25651	0.75747	8.68773	0.65248	0.98289
Chippewa(WI)	0.80068	0.58467	5.57862	1.14222	1.95580
Choctaw	1.44015	2.62777	6.66432	1.12478	2.45723
Chuvantsy	6.49514	4.10540	15.03771	5.36840	5.59507
Clallam	9.17981	12.04224	1.73662	12.38155	13.38546
C. Miwok	5.54768	8.07135	2.35357	6.76230	7.44255
Coahuilla	5.24323	7.19095	5.72899	7.46758	7.79439
Coeur d'Alene	3.30882	2.61260	8.63486	4.33888	5.04528
Comanche	3.28911	4.54654	6.47189	2.51846	2.82136
Concow	3.40425	2.76085	10.85480	3.08769	4.42678
Creek	1.32757	1.84896	10.53637	0.55884	1.03434
Crow	2.95986	3.29751	8.95767	2.57268	1.54326
E. Mono	3.58679	5.74575	4.99137	4.00477	3.97097
Eskimo(EC)	1.50900	0.74031	9.62789	1.14198	2.24790
Eskimo(WC)	4.67309	3.93719	15.15217	4.01989	4.07456
Even	3.52302	1.48522	10.13032	3.58449	4.71345
Evenk	3.77109	1.72699	12.52262	3.62847	4.71360
Flathead	7.74511	7.60090	11.57362	7.72239	8.53061
Haida	2.99998	2.67046	7.05552	4.67259	4.61261
Hoopa	3.58529	3.47775	6.12406	3.04442	5.00436
Itelman(KH)	4.76558	2.66889	14.02771	4.26503	6.15355
Itelman(SE)	4.25856	2.90210	12.95103	3.77804	5.70206
Kalapuya	8.16941	9.15549	6.65431	7.69049	9.96300
Kiowa	0.41157	1.05782	6.32923	0.23068	0.47667
Klamath	4.22727	6.20298	1.09852	5.40247	6.68198
Klickitat	4.59707	5.19341	7.87259	3.42444	4.16717
Koryak	1.77749	1.04856	9.55521	1.41967	2.18213
Kutenai	3.74713	4.52942	10.61845	2.76884	2.41358
Kwakiutl	1.68668	0.92153	7.47313	1.96312	2.02193
Lillooet	1.80933	3.96387	1.50361	3.31312	4.39711

Matrix 4F. cont.

	Omaha	Oneida	Osage	Pawnee	Piegan
Makah	4.68410	6.09225	3.13764	6.98724	7.78254
Malecite	1.75303	0.78213	9.26212	0.99156	2.20696
Maritime Chukchi	3.46030	1.86764	8.82970	3.03746	4.46467
Menomini	0.79022	0.81360	6.31138	0.82392	1.88339
Micmac	1.31632	0.93256	9.79354	0.41539	1.25546
Mississagua	0.56144	0.67773	6.54333	0.68788	1.02407
Modoc	3.62994	5.67310	1.52590	5.50066	7.00261
Mohawk	1.91086	1.29604	9.42716	1.80985	2.64504
Montagnais	1.86242	2.27855	7.71405	2.06306	2.37896
Munsee	1.20606	0.49323	8.58404	1.33395	1.90923
Nanaimo	12.33410	12.21016	5.69969	14.31478	15.83941
Navajo	2.39573	4.48385	3.55805	3.44767	5.20951
Nez Perce	0.93958	1.90848	3.01150	1.53251	2.07770
Nisqually	5.63411	6.50293	2.55647	7.71610	8.15896
Nivkhi	1.38221	1.51582	4.54710	2.16281	3.28136
N. Hill Yokuts	3.38109	3.50775	8.15776	2.82508	3.73438
N. Paiute	1.44279	2.25493	5.16509	1.86346	3.10081
N. Pomo	4.62189	6.07566	9.76694	4.98700	6.68655
Ojibwa(GBay)	0.68167	0.44346	5.65016	1.16874	1.68818
Ojibwa (NWLSup)	2.60755	0.75664	9.21948	2.55336	3.60514
Okanagan	1.19433	0.94424	7.35986	1.66065	1.56917
Omaha	0	1.23215	4.97946	0.40428	0.63294
Oneida	1.23215	0	8.71306	0.97604	1.50463
Osage	4.97946	8.71306	0	7.25912	8.00923
Pawnee	0.40428	0.97604	7.25912	0	0.35340
Piegan	0.63294	1.50463	8.00923	0.35340	0
Ponca	1.06218	2.16387	6.34145	1.00809	0.61925
Potawatomi	2.27807	3.43836	4.93692	3.83616	4.83260
Pueblo	2.45064	4.23158	6.17860	2.16954	3.87325
Puyallup	4.89799	6.41986	1.52435	7.13694	7.79689
Queets	10.30464	13.41736	1.98805	13.63368	14.16141
Quillayute	7.33220	10.29955	1.37383	10.58034	11.52686
Quinault	12.50011	16.20889	2.76765	16.51697	17.39853
Reindeer Chukchi	3.35892	2.22295	7.64903	3.25312	4.72125
Reindeer Evenk	1.51462	0.83431	9.44863	1.00930	1.83628
Reindeer Koryak	1.58769	1.19601	7.72296	1.03050	1.74746
San Luis Rey	4.63704	6.81393	2.28794	6.20192	7.08290
Sarcee	1.63249	1.06361	10.68566	0.66014	0.99400
Sauk	0.45669	1.00430	6.82825	0.85279	1.33878
Seneca	1.52800	0.13536	10.25127	0.98696	1.54696
Serrano	2.84772	2.67528	7.71241	3.44076	4.02055
Shawnee	0.84883	1.47542	6.24470	0.76217	1.81442
Shoshoni	1.54159	3.36123	8.01066	1.90322	2.02625

Matrix 4F. cont.

	Omaha	Oneida	Osage	Pawnee	Piegan
Shuswap	1.49684	2.31164	3.27230	2.26592	3.39515
Sioux(Santee)	1.20503	2.04344	9.76532	0.75984	0.19089
Sioux(Teton)	1.52624	2.56020	8.69342	1.40363	0.44603
Sioux(Yankton)	1.11786	2.69706	8.35285	1.04097	0.25326
S. Miwok	4.95981	6.97362	1.75987	6.94155	7.27358
Stalo	5.16953	6.26129	2.57325	7.60323	8.75353
Stockbridge	2.23058	0.89124	10.18757	1.45424	2.63729
Tahltan	3.36183	2.94632	8.33292	4.02257	3.47927
Taos	4.65335	3.65955	14.48627	3.45552	5.55147
Tenino	3.84246	5.83554	0.68042	5.55365	6.60607
Thompson	1.53423	2.05333	5.16646	2.22376	3.76286
Tonkawa	3.65733	7.10570	3.34112	3.95741	4.18666
Tsimshian	2.89430	2.88064	6.60200	4.61929	4.71801
Tundra Evenk	2.82098	1.64555	8.56913	2.68883	3.71614
Tuscarora	2.08757	0.64105	9.43969	1.71863	3.09737
Tututni	7.38068	6.25432	11.41105	7.32674	8.67474
Umatilla	4.99675	9.49473	2.68095	6.32436	5.96403
Ute	2.72410	4.21967	9.19718	2.62243	3.44434
Wasco	5.48191	7.63623	1.46571	6.60366	7.87530
Washo	1.73986	3.41663	4.36492	2.36016	2.58576
W. Mono	3.39082	2.72827	14.98955	2.11926	2.51285
Winnebago	0.80132	2.50201	1.99895	1.82451	2.47749
Yakut	1.98010	1.59656	7.55704	2.37053	2.50575
Yokuts	4.79370	5.84039	3.61497	6.57439	7.95032
Yukaghir	3.38205	1.40370	11.35440	2.89728	3.85666
Yuki	5.18704	5.17638	15.49455	4.82242	6.25800
Yurok	4.00198	3.36685	6.62429	4.35618	6.20765
Zuni	4.53889	6.11146	7.20152	5.07234	7.63202

Matrix 4F. cont.

	Ponca	Potawatomi	Pueblo	Puyallup	Queets
Achomawi	3.08282	3.16971	3.64791	1.77805	6.17445
Agua Caliente	5.35677	6.86574	4.05299	4.63321	8.60148
Aiwan	3.07301	4.56351	5.05705	7.37860	14.31970
Aleut	3.17056	3.14495	5.73659	2.64930	5.90604
Apache	6.96635	2.86481	4.63535	2.31118	3.85462
Arapaho	1.23519	4.51954	4.43153	8.01856	15.22357
Assiniboin	2.83424	8.50656	7.13378	12.76140	19.62829
Atsugewi	2.48359	3.06240	4.39135	1.21483	5.02223
Bannock	9.48025	6.22179	7.85534	11.16889	19.68808
Bella Coola	1.91690	3.38434	6.88794	3.24689	6.78045
Big Meadow	4.98815	3.18663	6.41021	3.15123	8.56145
Blood	0.62332	4.99407	4.51709	6.99347	13.36427
Caddo	3.29662	8.85254	2.66915	8.01235	12.82213
Carrier	2.76956	4.54608	2.77082	4.64065	9.33809
Catawba	8.32413	6.76198	2.81998	12.71359	19.64258
Cherokee	3.11405	3.67695	1.32431	9.15942	16.52638
Cheyenne	0.23573	5.75989	4.98888	7.58085	13.51798
Chickasaw	8.65290	3.40589	3.03946	11.09533	18.14288
Chilcotin	2.80489	2.96928	2.67544	1.65607	5.08095
Chippewa(MN)	2.13123	5.32807	4.14514	8.00535	14.64169
Chippewa(WI)	2.49928	2.51234	3.28892	4.37102	10.14758
Choctaw	2.73729	3.53586	0.39257	7.31121	13.74191
Chuvantsy	4.67549	8.28553	8.66761	10.80467	17.83524
Clallam	10.50095	6.36985	11.03166	0.99581	0.59387
C. Miwok	4.49624	7.35488	5.93603	2.43221	4.65350
Coahuilla	7.38487	6.11623	9.41219	5.03888	9.28768
Coeur d'Alene	5.36629	3.78180	7.13240	5.80118	12.54026
Comanche	1.64484	8.50062	3.67473	7.14817	11.86208
Concow	5.78177	6.38582	4.74491	10.04371	18.21647
Creek	2.46302	5.11834	2.62210	10.74520	18.65600
Crow	1.21455	8.81004	7.91441	7.98502	13.28840
E. Mono	1.81313	7.37626	5.01136	4.87836	9.26734
Eskimo(EC)	3.76374	2.99569	2.95003	8.45083	15.84911
Eskimo(WC)	3.95616	5.73167	6.49780	12.04338	20.33642
Even	5.31171	2.83259	5.86061	6.75443	13.04989
Evenk	6.09922	3.13107	6.12930	9.35594	16.66612
Flathead	10.25772	13.75374	11.47005	12.46548	18.10713
Haida	5.11973	3.05039	9.14286	4.20902	9.09254
Hoopa	4.40214	6.04651	1.98341	5.97590	11.52006
Itelman(KH)	7.39267	3.75398	4.76901	11.06360	19.60152
Itelman(SE)	7.03399	3.29642	3.62663	10.93442	18.98723
Kalapuya	9.18769	11.86240	5.56945	8.71593	11.90814
Kiowa	0.45301	3.29236	2.24961	5.70264	11.72694
Klamath	4.87961	5.09002	4.22653	1.59596	3.51189
Klickitat	3.48907	10.05730	4.38983	8.79363	13.47367
Koryak	2.53861	2.58522	3.08682	7.43245	14.44767
Kutenai	3.63376	11.29218	7.18720	11.98469	18.03716
Kwakiutl	1.47547	2.97899	5.29587	4.42385	10.31486
Lillooet	4.09382	1.42185	2.81893	2.05642	4.99297

Matrix 4F. cont.

	Ponca	Potawatomi	Pueblo	Puyallup	Queets
Makah	5.88865	1.94257	6.91313	0.94741	3.49976
Malecite	3.44846	4.55593	2.77045	8.40159	15.68414
Maritime Chukchi	3.60677	3.87282	3.59495	5.76620	12.32954
Menomini	2.58554	2.73974	2.14153	5.64437	12.04839
Micmac	2.29478	4.30776	2.14972	9.14347	16.68634
Mississagua	2.03228	2.94114	3.65054	5.85335	11.55334
Modoc	6.20382	1.65059*	3.96732	1.64735	3.78749
Mohawk	4.72190	4.29644	4.78636	8.78112	15.61623
Montagnais	4.27515	5.35599	5.62918	8.09650	13.66610
Munsee	2.93613	3.17015	4.41027	6.72741	13.92459
Nanaimo	13.50590	11.50342	14.71368	3.78486	3.71216
Navajo	5.39995	1.88349	1.48934	4.62207	8.94638
Nez Perce	1.80209	3.47161	3.25016	2.85131	7.08751
Nisqually	6.25138	4.73492	9.31385	0.58411	1.71045
Nivkhi	2.87664	1.11944	2.74322	2.81288	8.02323
N. Hill Yokuts	2.54032	7.09250	3.47215	7.05383	13.90476
N. Paiute	3.31443	3.15820	2.16128	5.02882	10.94336
N. Pomo	7.73255	6.26878	4.04994	10.67981	17.96957
Ojibwa(GBay)	2.13771	2.00872	3.84302	4.03515	9.57681
Ojibwa (NWLSup)	4.59227	3.27200	5.31202	6.57626	12.96444
Okanagan	2.34639	4.12702	6.07330	5.70915	11.84503
Omaha	1.06218	2.27807	2.45064	4.89799	10.30464
Oneida	2.16387	3.43836	4.23158	6.41986	13.41736
Osage	6.34145	4.93692	6.17860	1.52435	1.98805
Pawnee	1.00809	3.83616	2.16954	7.13694	13.63368
Piegan	0.61925	4.83260	3.87325	7.79689	14.16141
Ponca	0	4.94154	3.94227	5.70235	11.19063
Potawatomi	4.94154	0	3.96555	3.73134	8.06484
Pueblo	3.94227	3.96555	0	7.64663	13.24743
Puyallup	5.70235	3.73134	7.64663	0	1.48539
Queets	11.19063	8.06484	13.24743	1.48539	0
Quillayute	9.65290	4.55640	9.71433	1.05917	1.26223
Quinault	14.51527	9.25174	15.22024	2.61662	0.95513
Reindeer Chukchi	3.65693	3.18298	3.32172	4.80461	10.79585
Reindeer Evenk	2.51716	2.84875	2.70935	7.80249	14.86622
Reindeer Koryak	1.41118	3.65966	2.43519	6.16811	12.43676
San Luis Rey	5.56548	6.52432	6.27957	2.63179	5.52074
Sarcee	2.48907	6.31472	4.19250	10.18602	17.79635
Sauk	2.51455	2.27609	3.20525	6.29764	12.63800
Seneca	2.55132	4.27681	4.37969	8.07415	15.84343
Serrano	4.22765	5.49056	6.26437	6.06825	12.66365
Shawnee	2.50280	3.45891	1.62477	6.38154	12.81245
Shoshoni	3.06884	5.10490	4.15237	8.73535	15.47438

Matrix 4F. cont.

	Ponca	Potawatomi	Pueblo	Puyallup	Queets
Shuswap	3.53908	3.07040	3.08170	3.23886	7.69576
Sioux(Santee)	1.21133	5.61472	4.80317	9.63603	16.25867
Sioux(Teton)	0.62369	5.88000	5.88903	8.06487	13.83911
Sioux(Yankton)	0.85321	5.41857	4.91117	8.56079	14.41915
S. Miwok	4.71835	5.46010	7.66197	0.66691	2.53669
Stalo	7.94967	3.60315	8.21344	1.31203	3.51498
Stockbridge	3.77467	5.43156	3.66288	8.81538	16.72357
Tahltan	3.09731	4.29275	8.51670	5.41024	9.78820
Taos	7.35432	5.59499	2.82299	13.83293	22.72155
Tenino	4.87351	3.67885	4.93377	0.56523	2.32933
Thompson	4.50891	1.38049	2.15559	4.78463	10.20355
Tonkawa	2.76928	7.61062	3.69932	5.73622	8.31046
Tsimshian	4.96989	2.90178	8.39353	3.94662	9.04022
Tundra Evenk	3.55297	2.70046	4.02745	5.90554	11.77822
Tuscarora	4.32702	3.39437	3.48764	7.63895	14.93018
Tututni	9.51229	6.82972	8.57442	10.00212	13.98364
Umatilla	3.87686	8.86809	6.71855	4.97997	6.77958
Ute	4.52593	6.63097	3.60023	10.29975	17.67546
Wasco	5.65644	6.33531	5.07550	2.10533	3.40513
Washo	1.40294	4.51374	3.60035	3.95875	9.00052
Western Mono	3.55254	7.56301	4.84421	13.59003	23.26782
Winnebago	1.98805	1.82399	2.46042	2.06608	5.74417
Yakut	2.22229	2.31932	5.15408	4.94205	10.25655
Yokuts	7.63747	5.12958	7.02230	3.21004	6.69260
Yukaghir	4.40608	3.66248	5.21416	8.21864	15.14330
Yuki	8.62304	6.97780	5.64642	15.23698	24.76457
Yurok	5.79498	5.09937	4.35149	5.03816	11.06754
Zuni	8.30054	3.17572	1.57690	8.32728	13.80817

Matrix 4F. cont.

	Quillayute	Quinault	Reindeer Chukchi	Reindeer Evenk	Reindeer Koryak
Achomawi	4.16481	7.48280	1.64958	3.88435	2.62963
Agua Caliente	5.62541	8.37952	6.36940	8.15598	6.56802
Aiwan	12.49480	18.42457	0.84540	1.31014	0.79241
Aleut	6.02829	9.75785	2.23186	3.28688	2.11388
Apache	1.42848	3.81700	6.83319	7.86150	7.31847
Arapaho	11.33428	17.28341	4.72795	2.34686	2.57522
Assiniboin	17.05853	23.85828	9.01283	3.79540	4.29757
Atsugewi	3.94108	7.11285	1.76574	3.64830	2.26674
Bannock	12.34905	18.20664	7.25401	7.23586	8.68956
Bella Coola	6.54807	10.41584	3.83470	3.68346	2.69303
Big Meadow	5.13917	8.98243	3.19867	4.55253	4.49411
Blood	10.95617	16.52493	4.29586	1.96279	1.70897
Caddo	12.02252	16.48011	4.87238	4.92647	2.91932
Carrier	8.69817	13.12258	0.94526	2.50783	0.91064
Catawba	14.81426	21.66919	6.74407	3.99233	5.28025
Cherokee	11.99289	18.69049	3.43215	1.05718	1.82989
Cheyenne	11.67364	17.07097	5.15847	2.85853	2.12852
Chickasaw	12.31402	19.28879	5.25312	3.05251	5.12067
Chilcotin	3.66616	6.89614	2.36465	3.75563	2.47584
Chippewa(MN)	11.95436	17.94238	4.28394	1.65657	1.85160
Chippewa(WI)	6.92537	11.90662	2.60954	1.73720	1.95584
Choctaw	9.73690	15.47789	2.82504	1.87988	1.82458
Chuvantsy	17.46320	23.77093	3.11350	3.05723	2.19307
Clallam	0.47279	0.60841	8.83977	13.33533	11.24693
Cmiwok	4.43519	6.00263	5.50748	9.05441	6.04519
Coahuilla	4.87972	7.58701	9.50621	10.27279	10.07378
Coeur d'Alene	7.64068	12.38479	4.75854	4.85879	5.52238
Comanche	11.66127	15.96171	4.67440	4.57745	2.32330
Concow	12.42063	18.43884	5.82860	4.46600	5.30038
Creek	14.09081	21.10119	4.93798	1.59129	2.35001
Crow	13.06646	17.80479	6.69978	4.71347	3.30417
E. Mono	8.04478	11.19988	5.11164	6.62003	4.16215
Eskimo(EC)	11.47641	18.19117	3.02774	0.67519	1.88578
Eskimo(WC)	16.99945	24.30770	3.80583	2.22167	2.60596
Even	10.44033	16.42196	1.98551	1.32120	2.15019
Evenk	12.94071	19.92088	3.13090	1.17349	2.79631
Flathead	14.58692	18.76268	13.74386	11.70638	11.64484
Haida	5.93973	10.12339	5.91670	5.02127	5.77102
Hoopa	9.12856	13.58153	2.46083	3.82519	2.60895
Itelman(KH)	14.34513	21.74867	2.72586	1.67502	3.36180
Itelman(SE)	13.88463	21.29685	2.84201	1.38084	3.05316
Kalapuya	11.32501	14.42295	8.18318	9.82590	7.65639
Kiowa	9.26493	14.72726	2.33974	0.98441	0.57382
Klamath	3.09671	5.17073	4.37109	6.89272	4.82300
Klickitat	13.59807	18.15548	5.59601	5.18403	3.08803
Koryak	11.33209	17.81237	1.40181	0.10575	0.57327
Kutenai	16.24924	21.76944	9.92591	6.17653	5.51478
Kwakiutl	8.46578	13.49231	1.63761	1.48148	1.08059

Matrix 4F. cont.

	Quillayute	Quinault	Reindeer Chukchi	Reindeer Evenk	Reindeer Koryak
Lillooet	2.60190	6.07149	3.91567	4.11935	3.84070
Makah	1.77368	4.26213	3.75996	6.50691	5.64939
Malecite	11.97207	18.32627	3.03956	1.16745	1.71673
Maritime Chukchi	10.06185	15.40837	0.09083	1.52019	0.89611
Menomini	8.14674	13.60703	2.58226	1.48426	1.82725
Micmac	13.04711	19.83363	2.83210	0.48157	0.95043
Mississagua	8.82668	14.38939	3.62982	1.26114	1.71390
Modoc	1.79320	4.70183	4.13511	5.55590	5.11426
Mohawk	11.35891	17.66077	5.45876	2.32414	3.70076
Montagnais	10.39957	15.89432	7.26315	3.78087	4.62919
Munsee	9.59724	15.46004	3.42811	1.74834	2.56783
Nanaimo	5.44166	5.68930	10.17496	14.84273	12.35072
Navajo	4.85059	9.22387	4.09445	4.08926	4.34795
Nez Perce	5.21975	9.04486	3.38471	3.19406	2.36510
Nisqually	2.34173	3.96001	5.43642	7.98976	6.33887
Nivkhi	4.93753	9.43251	1.16130	1.86632	1.76957
N. Hill Yokuts	10.94354	15.62257	3.06553	4.34571	2.80494
N. Paiute	6.70381	11.42589	3.35136	3.19382	3.17257
N. Pomo	11.18921	16.74402	7.79186	6.83383	7.71518
Ojibwa(GBay)	6.78005	11.79245	2.43447	1.38183	1.64487
Ojibwa (NWLSup)	10.09990	15.96136	2.56316	1.36624	2.16771
Okanagan	8.63533	13.68457	4.85530	3.00199	3.32332
Omaha	7.33220	12.50011	3.35892	1.51462	1.58769
Oneida	10.29955	16.20889	2.22295	0.83431	1.19601
Osage	1.37383	2.76765	7.64903	9.44863	7.72296
Pawnee	10.58034	16.51697	3.25312	1.00930	1.03050
Piegan	11.52686	17.39853	4.72125	1.83628	1.74746
Ponca	9.65290	14.51527	3.65693	2.51716	1.41118
Potawatomi	4.55640	9.25174	3.18298	2.84875	3.65966
Pueblo	9.71433	15.22024	3.32172	2.70935	2.43519
Puyallup	1.05917	2.61662	4.80461	7.80249	6.16811
Queets	1.26223	0.95513	10.79585	14.86622	12.43676
Quillayute	0	0.84471	8.62103	11.65768	10.49323
Quinault	0.84471	0	13.61137	18.26065	16.18527
Reindeer Chukchi	8.62103	13.61137	0	1.74250	1.04610
Reindeer Evenk	11.65768	18.26065	1.74250	0	0.56353
Reindeer Koryak	10.49323	16.18527	1.04610	0.56353	0
San Luis Rey	3.39153	5.23125	6.87397	9.20388	7.42154
Sarcee	14.36299	21.02373	5.02717	1.78361	2.24323
Sauk	8.41550	14.16319	3.99261	1.64239	2.53921
Seneca	12.10735	18.51075	2.87758	0.99619	1.59816
Serrano	8.27074	12.72272	5.41606	5.33544	5.29879

Matrix 4F. cont.

	Quillayute	Quinault	Reindeer Chukchi	Reindeer Evenk	Reindeer Koryak
Shawnee	8.73554	14.20718	3.29942	2.00350	2.18124
Shoshoni	10.45269	16.03652	7.09871	4.42184	4.95722
Shuswap	4.77232	8.69342	3.71475	3.69130	3.40562
Sioux(Santee)	13.63347	20.04610	5.85904	2.02881	2.26317
Sioux(Teton)	12.30169	17.88789	5.73671	2.81909	2.34926
Sioux(Yankton)	12.17211	17.99933	6.20936	2.71845	2.61050
S. Miwok	2.10643	3.44251	5.52720	8.76134	6.45815
Stalo	1.23761	3.22984	6.38452	8.48060	8.03006
Stockbridge	12.46493	18.72604	3.44530	1.98880	2.47372
Tahltan	9.54011	14.30557	4.32623	3.18885	2.85248
Taos	17.02363	25.01946	4.35096	2.03562	3.64632
Tenino	1.56883	3.52682	4.28151	6.74143	5.07128
Thompson	6.02434	11.10992	2.89126	2.23181	2.97896
Tonkawa	8.33566	11.57435	6.74556	6.66599	4.35028
Tsimshian	5.36507	9.40133	5.63130	5.25882	5.86203
Tundra Evenk	9.90033	15.60966	0.91936	0.77444	0.80390
Tuscarora	10.83770	17.12494	2.49552	1.11035	2.04745
Tututni	13.59180	19.18357	6.45214	4.96231	5.43515
Umatilla	6.45700	8.39039	9.57257	10.35236	7.65450
Ute	12.04085	17.79378	7.34176	5.25445	5.67496
Wasco	3.88422	5.67066	5.04618	7.95894	5.43942
Washo	6.43296	10.22352	3.79409	4.44923	3.11458
W. Mono	18.08028	25.67219	5.35462	2.69915	3.32770
Winnebago	3.72101	7.47295	2.90437	2.92018	2.27357
Yakut	8.71034	14.02236	1.96675	1.19517	1.14398
Yokuts	3.30706	5.81443	6.97977	8.54684	8.12681
Yukaghir	12.68115	19.22835	1.80654	0.68470	1.31447
Yuki	16.88834	24.53564	8.52326	5.38423	7.60905
Yurok	7.12676	11.19658	3.25909	5.14724	4.65139
Zuni	8.56755	13.99905	4.83274	4.69028	5.56580

Matrix 4F. cont.

	San Luis Rey	Sarcee	Sauk	Seneca	Serrano
Achomawi	1.85592	5.26504	3.23090	3.55765	2.51278
Agua Caliente	0.63064	7.20241	5.03108	6.92738	3.01548
Aiwan	10.36190	4.53890	4.56692	2.60732	7.07727
Aleut	7.23620	6.49308	5.06114	5.02531	8.05996
Apache	2.76572	9.63106	5.00215	8.78698	6.52327
Arapaho	6.45481	1.72767	1.05614	1.38824	2.34881
Assiniboin	11.85651	1.38592	3.16820	3.16349	7.34916
Atsugewi	2.53875	5.11729	3.37397	3.59519	3.43328
Bannock	7.92142	7.96534	4.33602	5.17572	2.60751
Bella Coola	7.19606	5.97762	4.26763	4.75965	7.06270
Big Meadow	3.15367	5.32049	2.60030	2.88381	1.23507
Blood	6.30679	0.86846	1.33286	1.12338	3.15182
Caddo	6.01707	4.08659	5.86316	5.50812	7.53367
Carrier	6.68163	5.25155	5.12787	4.33099	7.41187
Catawba	10.52662	3.53474	3.88116	4.45052	7.78244
Cherokee	7.60007	1.34266	1.05601	1.40561	4.05922
Cheyenne	7.33627	2.38948	2.64606	2.77958	4.98498
Chickasaw	10.92345	5.03301	3.03297	4.19727	7.23906
Chilcotin	1.99529	4.83372	3.10534	4.09961	3.85029
Chippewa(MN)	7.19816	0.22514	1.34446	0.77763	3.69542
Chippewa(WI)	3.99649	1.63612	0.57666	0.87818	1.66911
Choctaw	5.40846	2.65304	1.77946	2.56340	3.91224
Chuvantsy	15.36593	6.32782	7.92408	4.79927	11.60155
Clallam	3.91901	16.66895	10.94639	14.13577	10.16907
C. Miwok	1.77588	10.19834	7.91501	9.28052	6.42309
Coahuilla	2.17260	9.36093	4.73518	7.57002	1.88237
Coeur d'Alene	4.60761	5.10685	2.12713	2.67453	0.70512
Comanche	6.02069	3.89753	5.56726	5.06353	7.15164
Concow	5.77592	2.77771	2.00972	2.13235	1.22977
Creek	8.50660	0.86542	1.14774	1.35837	3.99712
Crow	8.04220	2.87503	4.62105	3.76978	6.26899
E. Mono	3.01562	6.69308	5.64059	6.30670	4.60382
Eskimo(EC)	8.32887	1.21696	0.78209	0.63057	3.79309
Eskimo(WC)	14.61560	5.77306	5.26214	3.98887	9.16174
Even	10.48039	4.05999	3.21061	2.12497	6.63700
Evenk	12.67776	3.81351	2.95737	2.02880	7.22080
Flathead	6.83898	5.90510	6.81101	7.37332	4.99030
Haida	5.84606	5.37989	2.34152	3.35647	2.82640
Hoopa	4.08404	4.04785	4.23479	3.78718	4.43632
Itelman(KH)	12.48402	4.78592	3.52092	2.54444	6.67130
Itelman(SE)	12.37432	4.56371	3.28907	2.83010	7.33125
Kalapuya	6.19125	8.51296	9.66383	9.89064	10.16114
Kiowa	5.61804	1.45680	1.24889	1.30496	3.56540
Klamath	1.94419	8.02114	5.98892	7.50287	6.27484
Klickitat	7.84435	4.05122	6.71910	5.73309	8.99897
Koryak	9.39204	2.53508	2.00177	1.30153	5.55770
Kutenai	8.65982	1.84562	4.57617	4.37362	6.43357
Kwakiutl	6.69156	3.19861	2.32113	1.54538	3.91293

Matrix 4F. cont.

	San Luis Rey	Sarcee	Sauk	Seneca	Serrano
Lillooet	2.92232	5.66695	2.48413	4.92809	4.60323
Makah	4.32647	10.57534	5.63884	7.55449	6.20190
Malecite	7.27806	0.69469	1.32851	0.65169	3.50503
Maritime Chukchi	7.53581	4.38663	3.96470	2.37782	5.32450
Menomini	4.34015	1.40616	0.47401	0.85229	1.72286
Micmac	8.43451	0.67850	1.33956	0.75253	4.43926
Mississagua	6.32377	0.98567	0.65575	0.99310	3.57034
Modoc	3.77133	8.40194	4.42198	6.97985	6.55973
Mohawk	7.88761	1.14587	0.90679	1.19174	3.48412
Montagnais	6.86959	1.48969	1.44244	2.38188	3.98047
Munsee	5.82758	1.46848	0.41721	0.40722	1.34077
Nanaimo	7.11957	16.10837	13.88799	14.41764	12.74979
Navajo	3.76441	5.71291	2.43976	4.94319	4.40449
Nez Perce	2.21152	2.64491	1.68364	2.52426	2.40437
Nisqually	4.62323	10.21677	7.22314	8.38598	7.90553
Nivkhi	3.75116	3.93952	1.51312	2.11169	2.56727
N. Hill Yokuts	4.05409	4.25815	4.18172	3.46036	2.77599
N. Paiute	2.57471	3.05367	1.19518	2.29997	1.18297
N. Pomo	5.52757	6.16645	3.40776	5.45916	2.85448
Ojibwa(GBay)	4.85629	1.84246	0.64826	0.90170	2.39133
Ojibwa (NWLSup)	8.59772	2.42134	2.08738	1.18391	4.73798
Okanagan	4.97715	1.70576	0.87066	1.10749	1.42208
Omaha	4.63704	1.63249	0.45669	1.52800	2.84772
Oneida	6.81393	1.06361	1.00430	0.13536	2.67528
Osage	2.28794	10.68566	6.82825	10.25127	7.71241
Pawnee	6.20192	0.66014	0.85279	0.98696	3.44076
Piegan	7.08290	0.99400	1.33878	1.54696	4.02055
Ponca	5.56548	2.48907	2.51455	2.55132	4.22765
Potawatomi	6.52432	6.31472	2.27609	4.27681	5.49056
Pueblo	6.27957	4.19250	3.20525	4.37969	6.26437
Puyallup	2.63179	10.18602	6.29764	8.07415	6.06825
Queets	5.52074	17.79635	12.63800	15.84343	12.66365
Quillayute	3.39153	14.36299	8.41550	12.10735	8.27074
Quinault	5.23125	21.02373	14.16319	18.51075	12.72272
Reindeer Chukchi	6.87397	5.02717	3.99261	2.87758	5.41606
Reindeer Evenk	9.20388	1.78361	1.64239	0.99619	5.33544
Reindeer Koryak	7.42154	2.24323	2.53921	1.59816	5.29879
San Luis Rey	0	8.43508	5.51042	7.60373	2.96855
Sarcee	8.43508	0	1.48075	0.75290	3.87638
Sauk	5.51042	1.48075	0	1.02353	2.11234
Seneca	7.60373	0.75290	1.02353	0	2.58123
Serrano	2.96855	3.87638	2.11234	2.58123	0

Matrix 4F. cont.

	San Luis Rey	Sarcee	Sauk	Seneca	Serrano
Shawnee	4.07791	1.48475	0.69530	1.38213	1.86131
Shoshoni	5.07592	2.79917	1.20711	2.97020	1.92460
Shuswap	2.00729	3.24971	1.56393	2.80184	1.95727
Sioux(Santee)	9.43227	1.18902	1.90706	2.03466	5.65498
Sioux(Teton)	8.71053	2.34649	2.82863	2.88058	6.00434
Sioux(Yankton)	8.45085	2.01278	2.18740	2.85891	5.72667
S. Miwok	1.44742	10.11468	6.70874	8.38947	5.13372
Stalo	2.39739	9.67896	5.19467	7.53795	4.38430
Stockbridge	6.58489	0.95235	1.47627	0.55982	2.16776
Tahltan	10.34858	5.28140	4.58283	4.10381	8.34514
Taos	12.88759	3.72945	3.64536	3.12410	7.58452
Tenino	1.70473	8.38698	5.31032	7.23221	5.54748
Thompson	4.58673	3.42645	1.03209	2.37579	3.00394
Tonkawa	5.05400	6.58435	6.40685	8.02410	8.82933
Tsimshian	4.61575	5.66233	2.18156	3.43820	1.83533
Tundra Evenk	9.47176	3.94250	3.38499	2.37474	7.02060
Tuscarora	7.50971	1.57929	1.25628	0.62889	3.27148
Tututni	15.72695	7.78465	8.12638	7.50614	14.74512
Umatilla	3.12669	9.66275	7.71933	10.48463	7.75959
Ute	5.09432	3.27105	2.13153	3.56992	2.04859
Wasco	3.20992	9.52335	7.78468	9.16510	8.54418
Washo	2.11282	4.52906	2.79049	3.77743	2.11865
W. Mono	10.79228	2.28386	2.94778	1.90060	4.37675
Winnebago	2.51362	3.84097	1.71532	3.30674	3.37289
Yakut	8.75571	3.90325	2.81115	2.43229	6.34835
Yokuts	1.24971	7.91965	4.39112	6.52392	2.39079
Yukaghir	11.66442	3.37103	3.41501	1.87233	7.39489
Yuki	11.01966	4.91012	3.14056	4.10563	4.40152
Yurok	2.61924	5.25638	3.48874	3.54658	1.50412
Zuni	7.28496	7.25501	4.08879	6.28054	6.91232

Matrix 4F. cont.

	Shawnee	Shoshoni	Shuswap	Sioux (Santee)	Sioux (Teton)
Achomawi	2.30125	4.81054	1.27867	6.21526	5.67752
Agua Caliente	2.82887	4.06350	1.95485	8.73753	8.72146
Aiwan	4.63974	7.89213	6.03827	4.39496	4.10065
Aleut	5.62722	8.98273	4.38713	5.26371	4.09310
Apache	4.72429	6.35786	2.44702	9.33319	9.18654
Arapaho	1.60668	0.96973	3.55773	1.19733	1.53564
Assiniboin	4.28038	4.15300	6.28170	0.53406	1.28275
Atsugewi	2.96600	5.57023	1.57351	5.39591	4.50074
Bannock	4.24256	4.12634	5.81347	10.34098	11.78150
Bella Coola	5.63259	6.97845	4.91390	3.57242	2.14448
Big Meadow	2.79222	4.51056	1.62680	7.01754	6.94571
Blood	1.77184	2.23963	2.90573	0.54026	0.62121
Caddo	3.39535	6.79120	3.88307	5.12501	5.26696
Carrier	3.91500	7.96999	4.04953	5.28287	4.75663
Catawba	2.71697	6.21205	4.04323	6.56990	9.20289
Cherokee	0.62300	2.20665	2.76111	2.34206	3.86436
Cheyenne	3.14044	2.95460	4.70518	0.63860	0.20009
Chickasaw	3.01148	5.87280	4.43106	7.09945	9.53728
Chilcotin	2.17674	4.92621	0.87612	5.36203	4.96468
Chippewa(MN)	1.48315	3.23253	2.35912	1.27771	2.07204
Chippewa(WI)	0.70798	2.48747	0.60972	2.88266	3.42954
Choctaw	0.60205	2.31161	2.32211	3.39101	4.43070
Chuvantsy	8.34724	12.26245	9.90827	5.58945	4.89666
Clallam	10.70833	13.15456	6.33397	15.76794	13.78541
C. Miwok	6.00171	7.92025	4.32675	9.65467	7.97022
Coahuilla	4.99734	3.67838	3.60146	9.92307	9.63517
Coeur d'Alene	2.76180	2.98027	2.77941	6.54453	6.91242
Comanche	3.80682	6.26684	4.40089	3.69846	3.15437
Concow	1.20969	2.00432	2.63527	5.73936	7.39285
Creek	1.06482	1.49671	3.78870	1.27721	2.65977
Crow	4.97689	5.72600	5.39262	1.82049	0.94534
E. Mono	4.19221	4.58491	4.50709	5.62434	4.32616
Eskimo(EC)	1.14588	3.19746	2.58864	2.59395	4.05299
Eskimo(WC)	6.23784	7.34783	9.59618	4.01954	4.08680
Even	4.27812	8.01569	4.34728	5.03046	5.56172
Evenk	4.42385	7.53226	5.44525	4.70172	5.81983
Flathead	5.78725	6.96682	4.46448	9.96561	11.27368
Haida	4.39760	4.76287	3.03391	5.51093	5.29415
Hoopa	1.87462	5.77643	1.91757	6.58237	7.16327
Itelman(KH)	3.87123	7.04514	5.92051	6.62640	8.30005
Itelman(SE)	3.53588	6.74669	5.64018	6.03829	7.82650
Kalapuya	6.27913	11.53436	4.59116	11.72217	12.22062
Kiowa	1.17707	2.42471	2.41562	1.01869	1.13252
Klamath	4.45127	7.74837	2.12146	8.51371	7.68515
Klickitat	4.68188	8.45353	4.90871	4.88896	4.80155
Koryak	2.49858	4.84700	4.19019	2.43101	2.96688
Kutenai	4.03920	4.78605	4.92625	2.66317	3.29806
Kwakiutl	3.13708	4.85929	3.49241	2.65847	2.08073

Matrix 4F. cont.

	Shawnee	Shoshoni	Shuswap	Sioux (Santee)	Sioux (Teton)
Lillooet	2.45658	4.43314	1.05494	5.59989	5.65951
Makah	6.24289	8.10713	4.22369	9.44252	8.17182
Malecite	0.88800	3.49084	2.07607	2.76434	4.12379
Maritime Chukchi	3.23502	7.08604	3.95620	5.50910	5.52365
Menomini	0.16792	1.82867	0.84154	2.82086	3.74688
Micmac	1.09125	3.07079	3.19475	1.52992	2.69802
Mississagua	1.37777	2.94742	1.68603	1.33131	1.93680
Modoc	4.30710	7.21034	2.15602	8.43019	8.26196
Mohawk	1.58538	3.20084	2.17275	2.98006	4.55017
Montagnais	2.17131	3.23849	2.03835	2.69643	3.84222
Munsee	1.00106	1.85025	1.91236	2.66281	3.50045
Nanaimo	12.97887	18.60596	7.27166	18.07399	16.39845
Navajo	1.71910	3.65196	1.49670	6.55157	7.49414
Nez Perce	1.28434	3.00201	0.43503	3.23065	3.10946
Nisqually	7.76027	10.89089	4.10001	9.63743	7.91231
Nivkhi	1.50722	3.64515	1.29467	4.49855	4.58634
N. Hill Yokuts	2.20591	3.68164	3.61967	5.39740	5.29070
N. Paiute	0.35005	1.52881	0.74671	4.54310	5.31232
N. Pomo	2.18218	2.10650	3.82522	8.33560	10.14524
Ojibwa(GBay)	1.31435	3.02015	1.15390	2.39338	2.66745
Ojibwa (NWLSup)	2.85948	6.14317	2.79733	4.03355	4.81569
Okanagan	1.80801	2.11218	1.86772	2.29635	2.52579
Omaha	0.84883	1.54159	1.49684	1.20503	1.52624
Oneida	1.47542	3.36123	2.31164	2.04344	2.56020
Osage	6.24470	8.01066	3.27230	9.76532	8.69342
Pawnee	0.76217	1.90322	2.26592	0.75984	1.40363
Piegan	1.81442	2.02625	3.39515	0.19089	0.44603
Ponca	2.50280	3.06884	3.53908	1.21133	0.62369
Potawatomi	3.45891	5.10490	3.07040	5.61472	5.88000
Pueblo	1.62477	4.15237	3.08170	4.80317	5.88903
Puyallup	6.38154	8.73535	3.23886	9.63603	8.06487
Queets	12.81245	15.47438	7.69576	16.25867	13.83911
Quillayute	8.73554	10.45269	4.77232	13.63347	12.30169
Quinault	14.20718	16.03652	8.69342	20.04610	17.88789
Reindeer Chukchi	3.29942	7.09871	3.71475	5.85904	5.73671
Reindeer Evenk	2.00350	4.42184	3.69130	2.02881	2.81909
Reindeer Koryak	2.18124	4.95722	3.40562	2.26317	2.34926
San Luis Rey	4.07791	5.07592	2.00729	9.43227	8.71053
Sarcee	1.48475	2.79917	3.24971	1.18902	2.34649
Sauk	0.69530	1.20711	1.56393	1.90706	2.82863
Seneca	1.38213	2.97020	2.80184	2.03466	2.88058
Serrano	1.86131	1.92460	1.95727	5.65498	6.00434

Matrix 4F. cont.

	Shawnee	Shoshoni	Shuswap	Sioux (Santee)	Sioux (Teton)
Shawnee	0	1.29798	1.01466	2.80634	3.83336
Shoshoni	1.29798	0	2.96781	2.89911	3.82071
Shushwap	1.01466	2.96781	0	4.76833	5.20259
Sioux(Santee)	2.80634	2.89911	4.76833	0	0.40872
Sioux(Teton)	3.83336	3.82071	5.20259	0.40872	0
Sioux(Yankton)	3.11335	2.77497	4.74636	0.18585	0.20775
S. Miwok	6.14335	7.55607	3.56721	9.37559	7.52647
Stalo	5.51130	7.53882	2.15848	10.71363	10.18483
Stockbridge	0.85232	2.92572	2.17915	3.49677	4.82111
Tahltan	6.54059	8.62096	5.96017	3.48295	2.46362
Taos	2.99430	5.97315	6.02781	5.86960	8.27396
Tenino	4.54755	7.23219	1.95836	8.41484	7.43184
Thompson	0.97517	3.12520	0.91805	4.79727	5.88070
Tonkawa	4.90785	6.69532	4.56662	5.16787	4.38404
Tsimshian	3.81096	3.80423	2.70794	5.91413	5.71556
Tundra Evenk	3.80760	7.54626	4.28149	4.09514	4.22004
Tuscarora	1.29498	4.03610	2.14167	3.74322	5.07114
Tututni	9.04686	14.82726	7.89758	8.40154	9.00336
Umatilla	6.50483	6.29495	5.47332	7.55233	6.03833
Ute	1.16143	0.55300	3.14037	4.65354	6.06844
Wasco	6.05720	9.92865	3.48134	9.66190	8.52926
Washo	1.99320	2.18402	2.37387	4.10032	3.50386
W. Mono	2.65609	2.72629	6.48078	2.93708	4.16175
Winnebago	1.59738	3.23417	0.78858	3.57741	3.37499
Yakut	4.06803	6.30126	4.36971	2.73989	2.30798
Yokuts	3.77352	5.28301	1.31080	10.12393	10.25281
Yukaghir	4.22512	7.86908	5.21914	3.94517	4.49898
Yuki	3.05217	2.75300	6.27080	7.04464	9.60957
Yurok	1.96781	4.48954	1.49405	8.25656	8.80450
Zuni	2.92571	5.70880	3.67161	8.88562	10.65963

Matrix 4F. cont.

	Sioux (Yankton)	S. Miwok	Stalo	Stockbridge	Tahltan
Achomawi	5.91644	1.66290	2.47049	3.45392	5.33170
Agua Caliente	8.05554	3.13914	4.22204	5.28131	11.86772
Aiwan	4.90141	8.00913	9.88083	4.20408	2.97487
Aleut	4.91521	3.96310	5.43998	6.82364	1.25793
Apache	8.31911	3.15219	1.94771	8.46048	8.86146
Arapaho	1.23610	7.08852	8.29250	2.37265	4.97303
Assiniboin	0.95242	12.54907	13.23285	4.50508	5.04492
Atsugewi	5.00775	1.41643	2.52260	4.09347	3.41349
Bannock	10.84741	10.80614	8.10730	4.51629	14.02402
Bella Coola	2.90244	3.83445	6.12752	7.22503	0.74636
Big Meadow	7.10328	3.60746	1.93960	2.97423	5.91997
Blood	0.66752	6.47291	7.76970	2.13687	3.10151
Caddo	5.14740	7.09820	9.97485	4.58843	8.23164
Carrier	5.26741	4.97975	7.50985	4.86740	4.09746
Catawba	7.80412	14.09996	10.36693	2.89301	11.31037
Cherokee	2.99224	9.38121	8.56097	1.23213	6.66356
Cheyenne	0.32615	6.53124	9.73799	4.36736	3.33113
Chickasaw	8.15874	13.15974	8.68123	3.58920	9.98482
Chilcotin	4.95453	1.87663	2.52691	3.93296	4.81360
Chippewa(MN)	1.93642	8.28308	7.72243	1.11473	3.87747
Chippewa(WI)	3.21796	4.91501	3.52677	0.98927	3.93233
Choctaw	3.59332	6.97978	7.45857	2.07110	7.44560
Chuvantsy	6.26758	11.67940	14.63019	7.19813	3.04232
Clallam	14.08764	1.74926	2.37377	14.53964	10.41621
C. Miwok	8.30795	0.93468	5.14215	9.06358	9.04271
Coahuilla	9.03231	4.02712	3.06572	7.28953	11.61219
Coeur d'Alene	6.71959	5.78669	3.91605	2.92366	7.47401
Comanche	3.42091	5.87545	10.08242	5.10702	6.05946
Concow	6.52122	9.48993	7.33327	0.93072	10.79396
Creek	1.84783	10.32390	10.38633	1.57776	6.71531
Crow	1.64366	7.03813	10.33780	5.27273	3.16007
E. Mono	4.57176	2.57795	7.68245	6.61852	7.67294
Eskimo(EC)	3.51111	9.53608	7.30705	0.88498	4.97057
Eskimo(WC)	4.42010	12.18169	14.73327	6.43758	5.00848
Even	5.94157	9.08889	6.81624	3.41522	2.59480
Evenk	5.85375	11.80412	8.81633	3.43356	3.65017
Flathead	10.56009	11.91517	8.70838	5.28409	14.68857
Haida	5.45420	5.34331	2.88998	4.76839	3.79123
Hoopa	6.95513	5.76086	6.21500	2.38533	8.48625
Itelman(KH)	7.92923	12.86459	10.02201	2.99642	7.45466
Itelman(SE)	7.22989	12.82164	10.09467	3.21318	7.34003
Kalapuya	11.87224	8.69266	8.94526	7.43100	13.48921
Kiowa	1.05396	5.41495	6.99228	2.12365	3.10523
Klamath	7.72402	1.69362	2.93643	6.94245	7.19274
Klickitat	5.04435	8.21722	11.19423	5.30405	7.00997
Koryak	3.01122	8.37194	8.49887	2.58215	2.93842
Kutenai	2.99455	10.93909	12.02518	4.18539	7.92207
Kwakiutl	2.73981	4.81611	6.00345	3.25161	1.36088

Matrix 4F. cont.

	Sioux (Yankton)	S. Miwok	Stalo	Stockbridge	Tahltan
Lillooet	5.08708	3.02467	1.95340	4.99848	5.29821
Makah	8.47176	1.87484	2.26543	8.81472	5.39345
Malecite	3.72744	9.01624	7.44224	0.33444	5.57328
Maritime Chukchi	6.05546	6.40416	7.24497	2.91190	4.37971
Menomini	3.24424	5.88569	4.69830	0.61391	5.30369
Micmac	2.29865	9.40355	9.27219	1.04090	4.90262
Mississagua	1.70905	6.69368	5.55509	1.72640	2.64904
Modoc	7.83194	3.19120	1.75586	7.04601	6.29737
Mohawk	3.89372	9.95692	6.56963	1.17669	5.66198
Montagnais	3.19759	8.91279	6.23887	2.41850	5.52781
Munsee	3.21193	7.01607	5.45142	0.81085	4.77749
Nanaimo	17.47754	5.57293	4.45855	14.00199	10.89731
Navajo	6.36717	5.32454	3.61587	4.20095	8.51834
Nez Perce	3.01064	2.79780	3.03320	2.51086	4.09186
Nisqually	8.76385	1.91980	2.20468	9.56006	4.00969
Nivkhi	4.50359	3.47381	2.91242	2.52131	4.01881
N. Hill Yokuts	5.34727	5.15339	8.29812	2.91856	8.69871
N. Paiute	4.60659	4.66387	3.90773	1.55612	7.57968
N. Pomo	8.53616	9.75636	7.89833	3.82622	14.73387
Ojibwa(GBay)	2.65008	4.85438	3.71766	1.63305	2.49190
Ojibwa (NWLSup)	4.98471	8.46317	5.82555	1.88604	3.04336
Okanagan	2.49783	5.73548	4.82206	1.85237	3.78500
Omaha	1.11786	4.95981	5.16953	2.23058	3.36183
Oneida	2.69706	6.97362	6.26129	0.89124	2.94632
Osage	8.35285	1.75987	2.57325	10.18757	8.33292
Pawnee	1.04097	6.94155	7.60323	1.45424	4.02257
Piegan	0.25326	7.27358	8.75353	2.63729	3.47927
Ponca	0.85321	4.71835	7.94967	3.77467	3.09731
Potawatomi	5.41857	5.46010	3.60315	5.43156	4.29275
Pueblo	4.91117	7.66197	8.21344	3.66288	8.51670
Puyallup	8.56079	0.66691	1.31203	8.81538	5.41024
Queets	14.41915	2.53669	3.51498	16.72357	9.78820
Quillayute	12.17211	2.10643	1.23761	12.46493	9.54011
Quinault	17.99933	3.44251	3.22984	18.72604	14.30557
Reindeer Chukchi	6.20936	5.52720	6.38452	3.44530	4.32623
Reindeer Evenk	2.71845	8.76134	8.48060	1.98880	3.18885
Reindeer Koryak	2.61050	6.45815	8.03006	2.47372	2.85248
San Luis Rey	8.45085	1.44742	2.39739	6.58489	10.34858
Sarcee	2.01278	10.11468	9.67896	0.95235	5.28140
Sauk	2.18740	6.70874	5.19467	1.47627	4.58283
Seneca	2.85891	8.38947	7.53795	0.55982	4.10381
Serrano	5.72667	5.13372	4.38430	2.16776	8.34514

Matrix 4F. cont.

	Sioux (Yankton)	S. Miwok	Stalo	Stockbridge	Tahltan
Shawnee	3.11335	6.14335	5.51130	0.85232	6.54059
Shoshoni	2.77497	7.55607	7.53882	2.92572	8.62096
Shuswap	4.74636	3.56721	2.15848	2.17915	5.96017
Sioux(Santee)	0.18585	9.37559	10.71363	3.49677	3.48295
Sioux(Teton)	0.20775	7.52647	10.18483	4.82111	2.46362
Sioux(Yankton)	0	8.03359	10.07983	4.47128	3.41267
S. Miwok	8.03359	0	2.49087	8.86485	6.86467
Stalo	10.07983	2.49087	0	7.42244	7.77351
Stockbridge	4.47128	8.86485	7.42244	0	6.86525
Tahltan	3.41267	6.86467	7.77351	6.86525	0
Taos	7.25123	14.95802	12.60082	2.65147	10.11987
Tenino	7.50088	0.96213	1.60910	7.16994	6.21462
Thompson	5.11199	5.92721	3.33434	2.06151	6.06472
Tonkawa	4.17704	4.68832	8.73310	8.11082	7.23858
Tsimshian	5.72335	4.56279	2.53689	4.51457	4.98198
Tundra Evenk	4.65741	7.55689	7.39256	3.70726	2.14387
Tuscarora	4.76110	8.80281	6.28102	0.56491	5.21579
Tututni	9.32088	13.68752	10.88096	8.73426	4.61514
Umatilla	5.82104	2.88156	7.70335	10.67702	9.71678
Ute	4.79396	8.82815	8.53083	2.51187	11.61244
Wasco	8.75441	2.29076	4.28499	8.74990	7.57960
Washo	3.40673	2.41148	5.18724	3.99718	6.35740
W. Mono	3.70544	12.39257	13.64651	2.32384	8.76144
Winnebago	3.11427	2.37611	2.65069	3.64631	3.80473
Yakut	2.84749	6.18454	6.83666	4.53751	0.68913
Yokuts	9.74211	3.40561	0.94181	5.35349	10.29698
Yukaghir	4.91273	10.11647	9.08089	3.31585	2.52415
Yuki	8.01036	15.02917	11.98588	3.30996	14.07458
Yurok	8.55155	4.78215	3.59495	2.22554	9.58548
Zuni	9.18385	9.47607	6.82290	5.07085	11.74260

Matrix 4F. cont.

	Taos	Tenino	Thompson	Tonkawa	Tsimshian
Achomawi	7.31628	1.28733	2.20167	4.66056	3.17427
Agua Caliente	10.00332	2.70323	3.95120	4.45750	6.17989
Aiwan	4.95287	7.22143	4.94419	7.91820	6.78205
Aleut	9.30227	2.87370	4.63221	4.68807	5.60554
Apache	10.89968	1.27699	2.93612	5.00255	5.29220
Arapaho	5.37168	7.24626	3.53609	6.30304	3.37946
Assiniboin	7.69574	11.17941	6.78995	6.85595	7.86245
Atsugewi	8.36206	1.05730	2.73776	4.00740	3.10787
Bannock	6.28433	10.65878	4.23298	16.06651	4.44584
Bella Coola	10.70781	3.90845	5.44898	4.71677	4.32473
Big Meadow	7.60785	3.43231	2.09037	9.22483	1.00992
Blood	6.02496	6.09205	3.67618	4.58913	3.87711
Caddo	7.44880	5.07350	5.61615	1.75454	10.97681
Carrier	6.13820	3.47289	4.16820	3.43276	7.97529
Catawba	2.06115	9.33520	2.70870	9.10901	10.06631
Cherokee	1.22519	7.01977	1.53057	6.12956	5.78248
Cheyenne	7.84384	6.78174	5.48680	3.77478	5.50586
Chickasaw	1.22256	8.95481	1.54326	11.34352	7.48870
Chilcotin	7.33690	0.59219	1.95869	2.60694	4.18566
Chippewa(MN)	4.43225	6.52639	2.86900	5.58205	4.70727
Chippewa(WI)	4.24669	3.51508	0.81648	5.70914	1.95628
Choctaw	2.29435	5.05715	1.58216	4.23949	6.15489
Chuvantsy	8.19899	10.85788	9.07552	9.94577	10.72348
Clallam	19.57328	1.66654	8.12519	8.40930	7.47594
C. Miwok	14.23492	1.59599	6.86865	2.87001	7.84878
Coahuilla	13.58178	5.17023	5.07192	10.45696	2.24485
Coeur d'Alene	7.10862	6.09062	2.63883	11.32079	0.87671
Comanche	8.82639	5.00206	6.40381	1.24275	9.76615
Concow	3.96188	8.29749	2.50791	10.35568	4.35733
Creek	2.45161	8.72550	2.94902	6.46553	5.99165
Crow	11.20421	7.31718	7.67041	4.30599	6.83657
E. Mono	11.47555	3.90988	6.61074	2.66475	6.90402
Eskimo(EC)	1.48918	7.08364	1.21423	8.08930	4.20341
Eskimo(WC)	5.35478	11.93354	7.19807	10.64851	8.62135
Even	4.20818	6.71918	2.81531	10.11583	4.65496
Evenk	3.08595	9.12447	3.06931	11.93692	5.26976
Flathead	13.35194	10.20313	7.64718	11.80604	8.34627
Haida	9.86036	5.24864	3.33964	10.51235	0.24408
Hoopa	4.78960	3.65050	2.70019	4.44079	7.54232
Itelman(KH)	1.22091	10.18516	2.82932	13.28896	6.61186
Itelman(SE)	0.75903	9.64452	2.45158	11.81725	7.22670
Kalapuya	11.26142	5.26912	7.09563	4.99206	13.84996
Kiowa	4.26450	4.55217	2.46828	3.33806	4.30080
Klamath	11.03524	0.32810	4.02309	2.52991	6.72233
Klickitat	8.82776	6.11541	6.98004	2.30530	11.78515
Koryak	2.49526	6.72120	2.56175	7.05577	5.12487
Kutenai	9.75219	9.54017	7.34008	5.26386	9.16625
Kwakiutl	6.32891	4.74967	3.43583	6.30128	2.88189
Lillooet	7.16360	1.06826	1.21434	3.79415	3.55978

Matrix 4F. cont.

	Taos	Tenino	Thompson	Tonkawa	Tsimshian
Makah	11.57709	1.85640	4.13280	7.54364	3.47631
Malecite	2.04970	6.56867	1.65858	6.84346	5.11324
Maritime Chukchi	3.97432	5.15366	3.17227	7.23240	5.90874
Menomini	2.86412	4.25898	0.63080	5.63419	2.90517
Micmac	1.71485	7.32527	2.31146	5.95663	5.90957
Mississagua	4.42632	4.85895	1.70346	5.19128	3.14698
Modoc	8.71154	0.94864	2.05487	5.22524	4.76073
Mohawk	3.60082	7.37853	1.72466	8.73615	3.74559
Montagnais	6.36533	6.59166	2.73920	6.91623	4.10110
Munsee	3.75384	6.11714	1.52141	8.21886	1.81681
Nanaimo	21.40385	3.98045	10.55122	11.09947	10.84187
Navajo	4.63838	2.84386	0.71220	5.35800	4.86297
Nez Perce	6.94803	1.77220	1.84580	2.86977	2.97596
Nisqually	15.07271	1.36389	5.91802	6.32736	4.87296
Nivkhi	4.49308	2.40606	0.81223	5.73511	2.19214
N. Hill Yokuts	6.41840	5.54029	4.62301	5.22126	6.52496
N. Paiute	4.23487	3.53692	0.89351	5.52368	3.03701
N. Pomo	5.13339	8.44656	3.04516	10.47757	6.19863
Ojibwa(GBay)	4.73855	3.60307	1.17270	5.75674	1.72887
Ojibwa (NWLSup)	3.93031	6.10122	2.04268	9.03699	3.72323
Okanagan	6.82013	5.44848	2.67093	7.16101	1.37406
Omaha	4.65335	3.84246	1.53423	3.65733	2.89430
Oneida	3.65955	5.83554	2.05333	7.10570	2.88064
Osage	14.48627	0.68042	5.16646	3.34112	6.60200
Pawnee	3.45552	5.55365	2.22376	3.95741	4.61929
Piegan	5.55147	6.60607	3.76286	4.18666	4.71801
Ponca	7.35432	4.87351	4.50891	2.76928	4.96989
Potawatomi	5.59499	3.67885	1.38049	7.61062	2.90178
Pueblo	2.82299	4.93377	2.15559	3.69932	8.39353
Puyallup	13.83293	0.56523	4.78463	5.73622	3.94662
Queets	22.72155	2.32933	10.20355	8.31046	9.04022
Quillayute	17.02363	1.56883	6.02434	8.33566	5.36507
Quinault	25.01946	3.52682	11.10992	11.57435	9.40133
Reindeer Chukchi	4.35096	4.28151	2.89126	6.74556	5.63130
Reindeer Evenk	2.03562	6.74143	2.23181	6.66599	5.25882
Reindeer Koryak	3.64632	5.07128	2.97896	4.35028	5.86203
San Luis Rey	12.88759	1.70473	4.58673	5.05400	4.61575
Sarcee	3.72945	8.38698	3.42645	6.58435	5.66233
Sauk	3.64536	5.31032	1.03209	6.40685	2.18156
Seneca	3.12410	7.23221	2.37579	8.02410	3.43820
Serrano	7.58452	5.54748	3.00394	8.82933	1.83533
Shawnee	2.99430	4.54755	0.97517	4.90785	3.81096
Shoshoni	5.97315	7.23219	3.12520	6.69532	3.80423

Matrix 4F. cont.

	Taos	Tenino	Thompson	Tonkawa	Tsimshian
Shuswap	6.02781	1.95836	0.91805	4.56662	2.70794
Sioux(Santee)	5.86960	8.41484	4.79727	5.16787	5.91413
Sioux(Teton)	8.27396	7.43184	5.88070	4.38404	5.71556
Sioux(Yankton)	7.25123	7.50088	5.11199	4.17704	5.72335
S. Miwok	14.95802	0.96213	5.92721	4.68832	4.56279
Stalo	12.60082	1.60910	3.33434	8.73310	2.53689
Stockbridge	2.65147	7.16994	2.06151	8.11082	4.51457
Tahltan	10.11987	6.21462	6.06472	7.23858	4.98198
Taos	0	11.37383	3.12705	11.37776	9.51592
Tenino	11.37383	0	3.51789	3.51935	4.85056
Thompson	3.12705	3.51789	0	6.61347	3.00087
Tonkawa	11.37776	3.51935	6.61347	0	10.26637
Tsimshian	9.51592	4.85056	3.00087	10.26637	0
Tundra Evenk	4.03400	5.49973	3.00042	7.08336	5.70901
Tuscarora	1.97676	6.42324	1.16802	8.62041	3.91373
Tututni	8.62445	8.99307	6.77249	10.41460	11.61877
Umatilla	16.21622	3.59817	8.46829	1.56641	9.07965
Ute	5.14453	8.03396	3.28949	7.51905	5.57062
Wasco	12.70154	0.77428	5.58076	2.39909	8.78867
Washo	8.16943	3.13215	3.60563	3.44693	3.78171
W. Mono	3.31217	12.01240	5.35453	9.92420	7.34840
Winnebago	6.60435	1.16117	1.39464	2.61025	2.99969
Yakut	6.09340	5.17646	3.58788	6.33795	4.13757
Yokuts	10.99187	2.54958	2.89673	8.46678	2.92533
Yukaghir	3.48714	7.82785	3.56433	9.31168	6.09481
Yuki	2.99086	13.23219	3.99319	14.49907	7.06433
Yurok	6.02360	3.88705	2.11519	8.29100	3.89861
Zuni	3.06295	5.92292	1.55210	8.44562	8.01167

Matrix 4F. cont.

	Tundra Evenk	Tuscarora	Tututni	Umatilla	Ute
Achomawi	3.38142	3.33908	9.23846	5.05592	5.04949
Agua Caliente	9.23159	6.58858	15.87438	3.48125	3.25408
Aiwan	0.76725	3.26624	6.54866	11.34847	8.91385
Aleut	1.49229	5.11064	4.16842	7.14392	10.99244
Apache	7.59672	7.28391	10.65179	4.72465	7.17415
Arapaho	4.64017	3.10288	11.97980	6.78843	2.15657
Assiniboin	6.40790	5.06328	9.31366	9.74245	6.00293
Atsugewi	2.71219	3.64635	7.46085	4.72199	6.47873
Bannock	9.57372	4.92662	19.66200	15.09028	3.51638
Bella Coola	2.78740	6.01901	6.90583	5.76059	9.77719
Big Meadow	4.45949	2.64967	10.55197	8.92729	5.04350
Blood	3.52377	2.69766	8.54892	6.12535	3.59690
Caddo	5.60849	5.57546	8.79306	5.13164	6.22822
Carrier	1.53139	4.17493	5.65837	6.76124	8.37917
Catawba	5.95857	2.46431	7.05784	14.09183	5.06955
Cherokee	3.16109	1.22607	7.96855	9.16483	2.13437
Cheyenne	4.45052	4.99902	10.45247	4.89137	4.79103
Chickasaw	4.55958	2.07423	7.35855	15.36284	5.43430
Chilcotin	3.27821	3.56531	7.06050	3.77528	5.35238
Chippewa(MN)	3.09826	1.37744	6.08121	8.54947	3.97090
Chippewa(WI)	2.50446	0.76604	6.59496	7.26969	3.07157
Choctaw	3.60404	2.29598	9.32675	6.50291	1.94891
Chuvantsy	1.97990	6.06123	6.46556	14.70404	13.91168
Clallam	10.75911	12.98404	14.84589	6.49565	14.65845
C. Miwok	8.27533	9.70470	14.98489	1.83208	8.30910
Coahuilla	11.65818	8.03257	19.94292	6.81019	4.46706
Coeur d'Alene	5.99191	3.01251	13.83114	10.33453	3.58633
Comanche	5.14793	6.15112	9.35669	3.80463	6.60301
Concow	7.08455	2.04373	13.97457	11.20570	1.13504
Creek	4.38978	2.15018	10.05276	8.95749	1.83419
Crow	5.57245	6.17495	9.64767	5.91165	7.68945
E. Mono	7.35541	8.04051	15.83686	1.72845	5.22019
Eskimo(EC)	2.11998	0.26506	5.91205	11.36691	3.56982
Eskimo(WC)	3.17334	5.61140	11.08508	13.56202	9.00309
Even	0.58763	1.44700	3.01366	14.09154	9.22284
Evenk	1.26048	1.42194	3.99387	16.21995	8.76469
Flathead	14.00324	7.19320	16.18462	12.40363	6.30376
Haida	5.16947	3.80249	9.66556	10.02693	6.91387
Hoopa	4.12097	2.85581	8.41695	7.21342	4.59596
Itelman(KH)	2.41361	1.51132	7.56500	17.31291	7.02006
Itelman(SE)	2.23782	1.59878	6.61337	16.21121	6.74561
Kalapuya	9.54166	8.07701	10.03660	8.58835	9.92144
Kiowa	2.09360	2.21985	7.34564	5.32308	3.39949
Klamath	5.78153	6.59626	8.83548	3.37214	8.00886
Klickitat	5.47379	6.10021	7.35326	6.38256	8.39491
Koryak	0.62165	1.54990	5.47210	10.45339	5.86162
Kutenai	8.64691	5.87144	11.05993	7.73085	5.43917
Kwakiutl	1.30238	2.61243	6.86360	7.86915	6.54920

Matrix 4F. cont.

	Tundra Evenk	Tuscarora	Tututni	Umatilla	Ute
Lillooet	4.02063	3.88739	6.92873	4.71493	5.33922
Makah	4.90602	7.09806	10.68017	6.79258	9.81273
Malecite	2.55498	0.33662	6.00351	10.34660	3.35713
Maritime Chukchi	0.89811	2.16513	6.46059	10.37299	7.22522
Menomini	2.81229	0.64875	7.61830	7.42312	1.93941
Micmac	2.16419	1.03853	6.59221	9.50796	3.33487
Mississagua	2.24074	1.23350	4.93853	7.67618	4.18573
Modoc	4.50676	5.27624	6.92748	6.29518	8.07509
Mohawk	4.03602	0.82200	6.41398	11.54079	3.75636
Montagnais	5.52534	2.39053	6.95849	9.11112	4.22939
Munsee	3.27689	0.82944	8.91857	9.44827	2.52782
Nanaimo	11.09224	12.55044	10.61042	12.13118	19.38087
Navajo	4.92986	3.42309	9.14102	6.59176	3.52910
Nez Perce	3.62438	2.65924	7.34423	3.83050	3.71711
Nisqually	5.47650	7.95269	7.50261	6.63442	12.94190
Nivkhi	1.83521	1.70666	7.20498	6.88614	4.27910
N. Hill Yokuts	5.62241	4.47304	14.46434	5.76213	3.06385
N. Paiute	4.67489	1.99256	10.82167	6.04375	1.25282
N. Pomo	9.94864	4.84345	18.15544	10.19026	0.92989
Ojibwa(GBay)	1.82604	1.02130	5.64652	7.42897	4.17603
Ojibwa (NWLSup)	1.27978	0.61322	3.47509	12.60719	7.02361
Okanagan	4.32083	2.11913	9.25629	7.63200	3.45050
Omaha	2.82098	2.08757	7.38068	4.99675	2.72410
Oneida	1.64555	0.64105	6.25432	9.49473	4.21967
Osage	8.56913	9.43969	11.41105	2.68095	9.19718
Pawnee	2.68883	1.71863	7.32674	6.32436	2.62243
Piegan	3.71614	3.09737	8.67474	5.96403	3.44434
Ponca	3.55297	4.32702	9.51229	3.87686	4.52593
Potawatomi	2.70046	3.39437	6.82972	8.86809	6.63097
Pueblo	4.02745	3.48764	8.57442	6.71855	3.60023
Puyallup	5.90554	7.63895	10.00212	4.97997	10.29975
Queets	11.77822	14.93018	13.98364	6.77958	17.67546
Quillayute	9.90033	10.83770	13.59180	6.45700	12.04085
Quinault	15.60966	17.12494	19.18357	8.39039	17.79378
Reindeer Chukchi	0.91936	2.49552	6.45214	9.57257	7.34176
Reindeer Evenk	0.77444	1.11035	4.96231	10.35236	5.25445
Reindeer Koryak	0.80390	2.04745	5.43515	7.65450	5.67496
San Luis Rey	9.47176	7.50971	15.72695	3.12669	5.09432
Sarcee	3.94250	1.57929	7.78465	9.66275	3.27105
Sauk	3.38499	1.25628	8.12638	7.71933	2.13153
Seneca	2.37474	0.62889	7.50614	10.48463	3.56992
Serrano	7.02060	3.27148	14.74512	7.75959	2.04859

Matrix 4F. cont.

	Tundra Evenk	Tuscarora	Tututni	Umatilla	Ute
Shawnee	3.80760	1.29498	9.04686	6.50483	1.16143
Shoshoni	7.54626	4.03610	14.82726	6.29495	0.55300
Shuswap	4.28149	2.14167	7.89758	5.47332	3.14037
Sioux(Santee)	4.09514	3.74322	8.40154	7.55233	4.65354
Sioux(Teton)	4.22004	5.07114	9.00336	6.03833	6.06844
Sioux(Yankton)	4.65741	4.76110	9.32088	5.82104	4.79396
S. Miwok	7.55689	8.80281	13.68752	2.88156	8.82815
Stalo	7.39256	6.28102	10.88096	7.70335	8.53083
Stockbridge	3.70726	0.56491	8.73426	10.67702	2.51187
Tahltan	2.14387	5.21579	4.61514	9.71678	11.61244
Taos	4.03400	1.97676	8.62445	16.21622	5.14453
Tenino	5.49973	6.42324	8.99307	3.59817	8.03396
Thompson	3.00042	1.16802	6.77249	8.46829	3.28949
Tonkawa	7.08336	8.62041	10.41460	1.56641	7.51905
Tsimshian	5.70901	3.91373	11.61877	9.07965	5.57062
Tundra Evenk	0	2.04843	3.18626	11.06986	8.67180
Tuscarora	2.04843	0	5.73858	11.84782	4.08961
Tututni	3.18626	5.73858	0	17.07231	16.36031
Umatilla	11.06986	11.84782	17.07231	0	7.52567
Ute	8.67180	4.08961	16.36031	7.52567	0
Wasco	6.33865	8.21892	8.71792	3.71852	10.30689
Washo	5.55214	4.96202	13.55356	2.62976	2.79160
W. Mono	5.76529	3.48335	14.45320	11.92172	2.77775
Winnebago	3.08262	3.13377	6.96213	3.49070	4.24074
Yakut	0.66504	3.03570	4.51367	8.98107	8.39731
Yokuts	8.76166	5.42889	13.41425	7.22605	5.24066
Yukaghir	0.32624	1.66617	3.26601	13.85791	9.01932
Yuki	9.18933	3.88397	17.15256	15.76113	2.02333
Yurok	5.67048	2.73823	12.20756	8.72294	3.50852
Zuni	5.80612	3.96756	10.07368	11.01018	4.79689

Matrix 4F. cont.

	Wasco	Washo	W. Mono	Winnebago	Yakut
Achomawi	2.52213	1.45936	6.71867	1.14498	3.51071
Agua Caliente	3.69132	1.92200	8.64035	2.71478	9.27964
Aiwan	7.98698	4.99929	4.42034	4.49782	1.20714
Aleut	3.34788	4.82729	9.71512	2.21265	1.02345
Apache	2.93523	4.52608	13.00088	1.72001	7.11622
Arapaho	9.57574	1.87922	1.40962	3.00836	3.28526
Assiniboin	12.29485	6.61536	4.51144	5.62683	4.89529
Atsugewi	2.08305	1.87231	7.55200	0.91973	2.42039
Bannock	15.07953	5.91210	5.13120	7.51253	9.83998
Bella Coola	5.21377	3.78886	8.41843	2.30984	0.96972
Big Meadow	6.34612	3.06544	6.77809	2.54373	4.27062
Blood	7.46514	2.36927	2.70466	2.37663	2.36441
Caddo	3.45939	4.18239	7.25993	3.55159	6.52561
Carrier	2.88002	3.74215	6.91639	2.50335	2.35708
Catawba	9.88357	8.91580	6.77436	5.62602	8.15278
Cherokee	8.33776	3.75899	1.89833	2.88357	3.79376
Cheyenne	7.86296	2.28929	3.31438	2.98571	2.66420
Chickasaw	11.02315	8.51422	6.27698	5.22048	6.32712
Chilcotin	1.15781	1.93455	7.79554	0.41985	3.38585
Chippewa(MN)	7.54706	4.13333	3.43190	2.78899	2.97126
Chippewa(WI)	5.39568	2.50321	4.07391	1.15672	2.46055
Choctaw	5.92020	2.32553	2.72039	2.06681	4.26709
Chuvantsy	10.79328	8.66308	7.17753	7.69690	2.26660
Clallam	3.25681	7.14641	20.29865	4.82929	9.71970
C. Miwok	1.62211	2.15358	11.73206	2.95791	7.58689
Coahuilla	9.17342	3.36553	9.99435	4.44558	9.82836
Coeur d'Alene	9.95622	3.27241	4.95245	3.82666	5.32295
Comanche	3.73304	3.11926	6.52770	3.23447	5.03911
Concow	10.91177	4.11952	2.94869	4.80487	7.67376
Creek	10.27478	3.67165	1.03107	3.73607	4.24655
Crow	7.64493	4.14566	6.24647	4.24228	3.79975
E. Mono	4.36631	0.64472	6.52832	3.00469	6.06810
Eskimo(EC)	8.97754	4.85907	2.70836	3.05964	2.73159
Eskimo(WC)	13.66082	6.43876	3.15973	7.08523	2.66029
Even	8.43717	7.23477	6.59985	4.03270	1.32545
Evenk	11.34872	8.36311	5.59460	5.20937	1.96661
Flathead	11.80934	9.20306	11.91012	8.12141	14.02237
Haida	9.02706	4.88842	8.15070	3.22401	3.54377
Hoopa	3.36895	3.46122	6.16771	2.71975	5.81583
Itelman(KH)	12.50251	8.00123	4.17957	6.22058	4.03800
Itelman(SE)	11.58180	7.88725	4.34914	5.61821	3.88703
Kalapuya	3.29054	8.41307	14.39478	5.87883	11.70453
Kiowa	5.52138	1.65786	2.49820	1.40238	1.57457
Klamath	0.21187	3.38313	11.97581	1.51622	5.97764
Klickitat	4.18469	5.65454	8.41704	4.40884	6.19229
Koryak	8.10114	4.33839	2.86446	3.07094	0.90078
Kutenai	9.58383	6.09832	6.48614	5.57225	7.80367
Kwakiutl	6.46548	2.79850	4.24464	2.29779	0.51203
Lillooet	2.53634	3.07471	8.86141	0.40472	3.75411

Matrix 4F. cont.

	Wasco	Washo	W. Mono	Winnebago	Yakut
Makah	4.23198	3.97167	11.69386	2.47427	3.98670
Malecite	7.66381	4.50000	2.93734	3.01960	3.49964
Maritime Chukchi	5.85482	4.08681	4.70069	3.38727	2.05111
Menomini	6.00251	2.32305	2.90560	1.45071	3.10680
Micmac	8.28004	3.96068	1.70078	3.09819	2.68038
Mississagua	6.40029	3.66431	4.21785	1.57768	1.79924
Modoc	2.31505	4.71407	11.83051	1.30645	4.64123
Mohawk	9.55622	5.83671	4.49829	3.43816	4.22894
Montagnais	8.40353	5.63476	6.26595	3.06399	4.98047
Munsee	8.81000	3.02575	2.45540	2.60383	2.96113
Nanaimo	3.95599	12.08189	24.11589	7.72944	11.61457
Navajo	4.49033	3.47184	7.22981	1.47292	5.50697
Nez Perce	2.80693	1.61914	5.97510	0.45134	3.15456
Nisqually	2.47404	5.91408	15.35294	2.83884	4.51133
Nivkhi	4.34035	2.04924	4.92143	0.93176	1.93650
N. Hill Yokuts	6.22935	1.19127	3.15102	3.64740	5.87478
N. Paiute	5.46854	1.53861	3.80760	1.48874	4.87677
N. Pomo	11.33265	4.34926	4.83622	5.38505	10.43584
Ojibwa(GBay)	5.57379	2.77894	4.37785	1.12708	1.42928
Ojibwa (NWLSup)	7.82191	6.19998	5.68350	3.28768	1.91962
Okanagan	8.04742	2.83685	4.06783	2.35815	3.11842
Omaha	5.48191	1.73986	3.39082	0.80132	1.98010
Oneida	7.63623	3.41663	2.72827	2.50201	1.59656
Osage	1.46571	4.36492	14.98955	1.99895	7.55704
Pawnee	6.60366	2.36016	2.11926	1.82451	2.37053
Piegan	7.87530	2.58576	2.51285	2.47749	2.50575
Ponca	5.65644	1.40294	3.55254	1.98805	2.22229
Potawatomi	6.33531	4.51374	7.56301	1.82399	2.31932
Pueblo	5.07550	3.60035	4.84421	2.46042	5.15408
Puyallup	2.10533	3.95875	13.59003	2.06608	4.94205
Queets	3.40513	9.00052	23.26782	5.74417	10.25655
Quillayute	3.88422	6.43296	18.08028	3.72101	8.71034
Quinault	5.67066	10.22352	25.67219	7.47295	14.02236
Reindeer Chukchi	5.04618	3.79409	5.35462	2.90437	1.96675
Reindeer Evenk	7.95894	4.44923	2.69915	2.92018	1.19517
Reindeer Koryak	5.43942	3.11458	3.32770	2.27357	1.14398
San Luis Rey	3.20992	2.11282	10.79228	2.51362	8.75571
Sarcee	9.52335	4.52906	2.28386	3.84097	3.90325
Sauk	7.78468	2.79049	2.94778	1.71532	2.81115
Seneca	9.16510	3.77743	1.90060	3.30674	2.43229
Serrano	8.54418	2.11865	4.37675	3.37289	6.34835
Shawnee	6.05720	1.99320	2.65609	1.59738	4.06803
Shoshoni	9.92865	2.18402	2.72629	3.23417	6.30126

Matrix 4F. cont.

	Wasco	Washo	W. Mono	Winnebago	Yakut
Shuswap	3.48134	2.37387	6.48078	0.78858	4.36971
Sioux(Santee)	9.66190	4.10032	2.93708	3.57741	2.73989
Sioux(Teton)	8.52926	3.50386	4.16175	3.37499	2.30798
Sioux(Yankton)	8.75441	3.40673	3.70544	3.11427	2.84749
S. Miwok	2.29076	2.41148	12.39257	2.37611	6.18454
Stalo	4.28499	5.18724	13.64651	2.65069	6.83666
Stockbridge	8.74990	3.99718	2.32384	3.64631	4.53751
Tahltan	7.57960	6.35740	8.76144	3.80473	0.68913
Taos	12.70154	8.16943	3.31217	6.60435	6.09340
Tenino	0.77428	3.13215	12.01240	1.16117	5.17646
Thompson	5.58076	3.60563	5.35453	1.39464	3.58788
Tonkawa	2.39909	3.44693	9.92420	2.61025	6.33795
Tsimshian	8.78867	3.78171	7.34840	2.99969	4.13757
Tundra Evenk	6.33865	5.55214	5.76529	3.08262	0.66504
Tuscarora	8.21892	4.96202	3.48335	3.13377	3.03570
Tututni	8.71792	13.55356	14.45320	6.96213	4.51367
Umatilla	3.71852	2.62976	11.92172	3.49070	8.98107
Ute	10.30689	2.79160	2.77775	4.24074	8.39731
Wasco	0	4.60854	13.96883	2.38652	6.62188
Washo	4.60854	0	4.42260	1.58940	4.45883
W. Mono	13.96883	4.42260	0	6.50165	5.67809
Winnebago	2.38652	1.58940	6.50165	0	2.52348
Yakut	6.62188	4.45883	5.67809	2.52348	0
Yokuts	5.11311	4.15588	11.19408	2.91957	8.60222
Yukaghir	9.00932	7.05552	5.21339	4.46342	1.08973
Yuki	16.77928	7.16916	2.84732	7.85341	9.75145
Yurok	5.71730	2.99604	6.15735	3.15863	6.70844
Zuni	7.42859	6.27332	7.73462	3.94303	7.52684

Matrix 4F. cont.

	Yokuts	Yukaghir	Yuki	Yurok	Zuni
Achomawi	2.39583	4.88860	8.54209	1.26769	4.83312
Agua Caliente	2.07751	11.25797	8.55545	2.06655	5.23532
Aiwan	10.82717	1.10510	9.67750	6.19497	7.97890
Aleut	7.89542	2.85529	14.32697	7.03680	8.35065
Apache	2.66423	9.89487	11.21133	5.26002	3.95287
Arapaho	7.03870	4.71272	4.06632	4.97820	7.19303
Assiniboin	12.15132	5.77488	8.67282	10.71402	11.75616
Atsugewi	3.19860	4.19304	10.42873	2.56490	6.22658
Bannock	5.82663	9.57236	2.08675	3.32292	5.76218
Bella Coola	8.38942	3.98456	13.50150	8.21463	10.17057
Big Meadow	1.74235	5.11380	6.72086	1.22317	6.00445
Blood	6.96285	3.60861	6.58219	5.27620	8.18227
Caddo	8.38068	6.97123	11.70589	5.73629	7.24116
Carrier	8.22467	2.95992	11.69569	5.03507	5.96727
Catawba	8.26515	5.72456	5.04815	5.79207	2.95830
Cherokee	7.01058	3.15913	2.59885	4.00426	2.78652
Cheyenne	9.33704	4.97271	8.57448	7.54796	9.68942
Chickasaw	7.85931	4.37626	3.36444	5.51161	1.40485
Chilcotin	2.67836	4.94752	9.57017	2.41624	4.26786
Chippewa(MN)	6.61876	2.79462	6.15451	4.73074	7.05480
Chippewa(WI)	2.92549	2.77742	4.86977	1.93467	4.27840
Choctaw	5.91992	4.39483	3.66919	3.11365	2.02687
Chuvantsy	16.29519	2.02237	15.09365	10.94866	13.30562
Clallam	4.82711	14.05188	20.58222	8.21571	10.63742
C. Miwok	5.12456	11.18781	15.38579	5.08820	8.94894
Coahuilla	1.84833	13.04094	8.03533	3.93861	8.67784
Coeur d'Alene	2.99107	6.18389	4.18971	2.07764	6.48938
Comanche	9.09758	6.53252	12.56581	6.63318	9.17568
Concow	4.28341	6.82323	1.70222	1.84965	4.88099
Creek	8.45734	4.12597	2.72551	5.41151	5.10528
Crow	10.04599	5.95949	12.99947	8.77480	13.70976
E. Mono	6.73128	9.42666	11.39612	5.21908	9.29241
Eskimo(EC)	6.49661	1.68491	3.16677	3.88025	3.70978
Eskimo(WC)	15.44951	3.11833	8.37795	10.20126	9.68816
Even	8.19250	0.34015	8.56554	5.65610	6.43011
Evenk	9.84129	0.53128	6.81823	6.87041	6.34919
Flathead	5.14541	13.83861	10.78084	6.27478	12.79297
Haida	3.77052	5.32148	8.32209	4.99853	9.01007
Hoopa	4.59943	5.25323	7.89057	1.73546	3.85593
Itelman(KH)	9.84256	1.83949	4.13092	5.29674	4.12840
Itelman(SE)	9.98386	1.84735	4.16909	5.75437	3.15825
Kalapuya	7.14974	11.32583	16.02264	6.15202	8.15508
Kiowa	6.54492	2.65158	6.00486	4.28690	5.38231
Klamath	3.30976	8.17373	13.82255	3.96895	5.97035
Klickitat	10.11009	6.55686	14.15750	7.53587	9.78208
Koryak	8.92272	0.65772	5.86542	5.36767	5.02051
Kutenai	9.63195	8.53879	10.49303	8.66495	12.26205
Kwakiutl	6.89239	1.71693	8.44126	4.70478	7.85684
Lillooet	2.56844	5.60193	8.47831	3.69326	2.99540

Matrix 4F. cont.

	Yokuts	Yukaghir	Yuki	Yurok	Zuni
Makah	4.50605	7.01417	12.66310	5.28787	6.66871
Malecite	6.00666	2.24546	4.16757	3.13916	4.36043
Maritime Chukchi	7.54726	1.51068	8.21316	3.33934	5.40680
Menomini	3.48819	3.07118	3.33994	1.74223	3.10040
Micmac	8.09133	1.95922	4.10392	4.58427	4.60551
Mississagua	5.38548	2.23951	6.01788	4.53092	5.59576
Modoc	3.15448	6.46038	11.04600	4.49736	3.36146
Mohawk	5.42359	3.38714	4.12721	4.39611	5.39547
Montagnais	5.14500	5.21895	6.48261	5.59209	7.14258
Munsee	4.42132	3.01503	3.09793	2.64429	5.25197
Nanaimo	6.59019	13.46569	25.89204	9.25133	15.29907
Navajo	3.06157	6.30741	5.28887	2.88348	0.78982
Nez Perce	2.55056	4.66050	7.83811	2.53816	5.34188
Nisqually	4.80120	7.49710	18.05619	6.86850	10.59256
Nivkhi	3.19553	2.75489	5.76727	1.83630	3.13460
N. Hill Yokuts	6.16456	6.73739	6.67735	2.39227	6.61215
N. Paiute	2.25399	5.47641	3.37106	1.00291	2.64468
N. Pomo	4.68101	10.53617	1.62115	3.01785	3.09347
Ojibwa(GBay)	3.82658	2.07208	5.85475	2.97863	5.08018
Ojibwa (NWLSup)	6.25061	0.89522	7.09094	4.27177	6.04815
Okanagan	4.09557	4.23843	5.67504	3.69144	7.81671
Omaha	4.79370	3.38205	5.18704	4.00198	4.53889
Oneida	5.84039	1.40370	5.17638	3.36685	6.11146
Osage	3.61497	11.35440	15.49455	6.62429	7.20152
Pawnee	6.57439	2.89728	4.82242	4.35618	5.07234
Piegan	7.95032	3.85666	6.25800	6.20765	7.63202
Ponca	7.63747	4.40608	8.62304	5.79498	8.30054
Potawatomi	5.12958	3.66248	6.97780	5.09937	3.17572
Pueblo	7.02230	5.21416	5.64642	4.35149	1.57690
Puyallup	3.21004	8.21864	15.23698	5.03816	8.32728
Queets	6.69260	15.14330	24.76457	11.06754	13.80817
Quillayute	3.30706	12.68115	16.88834	7.12676	8.56755
Quinault	5.81443	19.22835	24.53564	11.19658	13.99905
Reindeer Chukchi	6.97977	1.80654	8.52326	3.25909	4.83274
Reindeer Evenk	8.54684	0.68470	5.38423	5.14724	4.69028
Reindeer Koryak	8.12681	1.31447	7.60905	4.65139	5.56580
San Luis Rey	1.24971	11.66442	11.01966	2.61924	7.28496
Sarcee	7.91965	3.37103	4.91012	5.25638	7.25501
Sauk	4.39112	3.41501	3.14056	3.48874	4.08879
Seneca	6.52392	1.87233	4.10563	3.54658	6.28054
Serrano	2.39079	7.39489	4.40152	1.50412	6.91232
Shawnee	3.77352	4.22512	3.05217	1.96781	2.92571
Shoshoni	5.28301	7.86908	2.75300	4.48954	5.70880

Matrix 4F. cont.

	Yokuts	Yukaghir	Yuki	Yurok	Zuni
Shuswap	1.31080	5.21914	6.27080	1.49405	3.67161
Sioux(Santee)	10.12393	3.94517	7.04464	8.25656	8.88562
Sioux(Teton)	10.25281	4.49898	9.60957	8.80450	10.65963
Sioux(Yankton)	9.74211	4.91273	8.01036	8.55155	9.18385
S. Miwok	3.40561	10.11647	15.02917	4.78215	9.47607
Stalo	0.94181	9.08089	11.98588	3.59495	6.82290
Stockbridge	5.35349	3.31585	3.30996	2.22554	5.07085
Tahltan	10.29698	2.52415	14.07458	9.58548	11.74260
Taos	10.99187	3.48714	2.99086	6.02360	3.06295
Tenino	2.54958	7.82785	13.23219	3.88705	5.92292
Thompson	2.89673	3.56433	3.99319	2.11519	1.55210
Tonkawa	8.46678	9.31168	14.49907	8.29100	8.44562
Tsimshian	2.92533	6.09481	7.06433	3.89861	8.01167
Tundra Evenk	8.76166	0.32624	9.18933	5.67048	5.80612
Tuscarora	5.42889	1.66617	3.88397	2.73823	3.96756
Tututni	13.41425	3.26601	17.15256	12.20756	10.07368
Umatilla	7.22605	13.85791	15.76113	8.72294	11.01018
Ute	5.24066	9.01932	2.02333	3.50852	4.79689
Wasco	5.11311	9.00932	16.77928	5.71730	7.42859
Washo	4.15588	7.05552	7.16916	2.99604	6.27332
W. Mono	11.19408	5.21339	2.84732	6.15735	7.73462
Winnebago	2.91957	4.46342	7.85341	3.15863	3.94303
Yakut	8.60222	1.08973	9.75145	6.70844	7.52684
Yokuts	0	10.17540	8.86262	1.84982	5.88309
Yukaghir	10.17540	0	8.48664	6.56302	6.89910
Yuki	8.86262	8.48664	0	5.61876	4.72496
Yurok	1.84982	6.56302	5.61876	0	4.17325
Zuni	5.88309	6.89910	4.72496	4.17325	0

VITA

Paul Christopher Dillingham was born in Atlanta, Georgia, on December 17, 1960. He graduated from Lakeside High School in Atlanta, Georgia, in June of 1979. In June of 1989 he graduated from Georgia State University having majored in anthropology. In August of 1989 he entered the University of Tennessee-Knoxville to pursue a Master of Arts degree in anthropology, which was awarded in August of 1994. In August of 1994, he began working on a Doctor of Philosophy degree in anthropology. While in the doctoral program, Dillingham taught anthropology courses and anatomy and physiology labs at the University of Tennessee and Pellissippi State Technical Community College. His Doctor of Philosophy degree was awarded in December of 2005.