The phenomenon of age-set organization has been of long-standing interest to anthropologists; these systems have been described for a variety of cultures in Africa, Melanesia, South America, Taiwan, and the North American Plains (Ritter 1980:87). In North America, age-sets were restricted geographically to five Northern Plains tribes: Mandan, Hidatsa, Arapaho, Atsina (or Gros Ventre), and Blackfoot (Lowie 1916:951; Ritter 1980:98; Stewart 1977) (see Figure 1). Similar to age-set systems of Africa and elsewhere, but unlike other sodalities, Plains Indian age-sets consisted of ranked relatively homogeneous age-groups (or sets). Sequential passage by age-sets through grades required formalized rites of passage (Lowie 1916:154).

Yet, while anthropologists have made significant advances in explicating the structure, function, and historical connections of age-set systems, there remains an elusive problem. This problem concerns the evolution and spread of these systems and is particularly evident in the anthropological literature dealing with historic Plains Indian social organization. Simply phrased, why did a handful of Northern Plains tribes possess age-set organizations while most other Plains tribes possessed coordinate (nongraded) organizations? In other words, what caused the Mandan, Hidatsa, Arapaho, Atsina (Gros Ventre), and Blackfoot to rank their men (and sometimes women) into age-sets that collectively passed through a graded series of honors, privileges, duties and obligations? The purpose of this paper is to unravel this problem and suggest a solution.

A review of previous research on age-set systems in North America and Africa indicates that the problem of their evolution and spread has not been ignored (Lowie 1916:953; Whyte 1944:69; LeVine and Sangree 1962:97; deWolf 1980:305; Ritter 1980:87). However, the explanatory importance and extent of discussion of this issue has varied according to the theoretical and research biases of the investigators. Therefore, this paper summarizes previous research paradigms in order to appraise their usefulness in explaining age-set organizations among historic Plains tribes. Studies of African age-set systems are assessed because they offer theoretical insights into the Northern Plains situation. The problem of age-set distribution among Historic Plains tribes is analyzed, and a theory is advanced to account for the origin and
**Historic Plains Tribes with Age-Set Systems.**

Figure 1.


diffusion of age-set systems among precontact Northern Plains tribes. These paradigms are examined in the following order: 1) Historical Particularism; 2) Structural-Functionalism; 3) Cultural Dynamics or the Acculturation School; and 4) the Holocultural Approach.

**theoretical approaches to age-set organization**

**historical particularism** Under the aegis of Franz Boas, American anthropology turned away from the evolutionary approaches that dominated late 19th-century anthropological
thought toward an empirical concern for the historical development of customs and beliefs (Boas 1940:276; Moses 1984:111). According to Boas the crux of this approach was “a detailed study of customs in their relation to the total culture of the tribe practicing them, in connection with an investigation of their geographical distribution” (Boas 1940:276).

Under the Boasian program, anthropologists such as Lowie, Kroeber, Wissler, and others undertook exhaustive descriptive studies of American Indian cultures, including military societies of Plains tribes (Lowie 1916; Kroeber 1902, 1908; Wissler 1913). These descriptive studies demonstrated the existence of two structural types of Plains military societies: age-societies, where membership in a graded series of associations was based on relative age and collective purchase; and nongraded or coordinate societies, where neither age nor collective purchase were criteria for membership (Lowie 1916:919).

By using what Lowie called “Pattern Theory,” the historical development and diffusion of Plains societies could be unraveled. By “Pattern Theory” Lowie meant a diffusion process whereby the form a military society will take when borrowed from another tribe depends on the already extant pattern of the incorporating tribe (Lowie 1913:149). This pattern would become visible through the presence or absence of cultural elements such as badges, regalia, dances, and ritual paraphernalia. Lowie’s comparative study of Plains age-societies was significant for empirically establishing the common features of age-set systems among the five tribes.

He concluded that the age-set system developed as a later, more specialized form of the coordinate system. Further, he showed that age-sets originated with the agricultural Mandan, diffused to the nearby Hidatsa, and then to the Arapaho, Gros Ventre and Blackfoot (Lowie 1916:951, 953–954). However, nowhere in his analysis of Plains age-societies does Lowie address the question of which cultural conditions fostered the origin and spread of these systems. No hypotheses are offered to account for the origin of Mandan age-sets or why they diffused to those four other tribes and not others.

The fact that Lowie did not explain the causes of age-set organization among Plains Indians is not surprising; it is consistent with the tenets of Historical Particularism. What is surprising is that Lowie, in the Appendix of his study pertaining to Melanesian age-sets, suggests a functional hypothesis between the development of age-sets and concern for social prestige: that in societies where prestige and social status are based on pecuniary sacrifice or purchase, degrees are accorded based on the number of such sacrifices made. Lowie adds that by viewing these grades as a form of property indicative of rank, their purchase becomes clear. Lowie’s remarks are intriguing because one major component of all Plains age-set systems is the pattern of collective purchase as a condition for advancement. This hypothesis of Lowie’s anticipated by several decades the functionalist and acculturationist approach to age-set organization. This hypothetical relationship between age-set formation and social prestige, clearly realized by Lowie, remained untested on Plains data by historical particularists, and had to await the paradigm shifts that brought functional problems into sharper theoretical focus.

**structural-functionalism** In contrast to the historical and diffusionist perspectives, which largely dominated the research interests of historical particularists, Structural-Functionalism was an approach to social anthropology that centered on the synchronic analysis of social systems (Radcliffe-Brown 1950: 1-2; Radcliffe-Brown and Forde 1950). Because they viewed human societies as integrated systems, structural-functionalists restricted research to the forms, functions, and interrelations of institutions and social relations: what Radcliffe-Brown called “social morphology” (1948:56). “Explanations” of social phenomena were phrased in terms of the contributions they made to the maintenance of the individual and society.

Anthropologists (primarily British) working in Africa relied on the structural-functionalist paradigm to explicate key features of African social systems, including complex age-set organizations (Evans-Pritchard 1940; Huntingford 1953; C. D. Laughlin and E.R. Laughlin 1974; Wilson 1949, 1951). Two studies in particular, one by Bernardi on Nilo-Hamitic age-sets (1952),

*Plains Indian age-grading* 351
and the other by LeVine and Sangree on East African age-set organization (1962) are reviewed here because they try to account for age-set organization. These studies have been previously reviewed by Ritter (1980) for their holocultural implications, but are discussed here because of their theoretical significance to age-set development in the Northern Plains.

In his study of Nilo-Hamitic age-sets, Bernardi made three key observations: 1) that Nilo-Hamitic patrilineal descent groups consisted of minimal and maximal territorial organizations; 2) that these descent groups were dispersed, weakening the interests of core fraternal groupings; and 3) that Nilo-Hamitic tribes were politically decentralized (Bernardi 1952:324–325). Based on these observations, Bernardi concluded that age-sets functioned to integrate dispersed kin groups within and between territorial segments. Thus, age-sets functioned as an alternative to true political centralization (Ritter 1980:88), and were explained in terms of this integrative function.

In another study, LeVine and Sangree used the method of controlled comparison to investigate the diffusion of age-set organizations among tribes in East Africa (LeVine and Sangree 1962; Eggan 1954). They questioned why some Bantu-speaking peoples borrowed age-sets and associated rituals from their non-Bantu neighbors, while other Bantu peoples in the same region did not (LeVine and Sangree 1962:97). They concluded that age-groups diffused to those tribes in need of military alliances due to small populations, frequent warfare, or both (LeVine and Sangree 1962:108). Age-sets diffused because dominant tribes made age-set membership a condition for alliance and because tribes in need of alliances equated age-set organization with military success (LeVine and Sangree 1962:97). In addition, diffusion was enhanced by the fact that age-sets can co-exist with descent groups, so that a tribe would not need to change its kinship system in order to accept age-set organization (LeVine and Sangree 1962:97).

If these hypotheses are applied to the problem of differential age-set development among historic Plains tribes, how do they fare? The “Bernardi hypothesis” predicts age-set organization as a means of integrating dispersed kin groups in societies lacking centralized political authority (Ritter 1980:88). While it is probably true that the five Plains tribes possessing age-sets were characterized by dispersed descent groups (bilateral kindred and fluid band structure among the nomads, and dispersed matrilineal clans among the Mandan and Hidatsa), they do not appear to have been any more dispersed or politically decentralized than tribes—such as the Crow, Lakota, or Kiowa—that possessed coordinate organizations. Coordinate military organization was an equally adaptive integrator, and equally predictable given Bernardi’s variables. The LeVine and Sangree hypothesis predicts that age-set systems will diffuse to societies engaged in frequent warfare and in need of alliances. Again, this hypothesis suffers from the same difficulty as the “Bernardi hypothesis” when applied to Plains tribes: specified variables do not successfully predict one form of Plains military organization over another. All Plains tribes were engaged in frequent warfare, and many were in need of alliances, but not all developed age-sets when alliances were formed, despite the presence of an age-set model. The LeVine and Sangree study has been similarly criticized on the basis of East African data as well (deWolf 1980). In addition, LeVine and Sangree did not attempt to account for pristine age-set development, but only its diffusion.

In sum, the two functional hypotheses derived from these studies, while observing correlations between specific variables and age-set systems, fail to explain how alternative organizations developed in the presence of those same variables. Thus, these hypotheses isolated necessary variables for a general theory of military organization: dispersed kin groups, frequent warfare, and decentralized political systems; yet these are not sufficient to explain age-set organization. Other variables remained unknown.

acculturation-cultural dynamics  Like the Africanists, North American ethnologists embraced the structural-functional approach as a means of comprehending aboriginal social systems (Eggan 1937). However, American anthropologists incorporated functionalism with an
ongoing interest in historical development and change. This theoretical syncretism resulted in the Acculturational school: an approach to ethnography and ethnology that focused on culture contact and change resulting from Euro-American contact. Acculturation studies proliferated during the 1930s and 1940s, exemplified by Linton's classic edition, *Acculturation in Seven American Indian Tribes* (1940), and continued into the 1950s and 1960s (Eggan 1968:139; Hatch 1973; Walker 1972). Two important studies from this era, Whyte's *Age Grading of the Plains Indians* (1944), and Lewis' study on the effects of white contact on Blackfoot culture (1942) focused directly on the question of age-set organization among Plains Indians.

Whyte compared age-set organization among Plains tribes and argued that the varying distributions of coordinate and age-set systems were caused by differential wealth in horses. Horsewealth was greater, more permanent, and therefore more concentrated among tribes possessing coordinate organization. The resulting consequences were that greater inequalities existed in horse ownership, and therefore status achievement tended to follow family lines at the expense of age divisions (1944:71). Tribes with age-set systems were less wealthy in horses, lacked concentrated wealth in family lines, and therefore emphasized status through incremental age criteria.

Lewis studied the effects of white contact on the Blackfoot. In contrast to Whyte, Lewis argued that Blackfoot age-set organization diffused from the Mandan-Hidatsa during the early Historic Period (Lewis 1942:41). Furthermore, “the borrowing of age-grades at this time is intelligible in that they were an ideal mechanism for expressing and channelizing the vertical mobility which came with the increase in wealth” (Lewis 1942:42). This increase in wealth among the Blackfoot was the result of the fur trade and bison robe trade of the early 1800s. Like Lowie, Lewis saw the age-set system as a special transformation of the coordinate society.

Both studies advance hypotheses concerning the formation of age-sets which, unfortunately, have not been seriously tested, and each contains strengths and weaknesses. The strength of Whyte’s hypothesis lies in its comparative focus. His suggestion that age-set organization varies inversely with horsewealth is testable providing “horsewealth” can be defined and measured. However, his assertion that alternative status achievement through family lines or age-groupings constitute mutually exclusive phenomena is not consistent with ethnographic evidence that demonstrates, for example, the presence of both status criteria among the Mandan and Hidatsa (Bowers 1950, 1965). A more general version of the mutual exclusivity of age-homogeneous and age-heterogeneous groups, advanced by Eisenstadt, has been similarly refuted (Eisenstadt 1965; Ritter 1980).

Lewis' study is intriguing because it is a reformulation of Lowie's speculation that age-grading is functionally associated with the incremental purchase of status and prestige. Prestige and rank are seen as determined by the number of grades purchased, which in turn are a function of age and wealth. Lewis' study offers a potentially testable hypothesis concerning major variables responsible for the pristine development of age-set organization in the Great Plains and its diffusion. However, as a general theory of age-set development among Plains tribes, it has three major weaknesses. First, it is a single case study, which makes his hypothesis difficult to substantiate or refute because the independence of his variables has not been established. Only through comparison can such independence be established. Second, other Northern Plains tribes such as the Assiniboine and Arikara were closely involved with the fur trade and yet did not develop age-set organization. Finally, ethnohistoric evidence suggests that the Blackfeet already possessed a coherent age-set structure prior to increased contacts with the Mandan and fur traders in the 1830s (Thwaites 1906). The increase in wealth in Blackfoot society during this period probably strengthened an already existing age-set pattern.

**holocultural theory** The most rigorous study to date relating causal variables to age-set organization is Ritter's holocultural study (1980). Using a worldwide sample of societies from the Human Relations Area Files (HRAF), Ritter statistically attempted to explain age-set organiza-
tion on a universal scale. Beginning with the assumption that age-set systems are military organizations and tend to be found in association with other forms of political integration (such as kin groups), Ritter posed the following question: "When will a frequently warring society need age-set organization in addition to some other means of organization?" (1980:97). Ritter finds the answer in the fluctuating composition of local groups:

Age-set systems will develop, or be borrowed from neighboring societal units, in frequently warring societies where the size and composition of the local group fluctuates throughout the year, or where sizeable numbers of men live away from a permanent settlement [1980:98].

Ritter found a statistically significant correlation where societies having age-sets were also characterized by frequent warfare and fluctuating local group size (1980:100). In explaining the statistical results Ritter adds:

The data from the Plains Indian societies...support the hypothesis; of the four societies which could be classed as having strong age-set systems...all had seasonally changing local group composition [1980:98].

This study suggests a causal hypothesis for age-set development among Plains tribes: Plains age-sets were a politico-military adaptation to fluctuating local group size by tribes engaged in frequent warfare.

How does Ritter's hypothesis fare against known ethnographic data? Does it sufficiently explain the variation in Plains military organization? This paper contends that it does not. First, it is a reasonable observation that all Plains tribes were engaged in frequent warfare during the Historic Period. It is equally the case that all Plains tribes had fluctuating compositions of local groups. Band aggregations and dispersals among nomadic hunters and summer village/winter village groupings among horticulturists were common responses to fluctuations in critical resources such as bison, timber, and pasturage. Given these conditions, Ritter's hypothesis should predict age-set organization for all Plains tribes, or at least a tendency in that direction. But Plains tribes having age-sets are in the minority, numbering 5 out of approximately 25, or 20 percent. Rather, coordinate societies are the norm. Thus, Ritter's hypothesis does not explain age-set organization when applied to Plains tribes, since alternate forms of military organization can be predicted from the same variables. Something else is needed to segregate tribes with age-sets from tribes without them.

summary A number of studies on age-set systems have been reviewed from a variety of theoretical orientations that either directly or indirectly relate to the question of why some Plains tribes adopted age-set systems while others did not. All had shortcomings for explaining this phenomenon. Lowie's distributional study is a "non-explanation," and his speculation about the functional relations between age-grading, the pecuniary nature of rank, and status consciousness remained untested. Lewis reformulated this view in his study on Blackfoot culture change, and attributed Blackfoot adoption of age-grading to increased wealth during the Fur Trade era. But, being a single case study, his "explanation" was really an untested hypothesis. Furthermore, the Blackfoot already possessed an age-set system by the time steamboat traffic along the upper Missouri enhanced contacts between the Mandan and Blackfoot. Whyte's comparative hypothesis relating age-grading inversely with horsewealth was untested but remains the most appropriate avenue for further investigation. Finally, the hypotheses suggested by LeVine and Sangree, Bernardi, and Ritter do not successfully predict age-grades over coordinate groupings when applied to the Plains tribes.

age-sets among historic Plains tribes

a test of Whyte's hypothesis As discussed earlier, Whyte hypothesized an inverse relationship between age-set organization and horsewealth among Plains tribes. This hypothesis
can be tested using Ewers index of horsewealth, based on a ratio of horses-per-person for Plains tribes (Ewers 1955). Ewers also noted that his data:

shows no evidence of any tribe of the Plains or Plateau having passed from poverty to wealth in horses during the 19th century buffalo days. Conversely no relatively wealthy tribe was reduced to poverty during that period [1955:23].

Thus, Ewers’ figures represent the relative wealth in horses for Plains tribes through time, while the rankings of the tribes on the basis of horsewealth can be viewed as more or less constant. These rankings are presented in Table 1. For the purposes of testing Whyte’s hypothesis, “high horsewealth” is defined as being greater than 1.6 horses per person, while “low horsewealth” is defined as being less than 1.6 horses per person.2 The tribes in Table 1 were placed in a two-by-two contingency table based on two variables: horsewealth and type of military organization (Table 2). The distribution of cases provides some meaningful inferences. Close inspection of the data shows that no tribes having high horsewealth possessed age-set organization. On the contrary, all tribes exhibiting high horsewealth possessed either coordinate military organization or no military organization at all (Comanche, Apache). This supports, in part, Whyte’s hypothesis that there is an inverse relationship between horsewealth and age-set organization. All tribes that had age-set organization, on the other hand, ranked low in horsewealth. Again, Whyte’s hypothesis would predict this. However, not all tribes low in horsewealth had age-set organization, a finding inconsistent with Whyte’s hypothesis. This situation reflects what Driver (1961:321) has termed a relationship of inclusion (Figure 2).

Thus, there is some support for a hypothesis relating the kind of military organization to degree of horsewealth. However, since the relationship is one of inclusion, low horsewealth is not the only predictor of age-set organization and is, therefore, insufficient in accounting for its historic distribution. The relationship between high horsewealth and coordinate military organization or no military organization, on the other hand, is more firm. But why would high

Table 1. Tribes ranked by relative wealth in horses.

<table>
<thead>
<tr>
<th>Tribe</th>
<th>HPP</th>
<th>Tribe</th>
<th>HPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apache</td>
<td>3.3</td>
<td>Comanche</td>
<td>3.2 (k)</td>
</tr>
<tr>
<td>Kiowa</td>
<td>2.9</td>
<td>Osage</td>
<td>2.2</td>
</tr>
<tr>
<td>Kiowa-Apache</td>
<td>2.0</td>
<td>North Shoshoni</td>
<td>2.0</td>
</tr>
<tr>
<td>Crow</td>
<td>2.0</td>
<td>Cheyenne</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Atsina</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lakota</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yanktonai</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arapaho</td>
<td>1.0*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blackfoot</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wichita</td>
<td>.7 (k)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Omaha</td>
<td>.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pawnee</td>
<td>.57 (k)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hidatsa</td>
<td>.5 (k)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kansa</td>
<td>.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mandan</td>
<td>.25 (k)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ankara</td>
<td>.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assiniboin</td>
<td>.2*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cree</td>
<td>.2*</td>
</tr>
</tbody>
</table>

Data derived from Ewers (1955:21–28).
An asterisk indicates that HPP’s were estimated from qualitative statements by Ewers on relative wealth in horses.
HPP = horses per person.
horsewealth prohibit the development and/or spread of age-set organization in favor of coordinate organization? It is argued here that such wealth created a large degree of subsistence and acquisitive independence for individuals and families and, therefore, equality in the status mobility of younger and older men. The layering of status and prestige characteristic of age-set organization would not constitute an acceptable organizational model for these groups. Regardless of age, all men would compete for status, prestige, and power in light of their proven ability to succeed individually as a result of access to large numbers of horses. Individualist, horsewealthy Plains tribes like the Crow, Kiowa, or Comanche would see little need for military and fraternal organizations where prestige and status were incrementally layered into a gerontocratic hierarchy.

There is some evidence to suggest that, even among the graded tribes, the increase in wealth and prestige brought about by an equestrian economy created a value conflict concerning the authority structure between established men in the upper grades and the younger, more achievement-oriented men. Among the Hidatsa, for example, there occurred in the early 1870s

Table 2. Distribution of Plains tribes based on variables of horsewealth and military organization.

<table>
<thead>
<tr>
<th>Military Organization</th>
<th>Low horsewealth</th>
<th>High horsewealth</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age-sets Present</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Atsina</td>
<td>5 (23%)</td>
<td>5 (23%)</td>
</tr>
<tr>
<td></td>
<td>Arapaho</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blackfoot</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hidatsa</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mandan</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 (23%)</td>
<td>0 (0%)</td>
<td>5 (23%)</td>
</tr>
<tr>
<td>Age-sets Absent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cheyenne</td>
<td>10 (45%)</td>
<td>17 (77%)</td>
</tr>
<tr>
<td></td>
<td>Lakota</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yanktonai</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wichita</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Omaha</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pawnee</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kansa</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arikara</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assiniboine</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cree</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 (32%)</td>
<td></td>
<td>7 (32%)</td>
</tr>
<tr>
<td>Total Tribes</td>
<td>15 (68%)</td>
<td>7 (32%)</td>
<td>22 (100%)</td>
</tr>
</tbody>
</table>

*These tribes lacked any formal military organization.

Figure 2. Relationship between low horsewealth and age-set organization.
a conflict over tribal medicine bundle rights between Crow-Flies-High, who argued for individualistic criteria of war honors and vision experiences, and the extant bundle owners who pressed for the traditional practice of ceremonial advancement by collective purchase through grades (Bowers 1965:225, 240).

Whyte’s hypothesis, then, helps explain the factors that inhibited the development and spread of age-set organization among Historic Plains tribes. High horsewealth is a sufficient explanation for why some tribes did not develop or borrow the age-set model of military organization. The historic spread of horses into the Great Plains inhibited age-set development and diffusion, since tribes wealthy in horses either lacked formal military organization (for example, Comanche, Apache) or maintained coordinate organizations (for example, Kiowa, Crow) but did not develop age-sets. Again, even among graded tribes, an equestrian economy tended to undermine the age-set structure.

Plains age-set organization has been partially clarified by Whyte’s hypothesis. But in order to explain age-set development among the five Plains tribes, the question of why some tribes did not possess age-sets despite being poor in horses must be addressed. What other variables explain the difference between the low horsewealth tribes with age-sets from those without them? To answer this question the concept of demographic-territorial stability is introduced.

demographic-territorial stability and age-set organization

In order for the age-set structure to perpetuate itself, a relatively continuous supply of eligible cohorts is necessary. Every few years young men of roughly the same age must be able to purchase the rights to the age-grade, thereby advancing the already extant age-sets to higher levels. In order to achieve this, local groups responsible for recruitment (for example, bands or villages) must maintain a relatively high degree of demographic and territorial stability. They must be demographically stable in order to maintain a local population large enough to produce viable age cohorts so that the layering of military groups by age is feasible. To accomplish this, they must also be territorially stable so that the population necessary for cohort production is not siphoned off by migration. Thus, tribes with small populations could not create viable age groups. Likewise, tribes whose bands or villages have frequently migrated and separated would also find it difficult to layer their military organizations by age, even though their overall population might have been relatively large. A better way for these groups to organize militarily would be to recruit men of all ages as a means of maintaining a soldiery.

Demographic-territorial stability can be crudely measured by documenting Historic Plains tribes or bands characterized by either recent migrations into new territories or territorial stability. It is now possible to suggest that among Plains tribes low in horsewealth, high demographic-territorial stability (high DTS) predicts the presence of age-sets, whereas low demographic-territorial stability (low DTS) predicts their absence. Table 3 illustrates the distribution of Plains tribes according to military organization and demographic-territorial stability, controlling for low horsewealth. Tribes were rated for either low or high DTS on the basis of data from ethnographic sources that documented tribal migrations during the Historic Period. For example, data on the Omaha suggest that they, as well as other southern Siouan-speaking village tribes (for example, Ponca, Oto, Iowa) drifted into the Missouri Valley in the Central Plains in small village groups during the 17th to 19th centuries (Fletcher and LaFlesche 1972:72–82; Smith 1974:39–47). Similarly, band migrations and territorial shifts have been documented for the Cheyenne, Arapaho, Lakota, and Assiniboin (Gussow et al. 1974:54–65, 70–78; Hurt 1974:30–108; Kennedy 1961:xxiv–xxxi). On the other hand, tribes with age-sets like the Blackfoot and Mandan were territorially stable throughout the Historic Period and perhaps during precontact times as well (Bowers 1950: Grinnell 1961:120–124).

On the basis of the evidence, it is clear that a strong relationship exists between high demographic-territorial stability and age-set organization among those Plains tribes that had low horsewealth. However, the Arapaho and Pawnee are exceptions. Although uncertain, some
Table 3. Distribution of Plains tribes based on variables of military organization and demographic-territorial stability (DIS), controlling for low horsewealth.

<table>
<thead>
<tr>
<th>Military Organization</th>
<th>Low DTS</th>
<th>High DTS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age-sets Absent</td>
<td>Assiniboin Plains Cree Arikara Kansa Omaha Wichita Yanktonai Lakota Cheyenne</td>
<td>Pawnee</td>
<td>9 (60%) 1 (6%) 10 (66%)</td>
</tr>
<tr>
<td>Age-sets Present</td>
<td>Arapaho Mandan Hidatsa Atsina Blackfoot</td>
<td>1 (6%) 4 (27%) 5 (33%)</td>
<td></td>
</tr>
<tr>
<td>Total Tribes</td>
<td>10 (66%) 5 (33%) 15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Evidence suggests that the formation of the Arapaho age-set system occurred prior to about A.D. 1700, when the Arapaho and Atsina were still united in a territory between the Hidatsa and Blackfoot (Lowie 1961:931; Trenholm 1970:10–11). The Pawnee, on the other hand, did not develop age-sets despite exhibiting a relatively high degree of demographic-territorial stability; this lack is possibly due to their more centralized political structure. For example, the Skidi-Pawnee Confederacy of Nebraska consisted of hereditary village chiefs and priests. Because of its theocratic nature, political organization and power tended to flow toward an apical priestly hierarchy. In addition, Pawnee society was stratified into upper and commoner classes, status, privilege, and office were more or less fixed at birth (Murie 1914:554; Oswalt 1967:257–259; Weltfish 1965:24, 26, 103). Such political centralization and stratification worked against the development of age-sets, which are in part organizational responses to frequent warfare by decentralized political systems (Bernardi 1952; Ritter 1980).

Summary. It has been argued that relative horsewealth and relative demographic-territorial stability explain the distribution of age-set and coordinate military systems among Historic Plains tribes. In turn, military organization among Plains tribes in general was a response to frequent warfare, dispersed kin groups, and political decentralization. This theoretical model is illustrated in Figure 3. It does not address the origin of age-set systems that developed in precontact times and to which the issue of horsewealth does not apply. Next, this paper addresses the precontact origin and development of age-set systems among the five Plains tribes.

Age-sets among pre-contact Plains tribes

In reconstructing the historical development of age-set systems among the five tribes, Lowie charted a diffusion trajectory that led from the Mandan to the Hidatsa; thence along two paths, from the Hidatsa to the Arapaho-Atsina, and from the Hidatsa to the Blackfoot (Lowie 1916:951). There are no absolute dates given, but Lowie does say that the diffusion of age-sets from the Hidatsa to the Arapaho-Atsina occurred before its arrival among the Blackfoot. If he is correct, and the Blackfoot and Arapaho-Atsina borrowed the age-set model from the Man-
Figure 3. Illustration of Age-grade/Coordinate society of differentiation among Historic Plains tribes based on hypothesized variables. DTS = demographic-territorial stability.

dan-Hidatsa, then two questions need to be answered: how did age-set systems originally develop among the Mandan; and what processes are responsible for the spread of the age-set model to the other four tribes?

Mandan age-set formation

It is difficult to pinpoint with precision when, during the Precontact Period, the Mandan developed the age-set system. However, based on the theory of age-set organization advanced here—that is, if strategic importance is given to demographic-territorial stability, frequent warfare, dispersed kin groups, and political decentralization—then there are two phases in Mandan prehistory when age-set formation was more likely: the Terminal Middle Missouri phase, A.D. 1550–1675 (Wood 1967:162); and the Heart River phase, A.D. 1675–1780 (Lehmer 1977:69). During the Terminal Middle Missouri phase Mandan villagers changed their settlement patterns from dispersed, rather small villages to large and relatively dense, fortified villages (Wood 1967:132). Presumably, growing conflict with encroaching Arikara groups to the immediate south stimulated the need for territorial constriction, larger villages, and bastioned fortifications. During the mid-1700s, the Mandan stabilized their settlements around a focal point near the mouth of the Heart River (known as the Heart River phase) where several large villages were located (Lehmer 1971; Smith 1980).

Assuming no change in Mandan seasonal subsistence and settlement patterns from precontact to contact times, then dispersed descent groups characteristic of the movement from summer to winter villages would have also been present prehistorically. If this assumption is true, then all the necessary conditions advanced in this paper for age-set development existed during these two phases of Mandan prehistory. Large Mandan villages within a relatively stable core territory for approximately 230 years indicate demographic-territorial stability, and village fortifications throughout these two phases suggest frequent warfare. Additionally, the archaeological record of Mandan prehistory does not indicate ceremonial structures or politico-administrative centers that would point to political centralization beyond the village level. Village economic and political autonomy prevailed, as it did during the Historic Period. During this period, then, the development of a strong military organization based on age was not only feasible, it constituted an adaptive response to external pressure.

Several factors at work in Mandan society may have caused them to structure their military societies by age. First, the Mandan constituted a commercial center for a vast intertribal trading network in the Great Plains (Wood 1972:157). As Lowie has pointed out, commercial societies often accorded social status and position by purchase or other similar markers like gift-giving and feasting. It is reasonable to suggest that societies engaged in active intertribal trade would be particularly likely to “commercialize” social position and social activity. In addition, Mandan society required anyone wishing to acquire specialized knowledge in crafts (for example, pottery manufacture or arrowmaking) and ceremonialism (rights to various medicine bundles) to purchase the rights, often in increments through time, from an established practitioner (Bow-
ers 1950). This apparent Mandan concern for grading-through-purchase may have stemmed from a commercial philosophy derived from their experience as traders on the Upper Missouri. Then it was applied to military organization as well as to other economic and ceremonial domains.

Secondly, the Mandan principle of according respect, authority, and deference as bearers of tribal knowledge to the elderly may have predisposed the Mandan to grade by age. Historically, many of the craft specialists and ceremonial leaders, despite their age and physical limitations, were productive contributors to Mandan society.

Mandan age-sets were a specific application of a more general Mandan principle of graded purchases along a gerontocratic model. The innovative aspect of the age-sets, however, is their collective principles. Mandan age-sets did not fight as military units (Stewart 1977:267). However, patterned, collective action as village and hunt "police" was present (Bowers 1950). Historically, the Mandan (and the Hidatsa) entrusted the enforcement of various community activities and rules, as well as the policing and coordination of communal bison hunts, only to the Black Mouth Society, an age-grade of proven and disciplined warriors (Bowers 1950, 1965). Members of the lower grades were considered too young and inexperienced to serve as camp police, and members of the upper grades were just becoming eligible (by virtue of their graduation from the Black Mouth Society) for political and ceremonial leadership in the villages.

Once Mandan purchase, age criteria, and the need for an organized village and hunt police is understood, the question of pristine age-set development can be addressed. Assuming that during the precontact period there once was a single group of relatively mature males who, because of their success in warfare and hunting, were entrusted with police functions, then all the ingredients of an age-set structure were set in place. Viewed dynamically, at some point a younger cohort would prepare to take control of police functions. As the original military group aged, they would recognize the need to recruit a group of replacements. The transfer of authority occurred through the ritual of collective purchase. As new individuals became police, the retiring group maintained its esprit de corps with ritual and ceremonial symbolism. The older grades could then transmit their privileges to retiring Black Mouths, and younger cohorts could organize into grades that would effectively prepare them for eventual collective responsibilities.

Contrary to Lowie, who saw the age-set system as a specific development of the nongraded type, the present interpretation envisions the age-set system as the original model of military organization among the Mandan. The Mandan principles of equating achievement and status with incremental purchase and age argue against an age-heterogeneous structure of military societies ever having been present among the Mandan. The sociopolitical processes responsible for the individual autonomy and competitiveness of age-heterogeneous military organizations would not have allowed the revolutionary restructuring of prestige, status, and achievement characteristic of age grading. In addition, high horsewealth and demographic-territorial instability were both absent among the precontact Mandan. The formation of Mandan military organization, then, was modeled after the preexisting Mandan cultural patterns of gerontocratic privilege, knowledge and status through purchase, a trading economy, and demographic-territorial stability.

**the diffusion of the age-set model** The geographic proximity and cultural similarities between the Mandan and the Hidatsa created an excellent diffusion pathway in which the Hidatsa borrowed the age-set model from the Mandan (Lowie 1916:951; Bowers 1965:184). Liked the Mandan, the three Hidatsa subgroups were Plains Village horticulturists that were characterized by a general emphasis on intertribal trade, payment for specialized economic or ceremonial knowledge, and gerontocratic privilege during the Historic Period (Bowers 1965). The Hidatsa, while probably arriving in the Missouri Valley later than the Mandan, were likely entrenched as horticulturists in the Knife-Heart Region of North Dakota by A.D. 1600 (Bowers...
Always close allies of the Mandan, the Hidatsa retained a stable core territory in the Knife River vicinity until the mid-1800s. Thus, like the Mandan, the Hidatsa exhibited those features that would have made age-set organization possible. Unlike the Mandan, however, the Hidatsa needed only to adopt a ready-made copy into their village life. That the borrowing of the Mandan age-set model, particularly the Black Mouth Society, by the Hidatsa served an alliance function between the two tribes is indicated not only by their history of peaceful relations, but also by the fact that “collectively each society addressed the same society of the other Hidatsa or Mandan Villages as ‘iraku’ in Hidatsa or ‘kotomanaku’ in Mandan, the kinship term for ‘pal.’” (Bowers 1965:185; emphasis added). For the Hidatsa the age-set system was adopted because it was consistent with extant cultural factors: demographic-territorial stability; a trading economy; knowledge-through-purchase; and gerontocratic privilege. Like the Mandan model, Hidatsa age-sets did not develop from an ungraded organizational base, but constituted the original form of Hidatsa military organization.

From the Hidatsa, the model for age-set organization spread to the Arapaho-Atsina who, according to tribal tradition, prior to about A.D. 1700 were living in what is now western North Dakota (Trenholm 1970:10), a territory sandwiched between Hidatsa and Blackfoot territories, which put them in a position to expose the age-set model to the Blackfoot.

The acceptance of the age-set system by the Arapaho-Atsina and the Blackfoot probably arose out of the need by these groups for an efficient police organization, a need also well recognized by the Mandan and Hidatsa. It is asserted here that the Arapaho-Atsina and Blackfoot organized their societies on the Mandan and Hidatsa model because it was the only one available. Given the relative proximity of these tribes during the late precontact period, it is likely that trading and raiding provided the vehicles for the dissemination of the age-set model. Diffusion was enhanced by the fact that these tribes did not need to change their kinship systems in order to accept age-set organization. They may have accepted age-sets as conditions for alliance with tribes with whom age-set organization was equated with military success (LeVine and Sangree 1962:97). To what extent the Arapaho-Atsina and Hidatsa were allies during the late precontact period is unknown; however, the Hidatsa-Mandan alliance would have made for a very powerful economic and political dominance in the Northern Plains at this time. Consequently, the Arapaho may have equated the age-set system with military and economic dominance of the Mandan-Hidatsa. Since there was little difference in the military effectiveness of age-sets versus coordinate sets, and the creation of age-sets in a society already organized into coordinate groupings would involve significant restructuring of status and leadership, it can be concluded that age-sets comprised the original form of military organization among the Arapaho-Atsina and Blackfoot. This interpretation is consistent with the horsewealth and demographic-territorial instability model presented earlier. With the exception of the Arapaho (who drifted southward into Colorado subsequent to age-set formation when with the Atsina) all the tribes discussed here exhibited relative territorial stability through the late precontact and contact periods.

**Summary and Conclusions**

Before contact on the Northern Plains, the Mandan, Hidatsa, Arapaho, Atsina, and Blackfoot developed age-set systems as their original form of military organization. In contrast to Lowie’s assertion that age-sets were a specialized development from a nongraded societal base, this paper argues that Mandan and Hidatsa modeled their military organization after the more general cultural patterns of gerontocratic privilege, knowledge and status through purchase, a trading economy, and demographic-territorial stability. Age-set organization spread to the Arapaho, Atsina, and Blackfoot because it constituted an effective military model that could be readily incorporated by groups exhibiting demographic-territorial stability. In addition, it may have been the only model of military organization available to them.

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The introduction of horses, coupled with demographic-territorial instability in historic times, effectively inhibited the further spread of the age-set system. Rather, these two factors (perhaps coupled with depopulation from epidemic diseases) encouraged the development of coordinate over age-set organization among historic Plains tribes. In contrast to Lowie, rather than seeing age-sets developing from coordinate societies, I maintain that coordinate societies were a derivative of age-set military organization stripped of its age-graded format in order to fit the conditions of historic Plains Indian life.

notes

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1The linguistic distribution of these tribes is as follows: the Blackfeet, Gros Ventres (Atsina), and Arapaho are Algonkian-speakers; the Mandan and Hidatsa are Siouan-speakers. In the present context, language is independent of age-grading. Some Algonkian-speaking tribes, like the Cheyenne and Plains Cree, lacked an age-set system. Similarly, some Siouan-speaking tribes, such as the Crow and Lakota, also lacked an age-set system.

2This figure was chosen because it represents the midpoint of the gap between the two clusters of horse-wealth rankings (2.0 represented by the Crow, and 1.2 represented by the Cheyenne) and constitutes a convenient cutoff point.

3Archaeological evidence demonstrates territorial stability during the late Prehistoric period for both the Mandan and Hidatsa that matches their Historic locations (Ahler and Swenson 1985; Bowers 1965; Lehmer 1971; Wood 1967), and Lowie has argued for the relative antiquity of the Blackfeet and Arapaho-Atsina in the Northern Plains (Lowie 1954:217).

4As villages were economically and politically autonomous, the formation of a soldiery would have constituted an effective defensive strategy to protect village life, resources, and surpluses. However, protection of village resources is an insufficient cause for grading sodalities by age since other Plains Village tribes lacked age-set systems.

5The introduction of horses changed the patterns of Plains Indian warfare in many significant ways. Horse-raiding and counterraiding became a major form of intertribal conflict, and the increased mobility afforded by nomadic pastoralism not only altered the balance of power in favor of nomadic tribes but resulted in conflict over bison resources between very mobile hunting parties. It does not appear, however, that these changing patterns of warfare affected sodality structure. As previously stated, graded and coordinate systems appeared to be equally efficient in providing an effective soldiery and military ethos. Since both kinds of sodalities appeared to be equally adaptive to historic Plains Indian warfare, their structural differences are to be explained by other variables. In this paper I have argued that demographic-territorial stability and horsewealth satisfactorily explain differential sodality formation among historic Plains tribes.

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