Examination of forensic and ethnohistorical evidence for the presence of Blacks on the Northern Plains and Southern Plateau in the nineteenth century

Lynn W. Stagg
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An Examination of Forensic and Ethnohistorical Evidence for the Presence of Blacks on the Northern Plains and Southern Plateau in the Nineteenth Century

By

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In contrast to other research that has suggested that Blacks did not arrive on the Northern Plains and Southern Plateau until the late Nineteenth Century, this study suggests that they were present in the early part of the Nineteenth Century, and had intermixed culturally and biologically with the Native American population. This is supported by ethnohistorical and forensic evidence. This interaction resulted in the presence of individuals of Black-Mongoloid admixture, and may be the reason that human skeletal material from the Northern Plains and Southern Plateau is assessed as Black by the Giles and Elliot (1962) Discriminant Functions Technique. The six individuals I examined for this study all scored as Black or Black-Mongoloid, and were recovered from the Northern Plains and Southern Plateau. The Giles and Elliot (1962) Discriminant Function Analysis Technique appears to accurately assess skeletal material from the Northern Plains and Southern Plateau as Black.
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INTRODUCTION

The primary objective of this study is to test hypotheses that seek to explain why presumed Native American skeletal remains frequently score in the Black range on the Giles and Elliot Discriminant functions analysis for race. I will accomplish this in two ways. First, I will examine the interaction of Native Americans and Blacks in the region that is now Montana between 1800 and 1899. Second, I will examine osteological cases that date to this period and examine the possibility that people of Black or mixed Black-Native American ancestry were living in this region during this time span.

Most previous anthropological research that focused on the Northern Plains, and Southern Plateau in the Nineteenth century has concentrated on the interaction of Native Americans and Whites, while disregarding the activities and roles of Blacks before the late 1800s (Anastasio 1975; Bancroft-Hunt and Forman 1981; Bass 1981; Bushnell 1922; Gill 1981, 1984; Hughes 1980; Jennings, Johnson, King et al., 1977; Kehoe 1992; Lowie 1956; McGinnis and Sharrock 1972; Medicine Crow 1993; Nichols 1992; Oswalt 1978; Weist, 1977; Wissler 1934, 1940). As a consequence, many Native Americans and anthropologists believe that if skeletal material is found on the Northern Plains or Southern Plateau it has to be either Native American or White (Fisher and Gill 1990; Gill 1981, 1984; Hughes 1980; Ubelaker and Grant
1989). This is a fair assumption. Though incorrect, this idea has bolstered the claims of groups seeking to repatriate skeletal collections to Native Americans (Nichols 1992; Ubelaker and Grant 1989), and may be one reason why alternative hypotheses that include the presence of Blacks on the Northern Plains and Southern Plateau in the nineteenth century have not been previously proposed.

This belief that only Native Americans and Whites were present on the Northern Plains and Southern Plateau in the early Nineteenth century, and that Blacks arrived in the late Nineteenth century, is so prevalent that when osteological material is assessed as Black by discriminant function analysis, the results are usually dismissed as a discrepancy in the analysis. In particular, Gill (1986) has claimed that when osteological material from this region scores in the Negroid range on the Giles and Elliot (1962) discriminant functions analysis, the results are due to a defect in the discriminant functions themselves.

Instead I will present an alternative explanation; that those osteological remains which score in the Negroid range of the Giles and Elliot discriminant functions analysis, and have Mongoloid or Mongoloid-Negroid anthroposcopic traits, may represent the remains of people of Black ancestry. In support of this hypothesis, I will examine the evidence for the presence of Blacks living in the area, and their cultural and biological intermixture with the Native Americans. To accomplish this, I will use ethnohistorical and forensic evidence that has been
collected by historians and anthropologists. It is my hope that this will prompt forensic specialists and collection curators to reevaluate the racial affinity of skeletal material that is believed to have come from the Northern Plains, the region that is bounded on the south by the North Platte River and on the North by the Saskatchewan River, and on the east by the Missouri River and the west by the Rocky Mountains (Weist and Sharrock 1985:1)

...or Southern Plateau, that region that includes that part of the state of Washington lying east of the Cascade Range, the northern part of Oregon east of the Cascades, northern Idaho, and the western part of Montana . . . (Anastasio 1975:112), and that dates from the early to late nineteenth century.
ETHNOHISTORICAL EVIDENCE

The Native Americans of the Northern Plains and Southern Plateau initially greeted Black males with a great deal of astonishment and trepidation. However, once the tribesmen were satisfied that they were indeed Black-skinned men and not White men painted black, they were accorded a great deal of respect. However, by the end of the nineteenth century this attitude had changed to one of tolerance and hatred. This was a result of the perceived abuses of the Blacks by Indians, and the need of Indians to elevate themselves by putting Blacks down (Malouf 1992).

The "[f]irst Negro to set Foot in Montana was York, Clark's Servant with the Lewis & Clark Expedition . . ." (Thompson and Jacobs 1970:4). York was the son of "Old York" and "Rose," who had been slaves of Clark's family for Clark's entire life. Clark and York had been companions from childhood, and York became Clark's manservant when he "... was willed to him by Clark's father on July 24, 1799" (Betts 1985:38). York proved to be an able servant; he stood over six feet tall and weighed approximately two hundred pounds - a formidable ally (De Voto 1953, Katz 1986, 1987).

During Lewis and Clark's famous Pacific expedition, York proved to be a valuable asset in obtaining favors and assistance for the expedition from the Aricara, Mandan, and Bitterroot Salish. This was a direct result of his color, demeanor, and
appearance, all of which were unusual, and as a result so impressed many of the Indians, that they considered him to be "Great Medicine" (De Voto 1953). Nicholas Biddle's account of York's inspection by the one-eyed Hidatsa chief, Le Borgne, was typical of the reception he received from other tribal leaders.

... the chief observed that some foolish young men of his nation had told him there was a person among us who was quite black, and he wished to know if could be true. ... Le Borgne was very much surprised at his appearance, examined him closely, and spit on his finger and the skin to wash off the paint; nor was it until the Negro uncovered his head and showed his short hair, that Le Borgne could be persuaded that he was not a painted white man (Betts 1985:19).

This procedure was repeated among the Mandan and Gros Ventre where York became the expedition's main attraction. The astonishment of the Indians was so great that they came from miles around to see him (De Voto 1953; Katz 1987).

During these tribal inspections, York enjoyed himself so much that he carried his part as the expedition's oddity with more fervor than even Captain Clark expected (De Voto 1953; Katz 1987). This may help to explain the reason the women were also impressed by York's appearance, and enjoyed caressing him (De Voto 1953), while also attempting to acquire a portion of the Black essence for the native lineages. This was accomplished through the women engaging in sexual relations with York as demonstrated by Biddle's account of some of York's liaisons with the women.
two very handsome young squaws, also Arikaras... made themselves available to York and the others aboard the keelboat. ... York participated largely in these favors; for, instead of inspiring prejudice, his color seemed to procure him additional advantage from the Indians, who desired to preserve among them some memorial of this wonderful stranger (Betts 1985:69-70).

These relations may be the reason that "... York took Indian "wives" in the various villages... (Katz 1986:98).

Lewis and Clark explored most of the region that would become Montana without any other recorded encounters in which York was able to display his unusual attributes. However, when they reached the Bitterroot Valley, near the present location of Lolo, Montana, they encountered a band of Bitterroot Salish (De Voto 1953), "these are the same Indians that were, and are known as the Flathead Indians" (McGinnis 1993). The Bitterroot Salish, who were located in the west central part of Montana, also initially believed York's skin color was "painted on," probably as the result of rubbing charcoal over their bodies. When they realized that it was his actual skin color they were even more curious because among the Bitterroot Salish blackened skin was perceived as a sign of bravery (Katz 1987). This was because it was the custom among their

... warriors, when returning home from battle, to prepare themselves before reaching camp. Those who had been brave and fearless, the victorious ones in battle, painted themselves in charcoal. So the black
man, they thought had been the bravest of his party (Katz 1987:15).

After leaving the Bitterroot Salish York is not recorded as having had any further encounters with Native Americans on the Northern Plains or Southern Plateau. Following the expedition's return to St. Louis, Missouri, Clark freed York. According to Captain Clark, York died several years later of cholera, having never returned to the Northern Plains or Southern Plateau (Betts 1985).

Between 1805 and 1866, three other Black males contributed to the presence of black attributes among the plains and plateau tribes. These men had an even more significant impact upon the Native population than York had since they attained positions of prestige in several tribes and took Native wives.

The first of these three men, was Edward Rose, a Black trapper who arrived in the area near the Big Horn River shortly after York returned to St. Louis in 1806. He accompanied a trapping expedition up the Missouri to the Bighorn, where he met a band of Crow Indians. Shortly after this he left the expedition and went to live with the Crow for thirteen years, during which time he became highly respected by them (Katz 1986, 1987). Rose gained this respect by

Observing that the native custom was to respect that man most who unselfishly gave away his possessions, Rose by the spring of 1808, "became the best loved man in the Crow village by giving away all his trade goods (Bearss 1970:49)."
After leaving the Crow, probably as a consequence of his becoming restless and the demands others put on his skills as a mountain man (Carter 1982; Katz 1986), Rose spent time among the Arikara and gained acceptance among them as well. This is evident from a report dated October 20, 1823, from Colonel Henry Leavenworth to General Atkinson. Colonel Leavenworth recorded that

. . . he appeared to be a brave and enterprising man, and was well acquainted with those [Aricaras] Indians. He had resided for about three years with them; understood their language, and they were much attached to him. He was with General Ashley when he was attacked. The Indians then called to him to take care of himself, before they fired upon General Ashley’s party (Katz 1987:27).

While Rose was living on the Northern Plains, James P. Beckwourth, a Black mountain man, was also living among the Indians of Montana. Between 1824 and 1866 Beckwourth had numerous interactions with the Blackfeet and Crow: unfortunately, even though he took several wives among both groups he did not record the dates that the weddings occurred. As a result of the respect that he was accorded by the Blackfeet:

[t]he chief offered. . . his daughter for a wife. . . [he] accepted his offer, and, without any superfluous ceremony, became son-in-law to As-as-to, the head chief of the Black Feet (Bonner 1969:114).

After leaving the Blackfeet and traveling with Captain Jim Bridger, Beckwourth was captured by the Crow. The Crow believed that he was the lost son
of one of their families. This was confirmed by a Crow woman who, after an examination, proclaimed that he was her lost son, and adopted him (Bonner 1969; Katz 1987).

Beckwourth quickly rose to tribal leadership. Renamed "Morning Star," he married the chief's daughter and led the Crow braves in raids against their Blackfeet enemies. "My faithful battle-axe was red with the blood of the enemy," he proudly noted. Soon his name was changed to "Bloody Arm." Eventually he became a chief of the Crow Indians (Katz 1987:32-33).

One of the Crows he married was Still-water. He stayed with her until 1836, when he left the Crow to return to his wandering way of life (Bonner 1969; Katz 1987).

A company of free trappers found a third Black man on the Northern Plains living with a band of Crow at the mouth of Stinking River. In 1832 one of these men, Zenas Leonard, recounted that,

In this village we found a Negro man, who informed us that he first came to this country with Lewis & Clark -- with whom he also returned to the State of Missouri, and in a few years returned again with a Mr. Mackinney, ... a trader on the Missouri river, and has remained here ever since -- which is about ten or twelve years. He has acquired a correct knowledge of their manner of living, and speaks their language fluently. He has rose to be quite a considerable character, or chief, in their village; at least he assumes all the dignities of a chief, for he has four wives with whom he lives alternately (Wagner 1904:130).
Leonard believed this was actually Edward Rose, the Black trapper (Blenkinsop 1972). However, other accounts of Rose’s integrity and Leonard’s prejudice toward Rose, based upon stories about him, would put this assumption in doubt. The man’s account may have been true, in which case he would have been York.

The identity of this individual is unknown. Several authors (Bearss 1970; Betts 1985; Wagner 1904) have suggested that he was either Rose, Beckwourth, or even the freed slave York; however, there is no substantial evidence to support any of these claims. These Black men were the precursors of an influx of Blacks that came during the latter half of the Nineteenth century.

The known Black population in the territory/state of Montana increased from these four males before 1850 to "... 183 Negroes in ... 1870, and 346 in 1880." (Durham and Jones 1965:143). This increase was a consequence of the emancipation of Blacks during the Civil War. However, they were often only welcome as long as they were in the military, cattle industry, or willing to perform menial labor (Durham and Jones 1965), although occasionally they did gain acceptance as guides, policemen, coroners, and constables (Thompson and Jacobs 1970).

Following the Civil War, Blacks who enlisted and were assigned to the western territories and states often served as soldiers, scouts, or interpreters in one of the four Black regiments. These four regiments, the 9th and 10th Cavalry and the 24th and 25th Infantry, were established in 1866 and 1869 respectively by the United
States Congress as a result of the courage and performance of Black soldiers during the Civil War (Leckie 1967; Katz 1987). "For twenty-four years these regiments campaigned on the Great Plains, along the Rio Grande, in New Mexico, Arizona, Colorado, and finally in the Dakotas" (Leckie 1967: viii).

These regiments dealt with conflicts involving both Native Americans and White settlers. However, Black soldiers were also forced to deal with the prejudice of White settlers while protecting them. In time,

[These black troopers won the respect of every military friend or foe they encountered. Their Indian adversaries, intrigued by their short, curled hair, and comparing them to an animal they considered sacred, named them the "Buffalo Soldiers." (Katz 1987:202).

However, following this service the 10th Cavalry was posted to Fort Assiniboine in north central Montana, and the 25th Infantry was posted to Fort Missoula in the 1890's (Katz 1987). "Black troops were [also] stationed at Fort Shaw in the 1890's" (Katz 1987:244). From these posts soldiers covered North Dakota and Montana; including the northwestern portion of the state that would become Glacier National Park (Nevin 173:115).

Occasionally black soldiers were assigned to white regiments where they often served as scouts or interpreters. One of these soldiers was Isaiah Dorman, a man of Black/Sioux parentage, who had
. . . worked for the army for many years and was considered "faithful and reliable in every trust." He was fluent in Sioux languages, married to a Sante Sioux woman, and had become friends with Chief Sitting Bull (Katz 1986:177).

Dorman's final assignment was to the 7th Cavalry under the command of General George A. Custer (Katz 1986). His origin and relation to the Sioux seem to have been confirmed by the observations of a Cheyenne Indian who passed over the battleground on June 26, 1876. He said:

I went riding over the ground where we had fought the first soldiers during the morning of the day before. I saw by the river, on the west side; a dead black man. He was a big man. All of his clothing was gone when I saw him, but he had not been scalped nor cut up like the white men had been. Some Sioux told me he belonged to their people but was with the soldiers (Durham and Jones 1965:234).

This was not the first time Native Americans had encountered Blacks in the service of the United States military in Montana. The 9th Cavalry had "... served in Texas, New Mexico, Kansas, Oklahoma, Nebraska, Utah, and Montana" (Durham and Jones 1965:10).

Another contribution to the influx of Blacks was the cattle drives of the late 1800s. Most of the drives to Montana originated in Oklahoma and Texas and ended in Bozeman, and Miles City, Montana. The three-million-acre XIT ranch in Texas began sending cattle to Montana in 1890 and continued through 1899 using
interracial crews. At least one of these crews a season consisted of five or six white cowboys and one or two black cowboys. Many of these black cowboys were of a mixed ancestry that included Mexicans, Indians, and Whites (Durham and Jones 1965).

Ranches like the XIT of Texas would often have more than one cattle drive a summer, and the cowboys who worked these drives took

... young steers from Texas to the finishing range in Montana. ... and before the Montana summer range closed down, many an XIT cowboy had learned the route north from Buffalo Springs, the XIT collection spot in Texas. Some became Montanans for life; to others it was always a foreign land, curious and likeable but no place to live. Presumably most of the numerous Negro XIT hands were in the second group (Durham and Jones 1965:145).

Some of those Black cowboys who stayed in Montana left the cattle business and, along with some of the Black women who had moved to the state and, set up their own businesses. One of these retired cowboys, "Nigger" Bob Leavitt, was a ranch hand on the XIT ranch in Montana. After working there, he moved to Miles City, Montana where he established his own business in the 1890s. Businesses that Black women ran often provided cowboys with a safe place to gather and visit. These women were respected by most of the surrounding range hands since they could drink and smoke with them. One of these women was Mary Fields. Mary was a Black woman who moved to Cascade, Montana in 1884, after growing up and
serving with a group of Catholic Sisters, and lived there until her death in 1914. While she lived in Cascade, she rode shotgun on the stagecoach, hauled freight, ran a restaurant and did laundry (Durham and Jones 1965; Katz 1987; Stewart and Ponce 1986).

The White population's prejudice against Blacks was probably the reason that fewer Blacks settled permanently in Montana than in other western states. This prejudiced White population increased significantly after the Civil War as a result of "... the immigration into Montana of many "unreconstructed" Southerners. ..." (Durham and Jones 1965:144). These immigrants brought their perceptions of Blacks as secondary citizens or slaves with them and treated them accordingly. Another factor was that many Blacks found themselves isolated in White communities as a result of their overall smaller population size. Among these communities were Butte, Bozeman, Great Falls, Helena, Miles City, and Missoula (Durham and Jones 1965; Katz 1987; Nevin 1973; Thompson and Jacobs 1970).

The Native Americans were often more receptive to the Black cowboys. Charles "Smokey" Wilson was an example of this acceptance. He was a "Montana Pioneer and Cowboy. He was adopted by the Crow Indians and lived with them for many years" (Stewart and Ponce 1986:54). This relationship between Blacks and the Native Americans appears to have been significant for both groups throughout the Nineteenth century.
Determining Race Using Anthroposcopic Traits:

Forensic investigators have utilized anthroposcopic observations to assess the racial affinity of unidentified human crania for more than a hundred years, because . . . it requires no expensive or delicate equipment, and there are many features that may be assessed. . . . Aspects of skull shape as determined by indices, are often not as useful as racial indicators (Rhine 1990:9).

However, in the last sixty years, forensic anthropologists such as Wilton Marion Krogman (1962, 1986), J. Stanley Rhine (1990), T. Dale Stewart (1969), and T. Wingate Todd (1929, 1930) have refined these observations to population-specific characteristics. These refinements have minimally increased the accuracy of this technique by providing several anthroposcopic observations that can be affiliated with specific racial designations, but are not always definitive for the determination of racial affinity.

Dr. Krogman explained the reason for this difficulty by noting that there . . . are really no "pure" Black skulls, or "pure" Mediterranean skulls, and so forth. There are only skulls which, to a greater or lesser degree, present a combination of traits that suggests stock or race category. As far as mixture is concerned, we simply do not know enough about human genetics to do more than hint at racial trait dominance or recessiveness in the skeleton. . . (Krogman and Iscan 1986:270).

One advantage of anthroposcopic traits is that the
"Attribution of race . . . depend upon observation rather than measurement in most cases, although some indices (Olivier 1969) may also be calculated" (Rhine 1990:9). This allows forensic specialists to assess the racial affinity of specimens from discrete visual racial traits, without becoming biased by the metric analysis. As a result of this "... there is also a tendency to lean heavily upon anthroposcopy, while resorting to anthropometry to validate a conclusion" (Rhine 1990:9).

**Determining Race Using The Giles and Elliot Method:**

For seventy years forensic specialists have attempted to use metric analysis of cranial and post-cranial skeletal material to develop a reliable method for determining the racial affinity of unidentified individuals (Derry 1923/24; Gray 1942; Hooton 1930; Hrdlicka 1942; Iscan 1983; Krogman 1964; Stewart 1935; Terry 1930; Todd 1929; Todd and Tracy 1930). These studies were only partially successful, because they could not accurately assess the racial affinity of individuals with a high degree of reliability because they were working on characteristics that were too variable (Krogman and Iscan 1986). The first technique that was widely accepted and considered reliable was the Giles and Elliot Discriminant Function Analysis (Krogman and Iscan 1986).

In 1962 Eugene Giles and Orville Elliot developed a multivariate discriminant functions analysis for the assessment of human crania. This technique was designed
to provide forensic anthropologists and non-anthropologists, such as medical
examiners and crime laboratory personnel with a method of determining the sex and
race of unidentified human skulls (Snow et al., 1979). The technique has an accuracy
of 85 percent, and can be performed with a set of spreading calipers, sliding calipers
and a calculator (Giles and Elliot 1962).

Giles and Elliot were "... concerned with presenting multivariate
discriminant function techniques as practical devices, designed for use in
identification problems ..." (Giles and Elliot 1962:148). To accomplish this goal the
authors developed a technique in which

... 8 cranial measurements are entered into two pairs of
formulas, one for females, the other for males. The
results, ..., will suggest whether the specimen should be
considered white, Negro, or Indian. In the event that
the sex of the specimen is also in question, ... (they)
included a formula using 5 of the cranial measurements
that will indicate the sex of a specimen of any of the
racial categories (Giles and Elliot 1962:148).

Giles and Elliot utilized measurements provided by Giles himself and by C. E.
Snow and F.E. Johnston. Giles’ measurements came from 408 White and Negro
crania he had selected from

... the Terry collection, at the Department of Anatomy,
Washington University School of Medicine, St. Louis
and the Todd collection, Department of Anatomy,
Western Reserve University School of Medicine,
Cleveland (Giles and Elliot 1962:148).
The Native American sample was drawn from C.E. Snow's *Indian Knoll Skeletons of Site Oh 2, Ohio County, Kentucky*, in which he published measurements of the *Indian Knoll* site osteological collection (Snow 1948). This collection numbers "... over a thousand specimens" (Giles and Elliot 1962:148).

The age, sex, and race of the White and Black specimens were based upon hospital records and forensic examinations (Giles and Elliot 1962). Their sample... had the following race and sex composition: 108 white males, 79 white females, 113 Negro males, 108 Negro females... [with] an age range... from 21 to 75 years with an average of 43.31 years and a standard deviation of 13.21 years (Giles and Elliot 1962:148).

The American Indian sample was

... not as satisfactory because there are no Indian collections where the sex is definitely known from records made at death... It has been fully published by C. E. Snow... , from whose report we have taken our measurements (Giles and Elliot 1962: 148-149).

Giles and Elliot received an unpublished copy of Snow's reassessment of the sex of the individuals in the collection. They believed this was as accurate an assessment as existed for any collection of Native American material (Giles and Elliot 1962).

The racial assessment of the specimens in the Giles and Elliot analysis was based on cultural, not biological, characteristics. As a consequence:

It seems reasonable to assume that any person showing any phenotypic evidence of Negroid admixture was
considered a "Negro" . . . [the] white sample is thus American whites, of European, predominately British, descent, and . . . [the] Negro sample has an indefinite white American and possibly Indian component . . . . There is no question about the racial affinities of the Indian Knoll population . . . (Giles and Elliot 1962:149).

because that material dates at approximately 3450 B. C., and there was is no evidence of intermixing with other populations outside North America.

The authors adopted their landmarks and the following eight (8) measurements from the second edition of E. A. Hooton's *Up From The Ape* (Giles and Elliot 1962). The eight (8) measurements are: the glabella-occipital length, maximum width, maximum diameter/bi-zygomatic, basion-bregma height, basion-nasion, basion-prosthion, prosthion-nasion, and nasal breadth. These measurements are briefly described below (Giles and Elliot 1962):

A. **Glabello-occipital length:** The maximum length of the skull as measured from glabella to opisthocranion, the most posterior point on the midline.

B. **Maximum width:** The maximum breadth of the skull as measured from euryon to euryon, superior to the supramastoid crest.

C. **Maximum diameter/bi-zygomatic:** The maximum width of the skull as measured between the lateral surfaces of the zygomatic arches.
D. **Basion-bregma height:** The maximum height of the skull as measured from basion, the midpoint of the anterior margin of the foramen magnum, to bregma, the intersection of the coronal and sagittal sutures.

E. **Basion-nasion:** As measured from basion to nasion, the intersection of the nasofrontal suture with the midsagittal plane.

F. **Basion-prosthion:** As measured from basion to prosthion, the most anterior point on the maxilla in the median sagittal plane.

H. **Prosthion-nasion height:** The height measured from prosthion, the most anterior point in the midline on the upper alveolar process, to nasion.

I. **Nasal breadth:** The maximum breadth of the nasal cavity as measured from alare to alare.

Giles and Elliot (1962) used measurements made on a sample of 75 males and 75 females from each of the following groups: Whites, Negroids, and Indians. These six samples were drawn from the original three sets of measurements provided by Giles and by Snow (Giles and Elliot 1962).
Giles and Elliot (1962) described the operation of discriminant functions as follows:

The actual calculation of the discriminant functions involves first the computation of a correlation matrix for all the variables, and then the determination of the proper numerical weights, which constitute the formulas. These weights are so calculated that when the measurements from white and Negro skulls are weighted by them, the numerical results for the Negroes tend to cluster around an arbitrary, previously chosen point and the results for the whites tend to cluster around a different arbitrary point. The weights are calculated to make the number of specimens getting into the wrong cluster as small as possible... (Giles and Elliot 1962:150). Giles and Elliot assumed that their measurements had "... a multivariate normal distribution, equal dispersion matrices, and linear correlation between variables ..." (Giles and Elliot 1962:150).

The Giles and Elliot (1962) technique assumes that all cranial material represents people of Caucasoid, Negroid, or Mongoloid ancestry. This is a severe limitation when the technique is applied to people of mixed race.

The linear functions analysis that Giles and Elliot (1962) developed used one function to separate Caucasoids from Negroids, and another to separate Caucasoids from Mongoloids. It gave a value to the sum of the White/Negroid and White/Indian calculations, after which, ...the white-Negro functions are scaled along the vertical axes, the white-Indian functions along the
horizontal axes, and the sectioning points that divide the quadrants into three parts each are indicated (Giles and Elliot 1962:151).

The calculation of the scores for any specimen involved placing the scores in the proper position in the formula. The two formulas for males were:

**White-Negro:**

\[
\begin{align*}
3.06 \text{ (Basion-prosthion)} &+ 1.60 \text{ (Glabello-occipital length)} -1.90 \text{ (Maximum width)} -1.79 \text{ (Basion-bregma height)} -4.41 \text{ (Basion-nasion)} -0.10 \text{ (Maximum diameter bi-zygomatic)} +2.59 \text{ (Prosthion-nasion height)} +10.56 \text{ (Nasal breadth)}.
\end{align*}
\]

**White-Indian:**

\[
\begin{align*}
0.10 \text{ (Basion-prosthion)} &-0.25 \text{ (Glabello-occipital length)} -1.56 \text{ (Maximum width)} +0.73 \text{ (Basion-bregma height)} -0.29 \text{ (Basion-nasion)} +1.75 \text{ (Maximum diameter bi-zygomatic)} -0.16 \text{ (Prosthion-nasion height)} -0.84 \text{ (Nasal breadth)}.
\end{align*}
\]

The sectioning point for the White-Negro formula was 89.27, and for the White-Indian formula 22.28 (Giles and Elliot 1962).

The two formulas for females were:

**White-Negro:**

\[
\begin{align*}
1.74 \text{ (Basion-prosthion)} & +1.28 \text{ (Glabello-occipital length)} -1.18 \text{ (Maximum width)} -0.14 \text{ (Basion-bregma height)} -2.34 \text{ (Basion-nasion)} +0.38 \text{ (Maximum diameter bi-zygomatic)} -0.01 \text{ (Prosthion-nasion height)} +2.45 \text{ (Nasal breadth)}.
\end{align*}
\]
White-Indian:
3.05 (Basion-prosthion) -1.04 (Glabello-occipital length)  
-5.41 (Maximum width) +4.29 (Basion-bregma height) -
4.02 (Basion-nasion) +5.32 (Maximum diameter bizygomatic) -1.00 (Prosthion-nasion height) -2.19 (Nasal breadth) (Giles and Elliot 1962:152).

The sectioning points for these formulas were reported as 9.22 for the White-Negro, and 13.01 for the White-Indian (Giles and Elliot 1962). However, Clyde Snow noted that this was a typographical error and should be 92.20 for the White-Negro formula and 130.10 for the White-Indian formula (Snow et al., 1979). This was also confirmed by a phone call from Charline Smith to Eugene Giles in 1972 (Smith 1989).

For those specimens in which the sex was in doubt, Giles and Elliot developed another discriminant function program using five (5) of the variables that were used to determine race. For purposes of this study, they only utilized specimens of known sex. This eliminated the measurements from Indian Knoll, because there is no established sample of Native American skeletal material in which sex is known from medical records or any other observation (Giles and Elliot 1962).

The formula for determination of sex was

1.16 (Glabello-occipital length) +1.66 (Basion-nasion)  
+3.98 (Maximum diameter bizygomatic) -1.00 (Basion-prosthion) +1.54 (Prosthion-nasion height) (Giles and Elliot 1962:153).
The sectioning point for this formula was 891.12 with the male sector above and the female sector below that point (Giles and Elliot).

Giles and Elliot (1962) asserted that their technique accurately assessed the racial affiliation of 82.6 percent of males and 88.1 percent of females. This was based upon the results of tests conducted on a sample of 551 males and 471 females.

The Reliability of Anthroposcopic Observations:

The modern racial triad of Caucasoid, Negroid, and Mongoloid that forensic anthropologists use was originally created by Cuvier in the Nineteenth century (Coleman 1964; Gill and Rhine 1990). These categories remain controversial, even at the present, because although forensic anthropologists do not always believe in the existence of race "... the average person perceives that patterned variability does exist, and at some level they classified human beings accordingly. Society, in other words, establishes biological categories for individuals. These become part of one's personal identification record... (Gill 1990:x-xi). As a consequence of this, forensic anthropologists are compelled to designate a specific racial affinity for unidentified individuals (Iscan 1988). To accomplish this, forensic anthropologists use anthroposcopic observations and anthropometric techniques.
Anthroposcopic observations "... for non-metric traits have long been used
to identify racial affinities of earlier human populations. These traits have been
recognized since Russell (1900) utilized a number of cranial traits to separate various
populations" (Finnegan and McGuire 1979: 547). Several researchers (Cobb 1934,
Krogman and Iscan 1986; Olivier 1969; Rathbun 1986; Stewart 1979; Todd 1929;
Todd and Tracy 1930; Wood-Jones 1930/31; Wood-Jones 1930/31; Wood-Jones
1930/31), have used anthroposcopic observations to differentiate the racial affinity of
individuals from both cranial and postcranial skeletal remains, are "... often
preferred to metric analysis as it requires no expensive or delicate equipment. It can
be accomplished rapidly, without elaborate laboratory equipment, and there are
many features that may be assessed" (Rhine 1990:9), as compared to the established
measurements and indices that have to be made to conduct a discriminant function
analysis.

Reliability of the Giles and Elliot Discriminant Functions Analysis

In 1962 Giles and Elliot developed the first discriminant function technique
for determining the racial affinity of individual specimens, including Native
Americans, from measurements made on the skull (Krogman and Iscan 1986;
Stewart 1979). The skull was chosen because it "... remains the most reliable part of
the skeleton from which to determine race" (Iscan 1988). Their technique relied on eight (8) measurements that could be taken on the skull with a set of sliding and spreading calipers. Giles and Elliot claimed an accuracy of 85 percent for their technique (Giles and Elliot 1962).

This accuracy was challenged by several researchers (Ayers, Jantz, and Moore-Jansen 1990; Birkby 1966; Fisher and Gill 1990; Gill 1981, 1984; Gill and Gilbert 1990; Hughes 1980) who claimed the technique did not accurately assess the racial affinity of specimens Native Americans found outside of the eastern woodland geographic region Giles and Elliot drew their sample from.

The primary focus of this controversy has been on the craniofacial variations between populations. Several studies have examined these differences between different populations (Brooks, Brooks, and France 1990; Curran 1990; Gill 1981, 1984; Gill and Gilbert 1990; Hughes 1980; Jantz, Owsley, and Willey 1981; Konigsberg 1990; Phipps, German, and Smith 1988; Rothhammer and Silva 1990; Sciulli 1990), however, they have not explicitly stated a method for assessing the difference between these populations. Ayers, Jantz, and Moore-Jansen (1990) have suggested that the reason for these differences may be due to the fact

... that the population contributing skeletons to anatomical collections is different from the one producing skeletons likely to end up in a forensic laboratory. Or it may be that we are witnessing secular changes in cranial morphology similar to those
They also suggest that a technique that relies upon more recent osteological material should be used whenever attempting to determine the racial affinity of modern material. However, this does not apply to material that predates the Hammand-Todd, and Terry collections and Indian Knoll, which Giles and Elliot used in formulating their technique. In my opinion the samples used by Giles and Elliot (1962) are more appropriate than the more recent samples, for my analysis, since they are closer in time to the samples that I have been examining than are modern populations.

The accuracy of this technique for assessing the race of unidentified individuals that are of an age similar to the population Giles and Elliot (1962) originally used is supported by Snow's (1979) evaluation of the technique on fifty-two (52) modern forensic cases. Snow found that Giles and Elliot's technique accurately assessed the sex of all three groups; however, it was only effective in assessing the race of Whites and Blacks. The Indian population that he used was drawn from Oklahoma and he found that it misidentified a high percentage of the sample for racial affinity (Snow et al. 1979). As a consequence the technique's reliability to assess the racial affinity of individuals from regions, other than where...
the original sample of Native American material was drawn from is uncertain (Snow 1979).
MATERIALS AND METHODS

In order to confirm whether or not osteological material that scores in the Negroid range on the Giles and Elliot discriminant functions for race actually represents the remains of people of African ancestry, I used anthroposcopic characteristics to determine whether they provided a racial assessment that agreed with the results of the Giles and Elliot (1962) technique. Since these two methods for determining race are based on completely different procedures, details, and assumptions, it is likely that when they agree in their attribution of race, this attribution can be considered reliable. Six cases that arrived at the University of Montana for analysis are included in this study. They were selected because they were classified as either "Negroid" or "Caucasoid" using the Giles and Elliot (1962) technique. Catherine J. Clark conducted the racial assessment of the first case, Dr. Charline G. Smith conducted the racial assessment of the second case, and I have assessed the race of the other four cases. In each of these cases the combined results from the Giles and Elliot discriminant function analysis and the anthroposcopic observations provide evidence that these individuals were of mixed ancestry.

All six (6) individuals are believed to date from the nineteenth century based upon cultural remains, associated artifacts, or attributes of the remains. Based upon the examinations Catherine J. Clark, Dr. Smith, and I conducted, these six
individuals represent of five (5) males and one (1) female with an age range of nineteen to sixty years. I will refer to the six cases as the "Thoracic Bison Vertebrae" case, the "Glacier County skull," MA 47-061285, Lab number 88-776, the "Flathead National Forest" case, and MA-47-85.

The following nineteen (19) observations were used in assessing the racial affinity of the six (6) individuals:

skull breadth, cranial vault height, post-bregmatic depression, complex cranial sutures, rounded forehead, face breadth, head length, keeling of the cranial vault, outer orbital shape, nasal opening, lower nasal opening, nasal profile, the shallow nasal root depression, fronto-nasal suture, maxillary tooth row, alveolar prognathism, zygomatic projection, and incisor shoveling. These anthroposcopic characteristics are described below along with a description of the differences between the typical Negroid and typical Mongoloid condition. These characters are taken from


A. **Skull Breadth:** Negroid skulls are typically narrower than Mongoloid skulls that, as a group, are the broadest.
B. **Cranial Vault Height**: Negroid crania typically have lower cranial vaults than do Mongoloids.

C. **Post-bregmatic Depression**: In Negroid crania, there is often a depression around the sagittal suture posterior to bregma, the point at which the coronal and sagittal sutures intersect. Mongoloid skulls lack this depression.

D. **Facial Breadth**: Negroids typically have narrow faces, while Mongoloids have very broad faces, corresponding to their greater skull breadths.

E. **Outer Orbital Shape**: In Negroids the outer orbital shape is square, while in Mongoloids the outer orbital shape is round.

F. **Nasal Opening**: Negroid skulls typically have a very wide nasal opening, while Mongoloids have a narrow nasal opening.

G. **Lower Nasal Opening**: Negroid skulls may have a troughed or guttered feature inside the nasal opening, and they lack the nasal sill. Mongoloids lack the gutter, and typically have a nasal sill.

H. **Nasal Profile**: Negroid nasal profiles often have a downward slant with a slight nasal root depression. Mongoloid nasal
profiles are often straight with an anterior overgrowth, and tented nasal roots.

I. **Maxillary Tooth Row**: Negroids typically have wide, rectangular maxillary tooth rows, while Mongoloids have moderately wide parabolic palates.

J. **Alveolar Prognathism**: In Negroids the alveolar often projects anteriorly beyond the lower incisors. This is not usually found in Mongoloids.

K. **Zygomatic Projection**: The zygomatic bones typically slant posteriorly in Negroids, while in Mongoloids they project significantly forward.

L. **Incisor Shoveling**: Incisor shoveling is a characteristic that is rarely found in Negroids. It is frequently found in individuals of Mongolid ancestry.

M. **Fronto-Nasal Suture**: This is a characteristic that must be observed from an inferior angle. Mongoloids typically have tented nasal bones, which are wide and slightly concave. While Negroids typically have quonset hut nasal sutures, which are low and smoothly rounded sutures.
N. **Shallow Nasal Root Depression**: This is the point inferior to nasion of the greatest curvature. Both Mongoloids and Negroids have slight depressions.

O. **Complex Cranial Sutures**: Cranial suture complexity is determined by how much they diverge from a straight suture line. Mongoloids typically have complex sutures, while Negroids have simple suture patterns.

P. **Head Length**: This is the distance between glabella and opisthocranion, and as determined by observation is usually longer in Negroids, while Mongoloids typically have shorter, rounder skulls.

Q. **Rounded Forehead**: The angle of the forehead is often high and straight in Mongoloids, while in Negroids the forehead slants at a greater angle.

R. **Keeling of the Skull**: In Mongoloids the parietals will occasionally slope toward the apex of the skull forming distinct angles on both sides. This characteristic is rarely found in Negroids.

I assigned a racial affinity to each of the specimens in this study based on the number of the above characteristics that each exhibited. These observations allowed
me to more easily discern racial intermixing than Giles and Elliot's Discriminant Function Analysis permitted (Giles and Elliot 1962).

I base my determination of whether a skull is of "pure" or "mixed" racial affinity on those anthroposcopic characteristics that appear to be less influenced by the environment. These traits include the shape of the skull, the outer orbital shape, post-bregmatic depression, zygomatic projection, and the lower nasal opening, and incisor shoveling. I also rely on the Giles and Elliot (1962) discriminant function technique. When I observe a predominant group of characteristics, and the Giles and Elliot (1962) discriminant function analysis places the score well within the same triad, I believe that the individual is of that racial affinity. However, if there is no decisive distinction between the list of anthroposcopic characteristics, and the Giles and Elliot score is near the border of the racial affinity of the two groups, I am led to believe that the individual is of mixed racial affinity.
RESULTS

The following assessments of the six (6) individuals used in this study are based upon the forensic examinations that we conducted. In these examinations, we attempted to determine the age, sex, and race of each individual.

A complete description of the individual measurements and observations for each individual is provided in Appendix A.

Thoracic Bison Vertebrae:

Catherine J. Clark received the partial remains of the first individual from Dr. Ron Rivers, the Montana State Medical Examiner. The remains were found in close proximity to a bison thoracic vertebrae; however, the location they were recovered from was not recorded. Catherine based her estimation of the age of the individual since death on the "... condition of the material [which] suggests "recent" origin (sometime in the last 100 years)" (Clark 1982:1). The presence of the Bison thoracic vertebrae are also suggestive of a burial of pre-1885 when the last of the wild herds of American Bison were decimated. Catherine based her assessment of the racial affinity of this individual on the Giles and Elliot assessment which was Negroid. The results of
the assessment were that the remains were probably those of a 23 to 26-year old male, very likely of Negroid ancestry.

**Glacier County Skull:**

The remains of the second individual, a very weathered skull, were recovered from Glacier County, Montana. Dr. Smith's assessment was that this skull probably represented a female aged 21 ± 2 years, very likely of Negro-American Indian admixture. Dr. Smith based her assessment of this individual’s racial affinity on the following anthroposcopic observations, and Giles and Elliot (1962) discriminant function analysis.

The skull shows at least two Negroid traits: the shape of the fronto-nasal suture and the shallow nasal root depression. It also shows some Caucasoid traits and some Amerindian, none of which is diagnostic.

The Giles and Elliot discriminant function analysis yields a value of 9.1 on the White - Negro scale, putting it in the Caucasian range but very near the Negro line, and 7.84 on the White - Indian scale, almost in the middle of the Caucasian range. On the other hand, the Gill method, which he asserts is much more reliable for identifying American-Indian materials, places this skull in the Amerindian range on two measures and Caucasian on one (Smith 1985:1-2).

The date at which this individual died was not ascertainable; however, Dr. Smith believed that the remains represented "...a prehistoric or protohistoric individual rather than a modern forensic case..."
(Smith 1985:1), and that they were living a Native American lifestyle at the time of their death in the Northwestern portion of Montana (Smith 1985).

MA 47-061285:

The partial skeleton of the third individual that was found near Great Falls, Montana. I examined these remains and determined that they probably represent a male aged 40 ± 2 years, 63 3/4 to 65 1/2 inches tall, probably of American Indian - Negroid ancestry. This individual was extremely ambiguous for race. The anthroposcopic observations were indeterminate. The American Indian characteristics consisted of: no alveolar prognathism, and complex cranial sutures. The Negroid characteristics included: a long head, wide nasal aperture, and square orbits.

The Giles and Elliot Discriminant Functions Analysis provided a value of 122.29 on the White-Negro scale and 29.45 on the White-Indian scale. This places it very near the Indian side of the Negro scale. At this time I do not have a copy of the individual measurements available to me that were used in the Giles and Elliot assessment. In the near future I will include these in the analysis.
The presence of trade beads is strongly suggestive of an individual that was living as an American Indian, and died between 300 and 100 years ago, since that is the period during which these beads were being used.

Lab No. 88-776:

The fourth individual was a nearly complete skeleton recovered from Richland County, Montana. My assessment indicates that these remains represent a male aged 23 to 27-years old, 63 1/2 to 65 1/3 inches tall. This individual’s racial affinity was very difficult to assess. The Negroid anthroposcopic characteristics included: a narrow skull, a narrow face, square eye orbits, posteriorly projecting zygomatics, and a rectangular maxillary tooth row. While the Mongoloid characteristics consisted of: a high cranial vault, narrow nasal opening, a nasal sill, anterior overgrowth of the nasal profile, and tented nasal roots. The Giles and Elliot discriminant functions analysis provided a value of 125.91 on the White-Negro scale and 22.37 on the White-Indian scale. This places it in the Black sector of the scale, but near the Indian sector. As a consequence of the anthroposcopic observations being indeterminate between Negroid and Mongoloid characteristics, and the Giles and Elliot discriminant functions analysis placing it in the Black sector, but near the Indian sector, I believe this individual
was of Negroid-Mongoloid ancestry. There were no cultural artifacts or archaeological data to provide an age for this individual. The condition of the skeletal remains is excellent; however, having been buried in a clay soil the condition of the remains is not inconsistent with a long term burial.

**Flathead National Forest:**

The fifth individual, a skull with three tooth fragments, was recovered from an area in the Flathead National Forest. I reexamined these remains and determined that it represents a male aged 45 to 55 years old, of Negroid-American Indian ancestry. I have based my interpretation of this individual's racial affinity on the following anthroposcopic observations and Giles and Elliot Discriminant Functions Analysis. It had square orbits, posteriorly projecting zygomatic bones, a wide nasal base, a long skull, and a narrow face. The Giles and Elliot Discriminant Functions Analysis provided a value of 134.51 on the White-Negro scale and 19.80 on the White-Indian scale. This places this skull in the Black sector, but near the Indian sector. The time since this individual died is indeterminate as a consequence of no cultural artifacts being found with the remains.
The sixth individual, a nearly complete skeleton, was recovered near Flathead Lake, Montana. My assessment was that these remains represented a male aged 50 to 60 years, 60.2 to 60.6 inches tall, and was of Negroid-American Indian ancestry. I based my assessment of racial affinity on the following anthroposcopic observations and the Giles and Elliot Discriminant Functions Analysis. The Negroid characteristics consisted of: a post-bregmatic depression, slight nasal root depression, rounded forehead, alveolar prognathism, wide nasal aperture, posteriorly projecting zygomatic bones, and low cranial vault. The Mongoloid characteristics consisted of: round outer orbits, a parabolic palate, keeling of the cranial vault, wide facial breadth, and wide cranial breadth.

The Giles and Elliot discriminant functions analysis provided a score of 98.86 on the White-Negro scale and 21.42 on the White-Indian scale. This places this individual in the Black sector; however, it is very close to the Indian sector.

Based upon this evidence and the presence of a pattern of trade beads, which had been sewn onto a piece of material that later deteriorated leaving the beads adhering to the lower end of the right humerus in the
soil surrounding the bone. I believe that this individual was of Black-Native American ancestry, and was living as a Native American at the time of his death, and that he had died in the late nineteenth century or early twentieth century. This date is based upon the Dr. Carling Malouf's assessment of the beads.
DISCUSSION:

In this section I will explain the importance of Blacks on the Northern Plains and Southern Plateau in the Nineteenth century, and why they were respected and even adopted by some of the tribes. I will then correlate the locations where the six individuals used in this study were found, with the regions that were historically inhabited by specific groups of Native Americans. Finally I will discuss the reliability of some of the metric and non-metric techniques that are currently used in determining the racial affinity of osteological remains.

Reasons that Blacks were accepted by the Northern Plains Tribes during the Nineteenth Century.

According to Bearss (1970), Hafen (1972), and McGinnis (1993), many of these individuals, especially men, were accepted by the Crow, Blackfoot, Mandan, Aricara and some other groups. The reason that these individuals were accepted is exemplified by the Crow Indians who from the time they entered the Northern Plains were surrounded by enemies. As a consequence they developed the habit of individual families adopting individuals who were not Crow as their children or relations.
The Crow were more humane in their treatment of captives than most other Plains Indians. They and the Hidatsa were the only tribes of the region, who, in battle, would take women and children prisoners. The others would dash out the captives' brains.

The male children were encouraged to become Crow warriors. This was especially important, because the loss of a boy or warrior was a great misfortune to the village, for there would be one less to defend the village or participate in the hunt. These children were not always adopted by those capturing them. This only happened "when those who had taken them...[had] recently lost by sickness some of their own children, to which the prisoner child...[was] supposed to bear a resemblance." Those not adopted were treated kindly, and their feelings toward their masters soon became similar to those of a child toward his parents (Bearss 1970:5).

The Crow extended this habit to include adult males who were not just ceremonially adopted, but often attained tribal affiliation. These included both Black and White mountain men, cowboys, and anyone else that could be assimilated within the tribe. Two examples of this practice in the late 1800s and the mid-1900s are, Thomas H. Leforge and Dale K. McGinnis. Leforge was a white soldier the Crow adopted in the late 1800's, and Dale K. McGinnis is a cultural anthropologist who was adopted by the Old Crow Matrilineage in 1967. Mr. McGinnis was formally recognized by Mr. Joseph Medicine Crow in 1983 at Crow Fair by his Crow name, which meant that he is considered by the Crow as one of their own (McGinnis, 1993).
Correlation of Study Specimens and Known Native Americans:

During the Nineteenth century seven groups of Native Americans: Bitterroot Salish, Blackfeet, Crow, Assiniboine, Gros Ventre, Cheyenne, and Lakota were indigenous to the Montana Territory. The Bitterroot Salish were located in the Bitterroot Valley in west central Montana. The Blackfeet inhabited a region from northwestern Montana east and southeast through the central part of the state. Immediately south of the Blackfeet's territory were the Crows, which inhabited the region from Yellowstone to the eastern part of the state. The Assiniboine and Gros Ventre were located in the northeastern portion of the state. The Cheyenne were located in the Southeastern portion of the state, and the Lakota moved into the eastern portion of the state (McGinnis 1972; Oswalt 1978; Waldman 1985).

The location where the thoracic bison vertebrae case was recovered is unknown, so it is not possible at this time to correlate this case with a particular Native American group. Glacier County Skull, MA 47-061285, Flathead National Forest, and MA-47-85, were recovered from regions that had been inhabited by the Blackfeet. Lab No. 88-776, was recovered from the region inhabited by the Assiniboine, Gros Ventre, and Lakota.

When these correlations between where the Native populations lived and the six individuals were recovered are compared with where the ethnohistorical evidence suggests that Black mountain men, cowboys, soldiers, and settlers had lived, and
occasionally developed and maintained relations with the Native Americans of the Northern Plains through the Nineteenth century it becomes likely that there was intermixing between the two populations. I believe, this intermixing between the two populations, and the movement of blacks of mixed ancestry to Montana from other parts of the United States are two reasons why osteological material from the Northern Plains and Southern Plateau is occasionally classified as Negroid by the Giles and Elliot Discriminant Functions Technique and anthroposcopic observations.
SIGNIFICANCE OF THE DATA ANALYSIS:

Based upon the evidence presented here I believe that I have discovered part of the reason that the Giles and Elliot Discriminant Functions Technique assesses skeletal material from the Northwestern Plains as Black. Rather than such cases representing a discrepancy in the technique, it is possible that at least some of them are actually the remains of Black people. This has not been previously recognized by forensic specialists due to a widespread and persistent error in the perception of the people conducting the analysis, who have assumed that Blacks were not present on the Northwestern Plains during the Nineteenth century. Since it can be demonstrated that Black mountain men, cowboys, soldiers, and settlers were present in the region that would become Montana and that the Blacks and Native Americans there were likely intermixing over the last one hundred and ninety years, as demonstrated by the taking of wives by Blacks, I believe that the Giles and Elliot Discriminant Functions Analysis does accurately assess the racial affinity of skeletal material from the Northern Plains and Southern Plateau. Further evidence in support of this hypothesis is drawn from the specimens that were examined at the University of Montana, and which had been collected from five locations in Montana. The Glacier County Skull, Flathead National Forest skull, and MA-47-85, which was found near Flathead Lake, were recovered from the northwestern
region of Montana in an area that had been occupied by both the Blackfoot Indians and in the late nineteenth century the United States 10th Cavalry and 25th Infantry were stationed to this region. MA 47-061285 was found near Great Falls, Montana which was an area that Black settlers such as Mary Fields, the United States Cavalry, the Blackfoot, and Crow Indians had occupied. CASE NO. 88-776 was recovered from near Glendive, Montana, a city east of Miles City, Montana. This region was occupied by Gros Ventre, Assiniboine, and Lakota Indians during the nineteenth century, and in the later part of the nineteenth century by Black cowboys working the cattle drives.

Future research should focus on refining the techniques we use to assess racial affinity, rather than to naively assume that the techniques that have already been developed are inaccurate.
Appendix A:

Thoracic Bison Vertebrae:

The partial remains of the first individual were received from Dr. Ron Rivers, the Montana State Medical Examiner, in December 1981. The remains were found in close proximity to a bison thoracic vertebrae; however, the location they were recovered from was not recorded.

Skeletal Inventory:

Skull - in good shape, no damage.

Scapula - the left scapula is present, no damage.

Humerus - the right humerus is present, it has some minor damage on the proximal end.

Ulna - the left ulna is present, there is minor damage on the distal end.

Miscellaneous small Bones -- phalanges, partial rib, were not assessed.

Age:

Catherine based her estimate of age, 23-26 years of age, on cranial suture closure, dental attrition and epiphyseal closures in the post-cranial material.
The Cranial sutures provided an age of 28.6 ± 3.28 years. The dentition showed only moderated cusp wear. The epiphyseal suture closures provided ages of 18-20 years for the Scapula, 23 years for the Ulna, and 23-34 years for the Humerus (Clark 1982).

Sex:

Catherine based her interpretation of this individual’s sex on anthroposcopic observations and Giles and Elliot’s Discriminant Function Analysis.

Despite the relative small size of the skull (and post-cranial bones), this skull exhibits a general male morphology, evidence of a somewhat rigid musculature (temporal line and occipital region), proportionately large lower face (large nasal and sinus cavities, relatively large palate and dentition). Discriminant Function (as per Giles and Elliot) concurs.

Race:

Catherine based her assessment of this individual’s racial affinity on the Giles and Elliot discriminant function analysis, which classified it as Negroid.
Glacier County Skull:

This skull was recovered in Glacier County, Montana.

Skeletal Inventory:

Skull -- in very weathered condition.

Dentition -- The maxillary molars were present.

Age:

Dr. Smith based her estimate of 21 ± 2 years of age on dental attrition and ectocranial suture closure.

The first molars show moderate wear . . .; the second molars show little wear, and the third molars show no wear, typical of recently erupted teeth. The fact that the third molars are erupted suggests that this individual was at least 18 to 21 years of age. Cranial sutures, including the . . . basilar, are open, characteristic of a young individual, probably not more than 21 years old (Smith 1985).

Sex:

Dr. Smith based her interpretation of this individual’s sex on anthroposcopic observations and Giles and Elliot’s Discriminant Function Analysis.

This skull exhibits typical female traits: high rounded forehead, smooth contours, parietal bossing, small overall size, small mastoid processes, and high palate. Further, the Giles and Elliot discriminant
functions analysis based on cranial measures, provides a value of 866.12. The cutoff point is 892, below which is considered to be the female range (Smith 1985).

Race:

Dr. Smith based her assessment of this individual's racial affinity on the following observations, measurements, and characteristics.

The skull shows at least two Negroid traits: the shape of the fronto-nasal suture and the shallow nasal root depression. It also shows some Caucasoid traits and some Amerindian, none of which is diagnostic.

The Giles and Elliot discriminant functions analysis yields a value of 9.1 on the White - Negro scale, putting it in the Caucasian range but very near the Negro line, and 7.84 on the White - Indian scale, almost in the middle of the Caucasian range. On the other hand, the Gill methods, which he asserts is much more reliable for identifying American-Indian materials, places this skull in the Amerindian range on two measures and Caucasian on one (Smith 1985:1-2).

She believed that this individual was living as an Amerindian at the time of his death, and was probably of Negro-American Indian ancestry. See Table 1 for the individual measurements and Figure 1 for the individual graph plot of the measurements.
Table 1. Cranial Measurements and Calculations utilizing Giles and Elliot's (1962) Discriminant Functions Analysis of Glacier County Skull

<table>
<thead>
<tr>
<th>Cranial Measurements</th>
<th>WHITE-NEGRO</th>
<th>WHITE-INDIAN</th>
<th>SEX</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>FACTOR</td>
<td>FACTOR</td>
<td>FACTOR</td>
</tr>
<tr>
<td>Basion-Prosthion Height</td>
<td>96.000</td>
<td>1.740</td>
<td>3.050</td>
</tr>
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<td>Glabelllo-Occipital Length</td>
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<td>1.280</td>
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<tr>
<td>Maximum Width</td>
<td>137.000</td>
<td>-1.180</td>
<td>-5.410</td>
</tr>
<tr>
<td>Basion-Bregma Height</td>
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<td>-0.140</td>
<td>4.290</td>
</tr>
<tr>
<td>Basion-Nasion Height</td>
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<td>-4.020</td>
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<td>bizygomatic</td>
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<td>5.620</td>
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<td>Prosthion-Nasion Height</td>
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<td>-0.010</td>
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</tr>
<tr>
<td>Nasal Width</td>
<td>28.000</td>
<td>2.450</td>
<td>-2.190</td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| FEMALE |

| TOTALS | 91.040 | 78.350 | FEMALE |

Figure 1. Plot of Glacier County Skull Discriminant Function Analysis.
MA 47-061285:

The third individual's partial skeleton that was found near Great Falls, Montana.

Skeletal Inventory:

The remains consist of a nearly complete adult skeleton. Only the left patella, left fibula, and some carpal and tarsal bones are unaccounted for.

Age:

I have based my estimate of 40 ± 2 years of age for this individual on dental attrition, the pubic symphysis, and ectocranial suture closure. The dental wear appears to be consistent with a middle aged adult. I estimated the age of the pubic symphyseal faces at between 38 and 42 years of age. From an examination of the ectocranial sutures I arrived at an age of 40 to 45 years.

Sex:

I based my assessment of sex on anthroposcopic observations: enlarged supraorbital tori, large mastoid processes, and dull superior orbital border, and the Giles and Elliot discriminant functions analysis that produced a score of 954.99, considerably higher than the sectioning point of 892.00.
Race:

This individual was extremely ambiguous for race. The anthroposcopic observations were indeterminate. The American Indian characteristics consisted of: no alveolar prognathism, and complex cranial sutures. The Negroid characteristics included: a long head, wide nasal aperture, and square orbits.

The Giles and Elliot Discriminant Functions Analysis provided a value of 122.29 on the White-Negro scale and 29.45 on the White-Indian scale. This places it very near the Indian side of the Negro scale. At this time I do not have a copy of the individual measurements available to me that were used in the Giles and Elliot assessment, in the near future I will include these in the analysis.

The presence of seed beads is strongly suggestive of an individual that was living as an American Indian. Based upon the cumulative evidence I believe this individual was of Negroid - Mongoloid ancestry, but was living as an American Indian at the time of his death.
CASE NO. 88-776:

The remains of the fourth individual, a nearly complete skeleton, were recovered from near Glendive, Montana.

Skeletal Inventory:

Skull  --  in excellent condition
Mandible  --  in excellent condition
Dentition  --  All of the maxillary teeth, except M2, are present
              All of the mandibular teeth, except the four incisors, are present.
Clavicles  --  both are present and complete
Scapula  --  both are present and complete
Humerus  --  both are present and are in excellent condition
Radius  --  both are present and complete
Ulna  --  both are present and complete
Carpals and
Phalanges  --  A few bones were present
Vertebrae  --  Atlas, Axis, and two other cervical vertebrae are present.
              The twelve (12) thoracic vertebrae are present
The five (5) lumbar vertebrae are present

Sacrum -- is complete

Coccyx -- is missing

Sternum -- the sternal body is present

Ribs -- all are present and complete, except for the first right rib

Coxal Bones- both are present, but fractured

Femur -- the left is complete, and the right is present, but missing the head

Tibia -- the left is missing the distal end, and the right is complete

Fibula -- both are present and complete

Tarsals and Phalanges -- a few individual bones are present

Age:

I based my estimate of 23 to 27-years-of age on dental attrition, ectocranial suture closure, the pubic symphysis, auricular surface, and epiphyseal suture closure. The occlusal surfaces of the third molars show a slight amount of wear; however, the crenulations on all four surfaces are still very distinctive which is indicative of a younger individual. The pubic symphysis shows some wear from erosion which made a comparison with the Todd collection standards tenuous. My comparison with the
Todd collection standards provided an age correlation of 23 to 25 years-of-age. A visual assessment of the ectocranial suture closure provides an age of 32 years-of-age with a range of 19-48 years-of-age. The visual assessment of the auricular surfaces provided a range of 24 to 34-years-of-age.

The epiphyses of the left posterior iliac crest and the posterior and medial superior part of the right iliac crest show evidence of recent fusion. These are supposed to fuse by age 23, according to Bass, 1987. The medial surfaces of both clavicles are incompletely fused. They are supposed to be completely fused "... (in most individuals by age 25)" (Bass 1987:124). Both scapulas have a small area on the superior medial border that is incompletely fused; however, according to Bass 1987, the scapula is supposed to be completely fused by age 23. Based upon these observations I have assessed the age of this individual at between 23 and 27 years-of-age.

Sex:

I based my interpretation of this individual's sex on the following anthroposcopic observations: overall large size of the skull, dull superior orbital borders, large supraorbital tori, the width of the greater sciatic notch, and the overall robusticity of the long bones. The Giles and Elliot discriminate functions analysis produced a score of 912.76, which is above the sectioning point of 892.00.
Race:

This individual's racial affinity was very difficult to assess. The Negroid anthroposcopic characteristics included: a narrow skull, a narrow face, square eye orbits, posteriorly slanting zygomatics, and a rectangular maxillary tooth row. While the Mongoloid characteristics consisted of: a high cranial vault, narrow nasal opening, a nasal sill, anterior overgrowth of the nasal profile, and tented nasal roots. The Giles and Elliot discriminate functions analysis provided a value of 125.91 on the White-Negro scale and 22.37 on the White-Indian scale. This places it in the Black sector of the scale, but near the Indian sector. See Table 2 for the individual measurements and Figure 2 for the individual graph plot of the measurements.

As a consequence of the anthroposcopic observations being indeterminant between Negroid and Mongoloid characteristics, and the Giles and Elliot discriminate functions analysis placing it in the Black sector, but near the Indian sector, I believe this individual was of Negroid-Mongoloid ancestry.
Table 2. Cranial Measurements and Calculations utilizing Giles and Elliot's (1962) Discriminant Functions Analysis of CASE NO. 88-776

<table>
<thead>
<tr>
<th>MALE</th>
<th>Cranial Measurements</th>
<th>WHITE-NEGRO</th>
<th>WHITE-INDIAN</th>
<th>SEX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FACTOR</td>
<td>FACTOR</td>
<td>FACTOR</td>
<td>FACTOR</td>
</tr>
<tr>
<td>Basion-Prosthion Height</td>
<td>101.000</td>
<td>3.060</td>
<td>309.060</td>
<td>0.100</td>
</tr>
<tr>
<td>Glabella-Occipital Length</td>
<td>187.000</td>
<td>1.600</td>
<td>299.200</td>
<td>-0.250</td>
</tr>
<tr>
<td>Maximum Width</td>
<td>130.000</td>
<td>-1.900</td>
<td>-247.000</td>
<td>-1.560</td>
</tr>
<tr>
<td>Basion-Bregma Height</td>
<td>130.000</td>
<td>-1.790</td>
<td>-232.700</td>
<td>0.730</td>
</tr>
<tr>
<td>Basion-Nasion Height</td>
<td>101.000</td>
<td>-4.410</td>
<td>-445.410</td>
<td>-0.290</td>
</tr>
<tr>
<td>Bizygomatic</td>
<td>131.000</td>
<td>-0.100</td>
<td>-13.100</td>
<td>1.750</td>
</tr>
<tr>
<td>Prosthion-Nasion Height</td>
<td>70.000</td>
<td>2.590</td>
<td>181.300</td>
<td>-0.160</td>
</tr>
<tr>
<td>Nasal Width</td>
<td>26.000</td>
<td>10.560</td>
<td>274.560</td>
<td>-0.840</td>
</tr>
</tbody>
</table>

TOTALS | 125.910 | 22.370 | MALE

Figure 2. Plot of CASE NO. 88-776 Discriminant Function Analysis.
Flathead National Forest:

The remains of the fifth individual, a complete cranium, were recovered from the Flathead National Forest. I examined the remains in 1991.

Skeletal Inventory:

Skull -- in poor condition

Mandible -- in good condition

Age:

I base my estimate of 45 to 55-years-of age on ectocranial suture closure, using Meindle and Lovejoy’s technique (Meindle and Lovejoy 1985). This gave a mean of 51.9 years of age with a range of 33 to 76-years-of age.

Sex:

I based my interpretation of this individual’s sex on the following anthroposcopic observations: large supraorbital browridges, large mastoid processes, rugged nuchal area, and dull superior orbital borders, and the Giles and Elliot formula which provided a score of 935.03.
Race:

I have based my interpretation of this individual’s racial affinity on the following anthroposcopic observations and Giles and Elliot Discriminant Functions Analysis. It had square orbits, posteriorly slanting zygomatic bones, a wide nasal base, a long skull, and a narrow face. The Giles and Elliot Discriminant Functions Analysis provided a value of 134.51 on the White-Negro scale and 19.80 on the White-Indian scale. This places this skull in the Black sector, but near the Indian sector. See Table 3 for individual measurements and Figure 3 for the individual graph plot of the measurements. Based upon these attributes I believe that this individual may have been of Black-Native American ancestry.
Table 3. Cranial Measurements and Calculations utilizing Giles and Elliot’s (1962) Discriminant Functions Analysis of Flathead National Forest

<table>
<thead>
<tr>
<th>MALE</th>
<th>Cranial Measurements</th>
<th>WHITE-NEGRO</th>
<th>WHITE-INDIAN</th>
<th>SEX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basion-Prosthion Height</td>
<td>100.000</td>
<td>3.060</td>
<td>309.000</td>
</tr>
<tr>
<td></td>
<td>Glabella-Occipital Length</td>
<td>167.000</td>
<td>1.600</td>
<td>299.200</td>
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<tr>
<td></td>
<td>Maximum Width</td>
<td>139.000</td>
<td>-1.900</td>
<td>-264.100</td>
</tr>
<tr>
<td></td>
<td>Basion-Bregma Height</td>
<td>153.000</td>
<td>-1.780</td>
<td>-238.070</td>
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<tr>
<td></td>
<td>Basion-Nasion Height</td>
<td>98.500</td>
<td>-4.100</td>
<td>-434.385</td>
</tr>
<tr>
<td></td>
<td>bizygomatic</td>
<td>137.000</td>
<td>-0.100</td>
<td>-13.700</td>
</tr>
<tr>
<td></td>
<td>Prosthion-Nasion Height</td>
<td>71.000</td>
<td>2.590</td>
<td>183.890</td>
</tr>
<tr>
<td></td>
<td>Nasal Width</td>
<td>28.000</td>
<td>10.560</td>
<td>295.680</td>
</tr>
<tr>
<td></td>
<td>TOTALS</td>
<td>134.515</td>
<td>19.805 MALE</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3. Plot of Flathead National Forest Discriminant Function Analysis.
MA-47-85:

I examined the remains of the sixth individual, a nearly complete skeleton, in 1989.

Skeletal Inventory:

Skull -- in excellent condition
Mandible -- in excellent condition
Dentition -- all of the teeth were present
Clavicles -- both are present and complete
Scapula -- both are present and complete
Humerus -- both are present and complete
Radius -- both are present and complete
Ulna -- both are present and complete
Carpals and
Phalanges -- seven carpals and nine phalanges are present
Vertebrae -- twenty-four (24) vertebrae are present
Sacrum -- is complete, except for the right fifth posterior sacral foramina
Coccyx is missing
Sternum -- the manubrium and sternal body are present and complete

Ribs -- all twelve are present

Coxal Bones -- both are present and complete

Femur -- both are present

Tibia -- both are present and complete

Fibula -- the right fibula is present and complete

Patella -- the right patella is present and complete

Tarsals and Phalanges -- there are two tarsals, seven metatarsals, and ten phalanges present

Age:

I based my estimate of 50 to 60-years-of age on the pubic symphysis, auricular surface, and ectocranial suture closure. The pubic symphysis provided an age of 50 to 65. The auricular surface provided an age of 60 to 65, and the ectocranial suture closure provided a mean age of 56.2 years with a range of 34 to 38-years-of age.
Sex:

I based my interpretation of this individual’s sex on the following anthroposcopic observations: large overall size, shallow and broad palate, supraorbital tori, robust nuchal region, the greater sciatic notch width, and the robusticity of the long bones. The Giles and Elliot discriminant functions analysis produced a score of 953.14 which is considerably higher than the sectioning point of 892.00 that Giles and Elliot set for differentiating males and females.

Race:

This individual’s racial affinity was more ambiguous than the other individuals in this study. I based my assessment of racial affinity on the following anthroposcopic observations and the Giles and Elliot Discriminant Functions Analysis. The Negroid characteristics consisted of: a post-bregmatic depression, slight nasal root depression, rounded forehead, alveolar prognathism, wide nasal aperture, posteriorly slanting zygomatic bones, and low cranial vault. The Mongoloid characteristics consisted of: round outer orbits, a parabolic palate, keeling of the cranial vault, wide facial breadth, and wide cranial breadth.

The Giles and Elliot discriminant functions analysis provided a score of 98.86 on the White-Negro scale and 21.42 on the White-Indian scale. This places this individual in the Black sector; however, it is very close to the Indian sector. See Table
4 for individual measurements and Figure 4 for the individual graph plot of the measurements.

Based upon this evidence and the presence of a pattern of trade beads that were adhering to the lower end of the right humerus. I believe that this individual was of Black-Native American ancestry, and was living as a Native American at the time of his death.
Table 4. Cranial Measurements and Calculations utilizing Giles and Elliot's (1962) Discriminant Functions Analysis of MA-47-85

<table>
<thead>
<tr>
<th>Cranial Measurements</th>
<th>WHITE-NEGRO FACTOR</th>
<th>WHITE-NEGRO FACTOR</th>
<th>WHITE-INDIAN FACTOR</th>
<th>WHITE-INDIAN FACTOR</th>
<th>SEX FACTOR</th>
<th>SEX FACTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basion-Prosthion Height</td>
<td>100.00</td>
<td>3.060</td>
<td>308.00</td>
<td>0.100</td>
<td>10.000</td>
<td>-1.000</td>
</tr>
<tr>
<td>Glabella-Occipital Length</td>
<td>189.00</td>
<td>1.600</td>
<td>302.400</td>
<td>-0.250</td>
<td>-47.250</td>
<td>1.180</td>
</tr>
<tr>
<td>Maximum Width</td>
<td>137.00</td>
<td>-1.900</td>
<td>-260.300</td>
<td>-1.560</td>
<td>-213.720</td>
<td>219.240</td>
</tr>
<tr>
<td>Basion-Bregma Height</td>
<td>128.00</td>
<td>-1.790</td>
<td>-229.120</td>
<td>0.730</td>
<td>93.440</td>
<td>93.440</td>
</tr>
<tr>
<td>Basion-Nasion Height</td>
<td>106.00</td>
<td>-4.410</td>
<td>-467.460</td>
<td>-0.250</td>
<td>-30.740</td>
<td>1.890</td>
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<tr>
<td>Bzygomatic</td>
<td>139.00</td>
<td>-0.100</td>
<td>-13.900</td>
<td>1.750</td>
<td>243.250</td>
<td>3.980</td>
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<tr>
<td>Prosthion-Nasion Height</td>
<td>68.00</td>
<td>2.590</td>
<td>176.120</td>
<td>-0.160</td>
<td>-10.860</td>
<td>1.540</td>
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<tr>
<td>Nasal Width</td>
<td>27.00</td>
<td>10.560</td>
<td>285.120</td>
<td>-0.840</td>
<td>-22.680</td>
<td>953.140</td>
</tr>
</tbody>
</table>

TOTALS 198.860 21.420 MALE

Figure 4. Plot of MA-47-85 Discriminant Function Analysis.
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