A Historical Linguistic Account of Sign Language among North American Indians

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Signed communication among various indigenous peoples has been observed and documented across the North American continent since fifteenth- and sixteenth-century European contact. Early scholars of this subject (e.g., Clark 1885; Mallery 1880; Scott 1931; Tomkins 1926) have made cases for the North American Indian[1] sign variety to justify its being considered a full-fledged language. Two predominant themes in the early writings about Indian signed languages are "universality" and "iconicity" — theoretical issues that signed language linguists continue to address even today. The study of such phenomena helps broaden our understanding of these issues and other linguistic questions. For example, the early research on Indian signed languages informed the seminal work of some of the first signed language linguists (e.g., Stokoe 1960; Battison 1978/2003). These historical linguistic data need to be reexamined in light of current linguistic theories, interdisciplinary perspectives, and current sign use among deaf and hearing North American Indians and other indigenous populations around the world.

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Observed and documented across several geographic locations and cultural areas, the historical varieties of indigenous signed language specific to North America are sometimes collectively referred to as "North American Indian Sign Language" (see Wurtzburg and Campbell, 1995). Historically, these varieties of signed language were named in various ways — Plains Indian Sign Language, Indian Sign Language, The Sign Language, Indian Language of Signs, and historical references in this paper will apply those names where appropriate.[2] Previous anthropological linguistic field research (Kroeber 1958; Voegelin 1958; West 1960) indicates that signed language was used in varying degrees within most of the language families of Native North America. The best documented cases of indigenous signed languages involved various Indian groups who once inhabited the Great Plains area of the North American continent (see table 1). This enormous geographic expanse stretched north to south for more than two thousand miles from the North Saskatchewan River in Canada to the Rio Grande in Mexico. The east-west boundaries were approximately the Mississippi-Missouri valleys and the foothills of the Rocky Mountains and encompassed an area of some one million square miles. Generally, twelve major geographic cultural areas of Native North America are identified in the literature with the Plains cultural area centrally located to all of these (cf. Campbell 2000, Mithun 1999). Historically, this large geographic area was one of extreme linguistic diversity, and hundreds of different languages were spoken among the native populace.[3]

The Plains tribes were geographically and culturally central to most of the other North American Indian cultural groups and a signed lingua franca appears to have evolved as a way to make communication possible among individuals speaking so many different mother tongues (Davis, 2005). Traditionally, the nomadic groups of the Great Plains used Plains Sign Language (PISL hereafter) as an alternate to spoken language. Beyond the Plains geographic area, fluent signers of PISL have been identified among native groups from the Plateau area — e.g., the Nez Perce (Sahaptian) and the Flathead (Salishan). In what remains the most extensive study of PISL to date, West (1960) reported dialect differences among these Indian groups, but found that these did not seriously impede signed communication. In the late 1950s, West found that PISL was still practiced, particularly on intertribal ceremonial occasions

but also in storytelling and conversation, even among speakers of the same language. The historical ethnographic and linguistic documentary materials that are the focus of this paper support that PISL was used as a lingua franca among the Plains Indian tribes as well as between them and other American Indian linguistic groups (compare Campbell 2000; Davis 2005; Farnell 1995; Mithun 1999; Taylor 1978; Umiker-Sebeok and Sebeok 1978; Wurtzburg and Campbell 1995).

For example, Campbell (2000, 10) writes that "the sign language as a whole became the lingua franca of the Great Plains, and it spread from there as far as British Columbia, Alberta, Saskatchewan, and Manitoba." Evidently there was some variation from tribe to tribe, and not all individuals were equally proficient in signed language. Varying degrees of signed language use among some American Indian individuals and groups has been observed even today. However, the number of users has dramatically declined since the nineteenth century, leading several researchers to conclude that these traditional signed language varieties are endangered (Davis 2005; Farnell 1995; Kelly and McGregor 2003; McKay-Cody 1997). Contemporary and historical use of the signed language among Native American groups needs to be documented, described, and stabilized through language maintenance and education to prevent imminent language loss.

Researchers have proposed that the signed systems used by hearing Indians as an alternative to spoken language became a primary signed language when acquired natively by tribal members who are deaf (Davis and Supalla 1995; Kelly and McGregor 2003; McKay-Cody 1997).[4] These studies have reported the contemporary use of traditional PISL among both deaf and hearing Native American descendents of the Plains Indian cultural groups. Deaf and hearing individuals from other Native American groups, such as the Diné/Navajo (Davis and Supalla 1995) and the Keresan of the New Mexico Pueblo cultural area (Kelly and McGregor 2003) appear to sign a variety that is distinct from traditional PISL. Preliminarily, the available linguistic evidence suggests that these traditional ways of signing among Indian groups are distinct from American Sign Language (ASL). At the same time, striking similarities in linguistic structure between PISL and ASL (e.g., marked and unmarked handshapes, symmetry and dominance conditions, classifier forms, and nonmanual markers), have been documented (see Davis 2005, Davis and Supalla 1995, McKay-Cody 1997). In this paper, I report the documented cases of historical and contemporary signed language use among North

American Indian groups, present preliminary linguistic descriptions and findings, and offer readers a link to a prototype on-line digital archive of PISL documentary materials. I aim to expand this open access on-line linguistic corpus of PISL to include more documentary materials, translations, and analyses. This will encourage and facilitate language revitalization efforts, further research, and scholarship. The link to the on-line digital archive of PISL documentary materials is Plains Sign Language Digital Archive: http://sunsite.utk.edu/plainssignlanguage/.

PRE-EUROPEAN CONTACT

Clearly, there was (and still remains) an indigenous form of North American signed language, and its use has been historically documented as being widespread. Wurtzburg and Campbell (1995) make a compelling case for there having been a preexistent, well-developed indigenous signed language across the Gulf Coast-Texas-northern Mexico area *before European contact*. In their historical study of "North American Indian Sign Language," Wurtzburg and Campbell (1995, 160) define "sign language" as "a conventionalized gesture language of the sort later attested among the Plains and neighboring areas." Based on numerous early historical accounts, they report that the earliest and most substantive accounts is from the 1527 expedition for the conquest of Florida, lead by the Spanish conquistador Cabeza de Vaca who reported numerous occasions wherein native groups communicated with signs (1995, 154–55). According to the historical record, Cabeza de Vaca "also clearly distinguished which groups spoke the same language, which spoke different languages but understood others, and which groups did not understand others at all, except through the use of sign language" (1995, 155).[5] Similar accounts were made by Coronado in 1541 (reported in Taylor 1978), and subsequent reports were made in the eighteenth century (e.g., Santa Ana in 1740 [reported in Mithun 1999]). Goddard (1979), and Wurtzburg and Campbell (1995) published papers about the role served by signed languages and some spoken native languages as lingua francas, and have discussed the pidgins, trade languages and "mixed" systems used among native groups. The generally accepted hypothesis among scholars (see Campbell 2000; Mithun 1999) is that North American Indian Sign Language originated and spread from the Gulf Coast, became the intertribal lingua franca of the Great Plains, and spread throughout the northwest

territories of the United States and Canada (compare Goddard 1979; Taylor 1978; Wurtzburg and Campbell 1995). Further research of these topics is needed, but presently beyond the scope of this paper. The historical linguistic documents and ethnographic accounts that are the focus of this paper support that signed language was used beyond the Great Plains area and was evident across most of the major American Indian cultural areas (e.g., Southeast and Gulf Coast, Southwest, Plateau and Basin, Subarctic, Mesoamerica, and Northeast).

Attention to the rich legacy of historical linguistic documents that remain (essays, descriptions, illustrations, films) is needed in light of new linguistic theories. The indigenous origins of contemporary signed language use among Native American deaf and hearing signers across different geographic and cultural contexts must be documented. Further consideration must be given to the intergenerational use of highly elaborate signed communication systems that have been documented for hearing signing communities, even when deaf people are not present (e.g., historically on Martha's Vineyard as well as currently and historically in some indigenous and monastic communities). In addition to signed language use in Deaf communities, this linguistic phenomenon (i.e., signing communities that are predominately hearing) has been and continues to be documented in several aboriginal communities around the world and is also evident in some occupational settings and monastic traditions (see, e.g., Davis and Supalla 1995; Farnell 1995; Johnson 1994; Kendon 1988, 2002; Kelly and McGregor 2003; Plann 1997; Umiker-Sebeok and Sebeok 1978; Washabaugh 1986a, 1986b).

More recently, some signed language linguists (Davis 2005; Davis and Supalla 1995; Johnson 1994; Farnell 1995; Kelly and McGregor 2003; McKay-Cody 1997) have documented contemporary signed language use among other North American linguistic groups—for example, Algonquian (Blackfeet) and Siouan (Assiniboine, Dakotan, Stoney) language groups as well as Navajo (Diné), Keresan Pueblo, Northern Cheyenne, Yucatan-Mayan, and others. In light of new field studies and linguistic theories, linguists have reexamined the documented occurrences of aboriginal signed language in North American and in other continents (e.g., Australia and South America). The evidence suggests that in addition to its documented history as an intertribal lingua franca, signed language was used intratribally for a variety of discourse purposes (e.g., storytelling, gender-specific activities, times when speech was taboo, and ritual practices).

In this paper, I examine the documented film and written ethnographic accounts of North American Indians signing an assortment of topics, including different discourse types across a variety of settings and participants. Furthermore, I consider some of the historical connections between ASL and indigenous signed language varieties. Historic and contemporary uses of signed language have been documented in at least one dozen distinct North American language families (phyla). Certainly, signing may have been used by even more groups than these, but at least this many cases were documented in historical linguistic accounts. The archived data reveal that regardless of hearing status, signing was used by members from approximately thirty-seven distinct American Indian spoken language groups. Conventions for the classification of North American language families are followed (compare Campbell 2000; Mithun 1999). In each case, the published source is provided and documented cases of current use are highlighted. These historical and contemporary cases are presented in table 1.

HISTORICAL LINGUISTIC DOCUMENTATION AND DESCRIPTION

Throughout the 1800s, the earliest explorers, naturalists, ethnologists, and even U.S. military personnel, extensively documented the use of Indian Sign Language for a variety of purposes. Documentation of Indian Sign Language continued through the 1900s, and the earliest anthropologists, linguists, and semioticians studied and described its linguistic structures (e.g., Boas 1890/1978; Kroeber 1958; Mallery 1880; Umiker-Sebeok and Sebeok 1978; Voegelin 1958), most of whom, notably, also served terms as presidents of the Linguistic Society of America. These early scholars laid the groundwork for Indian Sign Language to be considered a preexistent, full-fledged language. Thus, there remains a rich linguistic and ethnographic legacy in the form of diaries, books, articles, illustrations, dictionaries, and motion pictures that document the varieties of signed language historically used among native populations of North America. The most extensive documentation of PISL was made by the first ethnologists to do fieldwork for the Bureau of Ethnology at the Smithsonian Institution in Washington, D.C. (from approximately the 1870s–1890s). Figure 1 shows some of the original pen and ink illustrations of the PISL from the files of Garrik Mallery and his collaborators working with the Smithsonian in the late 1880s. One of the richest sources for archival data

TABLE 1. *Documentation of Historic and Current Sign Language Use among North American Indians*

Language Phyla and Group	Published Sources
I. Algic = Algonquian family	Campbell (2000),Mithun (1999), McKay-Cody (1997)
1. Arapaho	Clark (1885), Mallery (1880), Scott (1931)
2. Blackfoot = Blood = Piegan	Davis, 2005; Mallery (1880), Scott (1931); Weatherwax (2002)
3. Northern Cheyenne	Burton (1862), Mallery (1880), McKay-Cody, 1997; Scott (1931), Seton (1918)
4. Cree	Long (1823), Mallery (1880), Scott (1931)
5. Fox = Sauk-Kickapoo	Long (1823), Mallery (1880)
6. Ojibwa = Ojibwe = Chippeway	Hofsinde (1956), Long (1823), Mallery (1880)
7. Shawnee	Burton (1862), Harrington (1938)
II. Athabaskan-Tlingit family	Campbell (2000), Mithun (1999)
8. Navajo = Diné	Davis and Supalla (1995)
9. Plains Apache = Kiowa-Apache	Fronvall and Dubois (1985), Hadley (1891), Harrington (1938), Mallery (1880), Scott (1931)
10. Sarcee = Sarsi	Scott (1931)
III. Siouan-Catawban family	Campbell (2000), Mithun (1999)
11. Crow	Burton (1862),Mallery (1880), Scott (1931)
12. Hidasta = Gros Venture	Mallery (1880), Scott (1931)
13. Mandan	Scott (1931)
14. Dakotan = Sioux = Lak(h)ota	Burton (1862),Farnell, 1995; Long (1823), Mallery (1880), Seton (1918), Tompkins (1926)
15. Assiniboine = Stoney = Alberta	Farnell (1995),Mallery (1880), Scott (1931)
16. Omaha-Ponca	Long (1823), Mallery (1880)
17. Osage = Kansa	Harrington (1938), Long (1823)
18. Oto = Missouri = Iowa	Long (1823), Mallery (1880)
IV. Caddoan family	Campbell (2000), Mithun (1999)
19. Caddo	Harrington (1938)
20. Wichita	Harrington (1938), Mallery (1880)
21. Pawnee	Burton (1862), Mallery (1880)

Language Phyla and Group	Published Sources
22. Arikara	Mallery (1880), Scott (1931)
V. Kiowan-Tonoan family	Campbell (2000), Mithun (1999)
23. Kiowa	Fronval and Dubois (1985), Hadley (1891), Harrington (1938), Mallery (1880)
24. Tonoan = Tewa = Hopi-Tewa = Tano	Goddard (1979), Mallery (1880)
VI. Uto-Aztecan family	Campbell (2000), Mithun (1999)
25. Shoshone = Shoshoni	Burton (1862), Mallery (1880), Scott (1931)
26. Comanche	Harrington (1938), Mallery (1880)
27. Ute = Southern Paiute	Burton (1862), Mallery (1880)
28. Northern Paitue = Bannock = Banak	Mallery (1880)
VII. Shahaptian family	Campbell (2000), Mithun (1999)
29. Nez Perce = Nimipu = Chopunnish	Scott (1931)
30. Sahaptian	Mallery (1880)
VIII. Salishan family	Campbell (2000), Mithun (1999)
31. Coeur d'Alene	Teit (1930)
32. Flathead = Spokane = Kalispel	Scott (1931)
33. Shuswap, British Columbia	Boas (1890/1978)
IX. Eskimo-Aleut family	Campbell (2000), Mithun (1999)
34. Inuit = Inupiaq-Inuktitut	Hoffman (1895)
X. Iroquoian family	Campbell (2000), Mithun (1999)
35. Huron-Wyandot	Mallery (1880)
XI. Zuni (isolate)	Campbell (2000)
36. Zuni	Mallery (1880)
XII. Keresan = Keres	Campbell (2000)
New Mexico Pueblo varieties	
37. Laguna Pueblo	Goldfrank (1923)
Keresan Pueblo	Kelly and McGregor (2003)

Note: For descriptions of current sign language use see McKay-Cody (1997), Davis (2005), Davis and Supalla (1995), Farnell (1995), Goff-Paris and Wood (2002), Kelly and McGregor (2003).

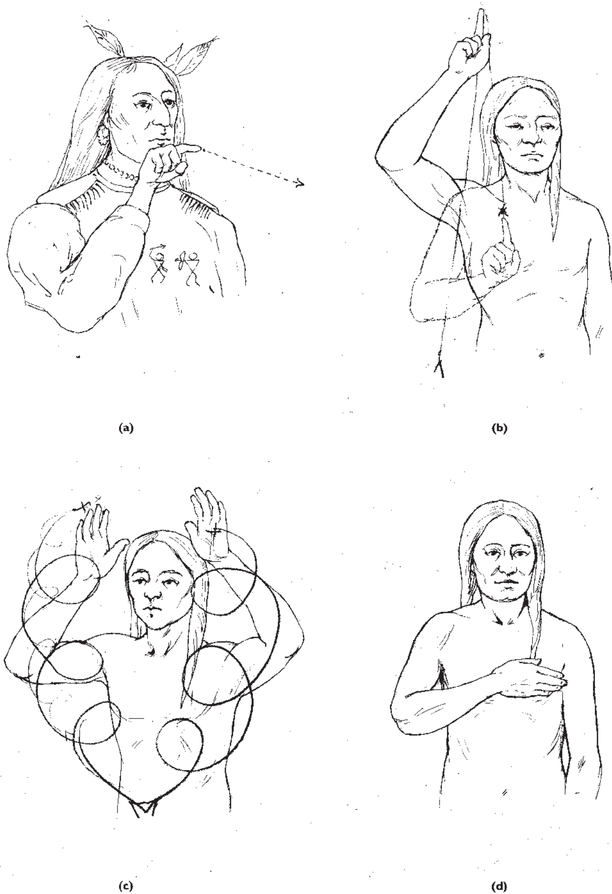

FIGURE 1. *Original Pen and Ink Drawings of Indian Signs (ca. 1880); Courtesy of the National Anthropological Archives, Smithsonian Institution (ms. 2372).*

comes from the motion pictures produced by Scott (1931) with support from a U.S. Act of Congress. The purpose of these films was to preserve signed language as a part of the North American Indian cultural and linguistic heritage. The source and content of these films will be described later in this paper.

Unfortunately, since the late 1800s, social, cultural, and historical factors have caused the population of native and secondary users of the signed languages to dramatically decrease, suggesting that PISL is an endangered language. Fortunately, some PISL varieties are still used today and need to be further documented and described. For example, current signed language use and maintenance programs have been docu-

mented for the Assiniboine, Stoney, Blackfeet, Piegan, Blood, Crow, and North Cheyenne (see Farnell 1995). Further, the National Multicultural Interpreting Project at El Paso Community College, the Intertribal Deaf Council, and the Department of Blackfeet Studies at Blackfeet Community College are involved in the revitalization of PISL.

Contemporary North American Indian Sign Language Studies

Davis and Supalla (1995) studied signed language in a contemporary Native American Indian linguistic community. For a period of two years (June, 1990–May, 1992) these researchers documented the signed language used in a Navajo (Diné) community with several deaf family members (i.e., six out of eleven siblings were deaf or hard of hearing). In that linguistic community, reminiscent of the historical case on Martha's Vineyard (Groce 1985), both deaf and hearing family members shared signed language. Note, however, that the members of the particular Navajo family having several deaf family members signed more fluently than most members of the larger hearing Navajo community.

Davis and Supalla documented the highly elaborate sign-based communication system that was used by the Navajo family and that was distinct from ASL. Apparently, the sign system used by the family has evolved intergenerationally because of several outstanding historical and sociolinguistic causes. The first of these influences was a reported history of sign communication in the larger hearing Navajo community (similar to the types evident in other North American indigenous communities). Second, the hearing Navajo parents of this family signed what was called "the Navajo way." Furthermore, a thirty-year age span separated the oldest deaf sibling and the youngest deaf sibling. Three younger sisters (two deaf and one hard of hearing) and a male cousin, who is also deaf, were educated at the Arizona School for the Deaf and Blind (ASDB) in Tucson. The three older deaf siblings, having never attended school, apparently never learned ASL. Although the younger deaf siblings and cousin were fluent in ASL, they continued to use what was called "the Navajo way" or "the family sign" with their deaf and hearing relatives living on the reservation.

The male cousin served as the primary consultant for the study.[6] He was fluent in the variety of signed language used by the family, fluent in the signed communication used within the larger hearing Navajo community, natively proficient in ASL, and able to communicate in written English.

He met with the researchers before and after each site visit and served as an interpreter. Ethnographic procedures were followed to enhance rapport, naturalness, and authenticity of the data collected. Approximately twenty hours of videotaped signed language data were documented for this family. The researchers described the nature of linguistic interaction (e.g., language functions and domains of use) between the deaf and hearing participants in this rarified situation. Davis and Supalla observed that both deaf and hearing family members maintained and recognized linguistic boundaries between these different varieties of signing.

The primary deaf Navajo consultant, hearing family members, and other deaf and hearing Navajo individuals described the different "ways of signing" used in the larger Navajo community. ASL was referred to as "English sign" or "the Anglo way of signing." The family sign system, which they called "our signs" or "family sign," was considered distinct from ASL. The signed language used by the larger Navajo community was called "the hearing Navajo way of signing," "signing the Navajo way," "Navajo Sign," and "Indian sign." The hearing Navajo way of signing was viewed as being related to their family signed language (i.e., shared lexicon), but distinct in other ways. When asked what makes the family sign different, the Navajo sources reported that the family sign is less transparent and environmentally dependent and is signed much faster than the hearing Navajo way of signing. Davis and Supalla observed that the following practices in both deaf and hearing Navajo family members:

- Consistently used the family sign system with one another (i.e., no observed use of ASL among the family members)
- Participated in signed conversations that spanned a range of topics and settings, past and present time periods, and conversations about daily routines (e.g., rug making and sheep herding)
- Interpreted between spoken Navajo, English, ASL, and the family sign system (depending on the hearing status and sociolinguistic background of the participant)
- Used name signs to identify each family member (present or absent)

Significantly, the so-called family sign appeared to be much more complex with linguistic features that are typically absent for various other home sign systems.

According to Frishberg (1987), home sign systems do share some features with natural languages (e.g., individual signs are segmentable, can be assigned to semantic categories, etc.). However, they also have

specific characteristics that distinguish them from conventional signed languages. For example, signing space for home sign is larger; signs and sign sequences tend to be repeated; the number of distinct handshapes are fewer; eye gaze functions differently; signs are produced more slowly, awkwardly, and less fluently; and home sign systems are more environmentally dependent (e.g., requiring the signer to point to a color or object in the environment rather than make a sign for them). In contrast to the above features described for home sign, Davis and Supalla (1995) found that the Navajo family sign system had the following characteristics:

- More multilayered and complex than what is typically described for home sign (e.g., rich use of head and face nonmanual markers and classifier forms)
- Highly elaborated and conventionalized (e.g., a consistent meaning-symbol relationship for signs, including cultural concepts such as herding sheep, weaving, and performing Indian dancing)
- Developed in a historical context where signing has reportedly been used by some hearing members of the larger Navajo spoken language community (even when no deaf individuals were present)
- Used in this family cross-generationally for at least fifty years
- Signed with minimal ASL borrowing and codeswitching
- Distinct from ASL and spoken Navajo (i.e., languages kept separate by family members, depending on the language background of interlocutors)

Overall, Davis and Supalla (1995) observed minimal lexical borrowing from ASL (e.g., some ASL signs were used for family relations, food signs, and color terms, and ASL fingerspelling was used in token ways to convey some proper nouns). In contrast, home sign is usually not maintained cross-generationally and is typically replaced by the conventional sign language of the Deaf community. Davis and Supalla suggested that these combined sociolinguistic factors lead to a full-fledged (or at least emergent) language that is distinct from other types of signed communication (e.g., signs or gestures that accompany speech; home-based signing).

Davis and Supalla (1995) proposed a "Taxonomy of Signed Communication Systems" that was based on work with the Navajo family and on accounts from other aboriginal and indigenous signed language studies (e.g., Kendon 1988; Washabaugh 1986a, 1986b). In this taxonomy, they described the following types of visual-gestural communication:

- *Primary signed languages* that have evolved within specific historical, social, and cultural contexts and that have been used across generations of signers (e.g., ASL, French Sign Language, Danish Sign Language, etc.)
- *Alternate sign systems* developed and used by individuals who are already competent in spoken language (e.g., the highly elaborated and complex sign system used historically by the Plains Indians of North America)
- *Home sign systems* that are gestural communication systems developed when deaf individuals are isolated from other deaf people and need to communicate with other hearing people around them
- *Gestures* that accompany spoken language discourse

Naturally, these distinctions are not that cut and dried, and the different types of signed communications are interrelated. Although these categories are useful descriptively, Davis and Supalla noted overlap between the categories. For example, the family's home sign system was informed by the alternate signs used by some in the hearing Navajo community. Thus, the way of signing used by this Navajo family emerged as a primary signed language. Along similar lines, McKay-Cody's (1997, 10–11) study supported that the "alternate sign systems" used by hearing Indians became a "primary signed language" when acquired natively by Indians who are deaf. The linguistic evidence also suggests that alternate signs are used to varying degrees of proficiency, ranging from (a) signs that accompany speech to (b) signs that are used without speech to (c) sign use that functions similarly to primary signed language. Like other cases of sociolinguistic variation, these ways of signing are best considered along a continuum.

The National Archives

In 1993, Samuel Supalla and I received a small grant from the Laurent Clerc Cultural Fund from Gallaudet University Alumni Association to collect and organize film and literature on Native American Sign Language in North America. I traveled to Washington, D.C., and the day I was scheduled to do research at the National Archives, a snowstorm of unforecasted proportions descended on the city. The transit system was paralyzed for several hours, but finding safe refuge in the National Archives, I remained longer than expected. While waiting for the blizzard to subside, I met some researchers working on Ken Burns's upcoming

PBS special about the history of American baseball. When I shared my research agenda about Indian Sign Language, the researchers directed me to an area of the archives where there were numerous old films documenting Indian Sign Language.

Because Washington, D.C., was at a standstill, the National Archives remained open beyond the usual hours. Taking advantage of this opportunity, the archivists assisted me in making VHS copies of these old films to bring back to the signed language research lab at the University of Arizona. Since that time, I have shared these films with others who have also studied them periodically. However, a full-scale linguistic study of the phonology, morphology, and syntax of PISL is still forthcoming. A preliminary linguistic analysis of some of the data contained in these films and of the historical documents uncovered during the initial PISL project were the focus of an outstanding master's thesis completed by Melanie McKay-Cody (1997) at the University of Arizona. McKay-Cody compared a traditional narrative about buffalo hunting signed by one of the hearing Indian chiefs from the 1930s film with a similar narrative signed by a contemporary deaf Indian who was a native PISL user.[7] This study distinguished two major categories of signed language used by Indians: (1) as an alternative to spoken language by hearing tribal members; and (2) as a primary language (first language) for deaf tribal members (McKay-Cody 1997, 10). This finding was consistent with the patterns identified earlier by Davis and Supalla, and McKay-Cody observed that when signers who are deaf learn the signed language used by the larger hearing native community they "seem to gain a higher level of proficiency" than the hearing Indian signers (50). These findings suggest that alternate signed language used by hearing Indians become linguistically enriched when learned as a primary language by members of Indian communities who are deaf. McKay-Cody concluded that PISL was a full-fledged language.

McKay-Cody's study also demonstrated that the narrative structures and morphological complexities of historical and contemporary PISL are comparable with those found in ASL. For example, the sign types, marked and unmarked handshapes, and symmetry and dominance conditions described for ASL by Battison (1978/2003) are evident in the PISL lexicon, and the classifier form described for ASL by Ted Supalla (1978) are also clearly evident in the PISL data corpus. Remarkably, more than two-thirds of the signs used by the primary PISL deaf signer in his version of the buffalo hunting story were identical or similar (i.e., different

in only one parameter, or signed with one hand instead of two) to the signs documented in the historical PISL lexicon. Though based on only the analysis of one signed narrative, these results were nonetheless significant. McKay-Cody's primary consultant learned PISL as a young deaf child on the Northern Cheyenne Reservation, and his Cheyenne ancestors were reported to be among the historical progenitors of traditional PISL.

Considering historical linguistic change, regional variation, and intensive language issues, the similarities that are evident between contemporary and historical PISL are striking. The fact that PISL has survived and continues to be used is remarkable, especially considering the pressures for linguistic and cultural assimilation that have been historically imposed on indigenous peoples. Further linguistic comparison, documentation, and description of historical and contemporary PISL use among deaf and hearing Indians are needed. Even more critical is the need for language maintenance and education because PISL is an endangered language. Unfortunately, programs to support the maintenance of the historical PISL variety and to educate users have been lacking. See Crystal (2000) for more information about the extreme urgency for language stabilization and maintenance.

The Historical Linguistic Database

The signs used by American Indians have been documented for a variety of purposes since the early 1800s, and I have identified over 8,000 lexical descriptions, illustrations, photographs, and films documented in archived sources that span three centuries (see table 1). Great care must be taken in classifying, preserving, analyzing, and describing these historical linguistic data documenting the Indians use of signs. Certainly, given the wide geographic expanse of the North American continent and the linguistic and cultural diversity that was evident, more than one native sign variety is represented in these historical linguistic documents. Describing, illustrating, and deciphering signs accurately is a challenge. Consequently, duplicate entries between dictionaries and instances of overlap (wherein the same sign is labeled differently) may have occurred, and some of the descriptions and illustrations may be erroneous.

Fortunately, a substantial amount of PISL has been filmed (historically and contemporarily), thus making possible further comparisons between the written, illustrated, and filmed historical linguistic documents. The sheer magnitude of these data, however, point to the need to establish an

open-source database to provide access for others to study, teach, and research PISL and other Native American sign varieties. A history of language contact between North American Indian and Deaf American communities warrants further consideration, however, before any discussion about the content of the filmed documentation is presented here.

Historical Sign Language Studies

The first known description of Indian sign vocabulary was published in 1823 (Long 1823) after the Stephen Long expedition undertaken in 1820.[8] That account preceded by one hundred years the first published dictionary for the sign language used by Deaf Americans (J. S. Long 1918). In 1848, the first known article to be published by Thomas H. Gallaudet was an essay titled "On the Natural Language of Signs: And Its Value and Uses in the Instruction of the Deaf and Dumb." The first part of his essay appeared in the inaugural publication of *American Annals of the Deaf* (1848a) and the second part in the following issue (1848b). The essay was written following early nineteenth-century conventions that are archaic and patronizing by today's standards. Nonetheless, T. H. Gallaudet used the "Indian Language of Signs" to make a case for the value of "the natural language of signs" for teaching and communicating with deaf people.

In the published essay, Gallaudet did not propose that the Indian Language of Signs be used as the language of instruction, but that "The Natural Language of Signs" was the best method of instruction (1848a). In the second part of the essay (1848b), he proposed that the "originators of this language" are the deaf people themselves (93). Gallaudet discussed the "universality" of what he called the "the natural language of signs." His main point about "universality" was that signed language "naturally" occurs "when necessity exists" and "prompts the invention and use of this language of signs" (1848a, 59). As evidence, Gallaudet used examples from the Indian Language of Signs and included the detailed descriptions of signs used by the "aboriginal Indians" that he had taken in part from "Expedition from Pittsburgh to the Rocky Mountains," an account of the expedition led by Major Stephen H. Long that includes descriptions of a total of 104 "Indian signs" (Long 1823, 378–94).

The historical proximity of the first American deaf school having been established in 1817 and the fact that Gallaudet considered the sign language of the Indians significant enough to make that the central focus of

his article in the inaugural edition of the *American Annals of the Deaf and Dumb,* makes its possible introduction to deaf students an intriguing question. However, the historic publications that are considered here do not exactly support this notion. For example, in 1848, Gallaudet wrote the following:

> Major Long's work contains an accurate description of many of these signs, and it is surprising to notice how not a few of them are almost identically the same with those which the deaf and dumb employ to describe the same things, while others have such general features of resemblance as to show that they originate from elements of this sign-language which nature furnishes to man wherever he is found, whether barbarous or civilized. (1848a, 59)

To support the hypothesis that signed language was a naturally occurring human phenomenon, Gallaudet (1848a) had selected eight examples from the previously published list of 104 Indian signs and descriptions (Long 1823). Specifically, he selected examples that he found were signed the same way by deaf people and by Indians. After the death of T. H. Gallaudet, the complete list of 104 Indian signs (Long 1823) was published as the "Indian Language of Signs" in the *American Annals of the Deaf and Dumb* (Gallaudet 1852) and included this note from the editor: "The points of resemblance between these signs and those in use among the educated deaf and dumb are numerous and striking" (157). The entire published list of the original 104 Indian sign descriptions (compare Long 1823) is too long to include here; however, the eight Indian sign descriptions from Gallaudet's 1848 article are presented in appendix A.

Other Historical Connections

It was not until 1918 that J. Schuyler Long (long-time principal at the Iowa School for the Deaf) published the first illustrated dictionary, *The Sign Language: A Manual of Signs,* which he described as "Being a descriptive vocabulary of signs used by the deaf of the United States and Canada" (Long 1918,). That statement [I mean the dictionary, not the statement] came almost one hundred years after S. H. Long's 1823 published descriptions of the "Indian Language of Signs." It should be noted that J. Schuyler Long corresponded with both Garrick Mallery and Hugh Scott, the two preeminent scholars of Indian Sign Language of the time. Additional research is needed to learn more about these collaborations and

the historical relationships between the historical varieties of Indian Sign Language and ASL. Furthermore, linguistic comparisons must take into account iconicity, historical change, and variation.

Thus, the historical linguistic evidence in these earliest published accounts raises numerous questions such as the following:

- Did Gallaudet pick the eight signs from the 104 Indian signs as the most salient examples of how the Indians and deaf people signed the same (in an attempt to prove his claim about the universality of natural sign language)?
- Were Indian signs ever used to teach deaf students attending schools for the deaf (something not explicitly stated by Gallaudet in the 1848 *American Annals of the Deaf and Dumb* essay)?
- What about contact between the earliest European immigrants who were deaf and American Indians?
- What contact did deaf students attending the first American schools for the deaf have with American Indians who signed?
- Are there documented cases of American Indian children who were deaf attending schools for the deaf?
- Given the propensity for American Indians to use sign and the fact that Indians were reportedly inhabitants of Martha's Vineyard at the time of the first wave of European immigration (Groce 1985), what connection might there be between these historical facts and the subsequent emergence of a Martha's Vineyard sign language variety?

These questions are beyond the scope of the present study to address but are offered here for others to consider as possible topics for further investigation.

For this paper, I conducted a preliminary analysis of this 1823 published list of 104 Indian signs and compared them with subsequent sign descriptions contained in the historical PISL database. First, I compared the descriptions from the early 1800s with those made in the late 1800s and early 1900s (i.e., documented ethnographic accounts that spanned a one-hundred-year period). Then I compared the nineteenth and early twentieth century descriptions with 150 examples of Indian signs that were contemporarily signed and videotaped by Martin Weatherwax (2002), chair of Blackfeet Studies at Blackfeet Community College in Browning, Montana. Professor Weatherwax reported that he learned Indian Sign Language natively from his Blackfoot grandfather. Thus, the

preliminary historical linguistic comparisons reported here span three centuries (i.e., from the very early 1800s until the 2000s).

Conservatively, I have estimated that at least 75 percent of the signs from the 1823 descriptions were identical or similar (i.e., differing in only a single parameter — handshape, movement, location, orientation) to the Indian signs that have been documented for subsequent generations. Although these results are preliminary and should be interpreted carefully, one must also consider the overwhelming historical linguistic evidence for there having been an intertribal and intergenerational signed lingua franca. The 1930s films produced by Hugh Scott remain the richest source of historical NASIL and provide the strongest evidence for a historical signed lingua franca.