

Volume 1: Principles,
Background, and Application

Simplified Signs

A Manual Sign-Communication
System for Special Populations



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2. Use of Manual Signs and Gestures by Hearing Persons

Historical Perspectives

There are many situations in which spoken language communication is not feasible or successful, even if all persons involved have the physical ability to produce speech. In these cases, a viable option may be the use of signs or gestural communication; history provides multiple examples of the success of such a strategy. The early Europeans who landed on the shores of what to them was the New World encountered Native Americans¹ with whom they could not effectively communicate through spoken language. Faced with this difficult situation, they quickly resorted to the use of gestures and manual signs. Not only did these Europeans employ signs and gestures in their efforts to communicate, but the Indigenous peoples they met often made use of manual signs and gestures in these first contact situations as well (Bonvillian, Ingram, & McCleary, 2009).

1 In this text, the term *Native American* is mainly used to refer to the Indigenous peoples that lived on the North American continent prior to the arrival of European colonizers. In particular, we focus most of our attention on interactions between Europeans and the Indigenous peoples of the present-day continental United States, northern Mexico, and southern Canada. Needless to say, there are other examples of such interactions in both North America and South America, as well as in many other parts of the world. As a full account of such cross-cultural contact situations is far beyond the scope of this chapter (and, indeed, this book), we have constrained ourselves to the denoted regions. As such, we have generally chosen to use the term *Native American* in a limited capacity as opposed to the more inclusive phrasing *Indigenous peoples of the Americas*, which is gaining popularity as the preferred way to refer to the multiple different cultural groups found throughout North, Central, and South America.

In fact, many of the Indigenous peoples that Europeans encountered had very effective sign-communication systems of their own. Because the various Native American tribes or nations spoke hundreds of different languages, they needed to find a way to overcome the spoken language barriers that they frequently experienced. The use of sign-communication systems enabled many Native Americans to communicate easily and efficiently across a wide geographical area (Davis, 2010, 2016). Manual signs also enabled Native Americans to communicate effectively while hunting without disturbing their prey. So widespread was signing among Native Americans at one time that when the sixteenth-century Spaniard Cabeza de Vaca learned one of their sign systems, he was able to use it to communicate effectively during his epic trek across much of continental North America (Bonvillian et al., 2009). Apparently, the sign-communication system that Cabeza de Vaca acquired and used was both easily learned and remembered.²

Communication through signs, however, was not a phenomenon limited solely to Native Americans and the occasional European. Manual signs have also been employed over the centuries by a wide range of persons in quite diverse settings. Although most people today probably think of sign communication as the language of those persons who have grown up Deaf (see Chapter 3), signing has a long history with hearing persons as well. Europeans often used manual signs to facilitate communication in everything from dramatic performances to business transactions. The utilization of manual signs was also a long-established part of monastic life. By signing instead of speaking, monks could successfully communicate in silence and avoid distracting the religious contemplation of others.

Using manual signs as an alternative to speech and as a potential universal language was also a recurring topic of philosophical inquiry across the centuries. Furthermore, there are biological and linguistic bases for believing that humankind's first language was a gestural one. Some support for this view has come from an experiment conducted centuries ago in which children were deliberately isolated so as to not

2 Cabeza de Vaca's success, indeed his survival, often depended on his ability to communicate through signs with people living across a wide geographical area who spoke many different languages. His experiences interacting with so many different cultural groups emphasize the potential usefulness of a sign-communication system for modern travelers as well. Such a possibility is discussed in Chapter 1.

be exposed to spoken language. These children were reported to have learned and used manual gestures to communicate instead of speech.

The Origins of Language

Various scholars over the centuries have speculated about humankind's first language. Where did this remarkable ability come from? Was it divinely inspired, part of our biological heritage, or the product of learning by a social creature? Which language was humankind's first? In discussions of the nature and origins of language, most people start from the perspective that languages are spoken and transmitted in an auditory-vocal manner. It is only in the past several decades that many linguists have expanded their views to include as genuine languages the sign languages used by members of Deaf communities. Some linguists and neuroscientists, moreover, have ventured past this point and theorized that human language emerged from manual sign or visual-gestural communication (e.g., Armstrong, 2008; Armstrong, Stokoe, & Wilcox, 1995; Armstrong & Wilcox, 2007; Corballis, 2002, 2009, 2013, 2017b; Fay et al., 2014; Gentilucci & Corballis, 2006; Hewes, 1976; Kimura, 1976, 1993; Levinson & Holler, 2014; Stokoe, 2001). According to this view, our human ancestors communicated primarily through manual signs or gestures, with their hands being used to represent a wide range of objects and actions (Armstrong, 2011; Wilson, 1998); spoken language did not appear until much later in human evolution. In this account, the relatively rapid emergence of spoken language as the predominant form of human communication occurred because it was based on an already established gestural means of communication that relied on sequentially produced manual signs.

How, then, would gestural communication itself have developed, and why would it have developed before spoken communication? One hypothesis advanced to explain an early emergence of manual communicative gestures is that such gestures stemmed from a neural mechanism already present in our prehominid ancestors (Arbib, 2005, 2013; Rizzolatti & Arbib, 1998). This neural mechanism, composed of a set of neurons called mirror neurons (as first observed in the brains of macaques), is active not only when an individual produces a specific action, but also when that same motor action or a similar one is viewed.

It appears that mirror neurons enable an individual to understand actions performed by others if the individual also has the ability to perform those actions (Corballis, 2010; Rizzolatti & Sinigaglia, 2008). Our current knowledge of human neurophysiology from brain imaging suggests that a mirror system for grasping, believed to be critical to our ability to imitate, is located in close proximity to neural systems devoted to manual control as well as the syntactic aspects of language production (Binkofski & Buccino, 2004). The co-representation of all these mechanisms in the same region of the brain has led a number of researchers to advance the view that the mirror neuron system helped lead humankind to first develop a gestural communication system or language, based on the ability to recognize, imitate, and build upon the hand movements used by others (Arbib, 2013; Ferrari, Gallese, Rizzolatti, & Fogassi, 2003; Rizzolatti & Arbib, 1998). In this approach, a mechanism for language presumably emerged from a mechanism not initially related to communication, such as the capacity to generate and recognize actions.

Many current researchers also think that control of the vocal mechanisms necessary for autonomous speech emerged only relatively recently in humans, long after humans had acquired proficiency in gestures and other voluntary motor actions (Corballis, 2002, 2009, 2017a; Lieberman, 1998; Stokoe, 2001). If this were indeed the case, then it implies that our human ancestors had more limited speech capabilities. Without being able to produce a sufficiently diverse array of sounds, these ancestral humans most likely would have found speech a less effective means of communication. In turn, they may have relied more heavily on their manual or gestural abilities to describe or represent aspects of their world. Sounds certainly would have played important roles in conveying alarms and indicating where one was located, but they may not have been as useful as manual gestures or signs in representing many objects, actions, or locations in the environment.³

Manual signs or gestures, on the other hand, clearly can be made to resemble or describe many objects, animals, actions, or properties; this

3 As stated in Fay et al. (2014), contemporary studies of gestural use by non-human primates also provide some support for the gestural theory of language origins (see Gardner & Gardner, 1969, 1971; Pollick & de Waal, 2007; Savage-Rumbaugh et al., 1986), but see Cartmill, Beilock, & Goldin-Meadow (2012) for information regarding the differences between human gestures and modern ape gestures in terms of their structure, meanings conveyed, and representational aspects.

characteristic is known as iconicity. Pantomime, for example, is highly iconic in nature. This representational capacity of gestures is largely equivalent to the meaning, or semantic, component of languages. Iconic signs or gestures, because they closely resemble the objects or actions for which they stand (their referents), probably would have been readily understood by others.

Another characteristic of gestures, movement, makes them an even more effective means of communication. When a person's gestural communications incorporate movement or motion, additional information beyond the identification of an object can be conveyed (Fay et al., 2014; Goldin-Meadow, 2003; Stokoe, 1991, 2001; Wilcox, 2009). Movement not only can indicate action, a property of verbs, but it can indicate the direction or location of the action (depending on where the gesture is produced). Movement can also indicate who or what is causing the action, as long as the location of the agent or the instrument used to perform the action is specified gesturally. Furthermore, movements can be systematically varied (e.g., slowed down, repeated) to show modification of the action. In light of these capacities, one can make an argument that gestural production can convey to the viewer considerable information that is syntactic in nature as well. The emergence of an ability to combine iconic gestures or mime sequences, moreover, may have facilitated early peoples' planning of forthcoming actions and the recounting of past events. For our early human ancestors, with their spoken language likely limited by biological constraints, gestures may well have been used quite extensively and effectively. In fact, the current focus on the gestural origins of language may help change scholars' views on the nature of speech itself. Once viewed exclusively as a system for sound production, speech is now considered by some researchers to be primarily a system for producing articulatory gestures (Gentilucci & Campione, 2013; Gentilucci & Corballis, 2006; Liberman, Cooper, Shankweiler, & Studdert-Kennedy, 1967).

Although many linguists and neuroscientists have only recently begun to seriously consider the idea that humankind first used gestures or manual signs to communicate, the idea itself is not an entirely new one. In 1746, a manuscript by prominent French scholar Etienne Bonnot de Condillac entitled *Essay on the Origin of Human Knowledge* (Trans. H. Aarsleff, 2001) was published describing the early communication of two imaginary children, a boy and a girl. In this essay, one child first

used gestures to convey that he wanted something out of his reach. The second child understood the movement of the other's head, arm, and body and came to his assistance. Eventually a language emerged from these gestures as the children learned to connect ideas with gestural signs. Sounds often accompanied the children's gestural production, but speech did not replace the children's gestural language until later. This depiction of language as emerging solely out of human agency also challenged the view presented in the Book of Genesis of a divine origin of language (Rosenfeld, 2001).

Condillac's essay was largely speculative, without any basis in empirical evidence, yet it hints at how one might determine the answer to the question of what humankind's first language was. One approach to resolving this question that was discussed by different scholars over the centuries was to rear children from early infancy without exposure to any spoken language and then determine what language, if any, they spontaneously produced.⁴ Such a language, generated without the benefit of spoken language input, was deemed by these scholars as likely to be the most fundamental of human languages: humankind's first and oldest language.

There is compelling evidence that at least one experiment was conducted that systematically examined the development of children reared without exposure to spoken language.⁵ That experiment was conducted over 400 years ago by Akbar, emperor of Hindustan (Bonvillian, Garber, & Dell, 1997). If children, without benefit of spoken language input, were to utter a certain tongue, then Akbar felt that this language would be the oldest language. Akbar, according to his court historian, Abul Fazl, also was motivated to conduct his language experiment to resolve the question of whether speech arises spontaneously in children.

In Akbar's experiment, a number of children were taken from their parents (for a monetary consideration) while they were still in early

4 This approach might be seen as an effort to simulate the perceived conditions surrounding the initial emergence of human language. What these scholars evidently did not consider is that the language-learning skills of modern-day children would differ substantially from those of children eons ago when human language was first emerging (Botha, 2007; Goldin-Meadow, 2003).

5 This example from history of a highly unethical experiment conducted on children would not be acceptable today in reputable scientific communities.

infancy and then reared in a secluded house by nurses who refrained from speaking to them. Guards were posted at the house to ensure that speech did not intrude. The children remained in the house for periods of three to four years, receiving nourishment and interaction, but no spoken language input.

When the children were about four years old, Akbar had their language skills assessed. The children spoke no language at all; their only vocalizations were the noises associated with people born deaf. This was seen as a disappointing outcome because it failed to resolve the question of which spoken language was the oldest human language. The outcome did, however, provide evidence for the view that speech does not arise spontaneously in children. Children apparently need at least some minimal level of exposure to a particular tongue in order to acquire it.

Although the children in Akbar's language experiment failed to acquire even limited facility in speech, they did not fail to learn how to communicate. Rather than using spoken language, they "merely expressed their thoughts through gestures which answered the purpose of words" (Tylor, 1878, p. 81). Unfortunately, the accounts of Akbar's study do not provide sufficient detail about the children's gestures or manual signs to determine whether the children's gestural communication should be viewed as a genuine sign language. Nor do we know whether the nurses used gestures or signs in front of the children. Still, it is an interesting finding that the children acquired an ability to communicate through gestures or signs. In fact, Akbar and the scholars in his court may have been premature in dismissing the findings of the experiment. In light of contemporary views that our human ancestors probably communicated mostly through signs or gestures, the finding that the children communicated gesturally may have been an accurate resolution of the issue of language origins after all!

Signs as a Natural and Universal Form of Communication

In addition to the philosophical inquiries of various early scholars about the origins and emergence of human language, the potential utility of manual gestures has long been recognized. Through the ages,

certain European scholars embraced the view that manual signs and gestures constituted a natural and effective means of communication that might take the place of speech. By “natural” it was meant that signs and gestures could be understood without needing to be learned or translated. This view about the nature of signs and gestures may have encouraged Europeans to use signs in North America, inspired investigators to study Native American signs, and influenced some of the early teachers of deaf students.

The view that someone unable to speak could communicate quite effectively through manual signs or gestures has a long history; it goes back at least to classical antiquity (Knowlson, 1965). In Plato’s *Cratylus*, Socrates advanced the view that if one were without voice or tongue, then one could convey information effectively through the use of the hand, head, and rest of the body, much like the signing of deaf and mute persons. In making such a sign, “We should imitate the nature of the thing” (Plato, Trans. B. Jowett, 1961, p. 457). As an example, “if we were describing the running of a horse, or any other animal, we should make our bodies and their gestures as like as we could to them” (Plato, Trans. B. Jowett, 1961, p. 458). In this approach, the manual signs or gestures produced by deaf and mute persons were seen as resembling the basic nature of things or having a natural affinity to the concepts for which they stood. This natural resemblance meant that the meanings of manual signs were seen as sufficiently transparent that they could be understood without needing to be formally learned and that signs thus formed a natural language.⁶ This belief about the nature of signs, it should be noted, was based on impressions, not systematic observations.

A small number of scholars over the centuries also advanced the view that a language of the hand or manual signs might serve as a universal language for humankind. Such signs would transcend spoken language barriers because they were based on actions known by everyone. John Bulwer, an ardent seventeenth-century advocate of this view, wrote about the capacity of the language of the hand:

6 The meaning of the term *natural language* has changed considerably over the years. In contemporary usage, a natural language would be understood to mean a language with its own grammar and lexicon that is acquired by native signers or speakers (Fischer, 2002). Examples of natural languages would be American Sign Language, French, Russian, Swahili, Spanish, Argentinian Sign Language, and Mandarin (Chinese).

It speaks all languages, and as an universal character of reason, is generally understood and known by all nations among the formal differences of their tongue. And being the only speech that is natural to man, it may well be called the tongue and general language of human nature which, without teaching, men in all regions of the habitable world do at the first sight most easily understand. (Bulwer, 1644/1974, p. 16)

According to Bulwer, only spoken languages had been confounded at the Tower of Babel in the Genesis account. That is, when God punished men for their hubris in attempting to build a tower to the heavens, the resulting confusion caused by a proliferation of languages was limited to spoken language. The language of the hand, in contrast, “had the happiness to escape the confusion of Babel” (Bulwer, 1644/1974, p. 19). Although Bulwer may have been correct in the sense that gesture likely would prove a more effective form of communication than speech between individuals who spoke different languages, he failed to recognize that gestures varied widely by a person’s cultural background (Knox, 1990).

An early indication that the manual signs used by persons who had grown up Deaf were much more than simple, readily understood pantomimic gestures came from the observations of a Dutch jurist, Cornelius Haga (Rée, 1999; Sibscota, 1670/1967). Haga served as an ambassador to the Court in Constantinople (present-day Istanbul) from 1611 to 1639. At his court, the Ottoman Sultan maintained a retinue of deaf and mute servants because he believed that they would not be able to betray court secrets to outsiders. Haga, intrigued by this situation, briefly studied these servants’ signing. Haga observed that whereas he readily understood the meanings of some of the signs, the meanings of most were not apparent. With the assistance of sign language interpreters, Haga discovered that he could communicate in-depth on all topics with the deaf servants. He concluded that their system of signing was capable of expressing a wide range of ideas quite effectively.

Some of the first educators of deaf students also advanced the view that manual signs potentially constituted a universal natural language system for humankind (Knowlson, 1965). If that were the case, then manual signs might effectively overcome language barriers worldwide. Roch-Ambroise Bébien, an educator of deaf students in the early nineteenth century, nevertheless recognized that selecting a sign

with a natural relationship to an idea was often not a straightforward undertaking. This was the case because the things signified frequently had a range of distinctive characteristics or features. Bébian observed that one “must choose between the possible signs for depicting an idea” (Bébian, 1817, Trans. F. Philip, 1984, p. 152) and “where there is a choice, error is possible” (Bébian, 1817, Trans. F. Philip, 1984, p. 150). If an error were made and an imprecise sign selected, Bébian hoped that educators would help rectify the situation and select a more precise sign. From such an approach, an effective natural language of signs or gestures might emerge.

The notion that there could be a natural gestural or sign language of humankind that was essentially universally understood rested, however, on a rather tenuous assumption. That assumption was that there were basic representative characteristics of actions, objects, or properties that could be rendered in gestures and be accurately perceived by most everyone. One problem with this approach, as Bébian observed long ago, is that there likely are a number of particular characteristics that might be selected as the basis of a “representative” gesture or sign. Furthermore, the selection of a “representative” gesture becomes noticeably more difficult when one moves from depicting concrete objects or overt actions to depicting abstract ideas. Another problem is that each individual confronting the task of creating a representative gesture would approach the task with a different viewpoint (Eco, 1995). What is a salient characteristic for one person might not be so for the next. Finally, the meaning or significance of objects, actions, or properties may vary considerably across cultures. This variation in meaning cross-culturally compounds the difficulty of selecting a representative gesture that would be universally understood.

Gestural and Sign Use Cross-Culturally

Indeed, there are imposing obstacles to developing a universal gestural or sign-communication system. Growing up in a particular culture, one often is not consciously aware of the large number of nonverbal behaviors and rules that one has acquired. However, travel to a foreign land with a different culture and one can very quickly recognize just how acutely different these cultures are nonverbally. Rules for body

postures, greetings, eye gaze, hand use, and gesture production may vary dramatically. Furthermore, gestures seen as having transparent meanings in one culture may not be so viewed by someone in another culture.

One particular difficulty in developing a universal gestural or sign-communication system is that certain handshapes and gestures may have quite distinct meanings in different countries or cultures. A specific gesture that would be responded to in an approving manner in one country might be considered terribly rude, obscene, or provocative in another (Grosse & Reker, 2010). An example of such a potential gestural bombshell is the American "O.K." sign (the tips of the thumb and index finger touch to form a circle, with the remaining fingers extended and separated). In the U.S., this gesture has historically been used to indicate that things are fine or that one is doing well. The same gesture would be considered quite rude or vulgar in Brazil, Russia, and Germany (Axtell, 1991). Conversely, a handshape deemed offensive in the U.S., the extended middle finger, might be entirely acceptable in much of the rest of the world and be used in many signed languages (Holcomb, 2013). Moreover, gestures can have different meanings within the same country, take on new meanings as societies and cultures change, be appropriated by smaller groups or sub-cultures for their own purposes (whether benign or nefarious), or even pass out of usage altogether.

Fortunately, as people from disparate parts of the world learn more about each other, often from movies, television, videos, apps, and the internet, there is growing recognition that certain signs, gestures, and other nonverbal behaviors may have quite different meanings in other countries or cultures. As a result, those gestures or nonverbal behaviors that might be interpreted as offensive if made by a fellow citizen might be allowed to pass without alarm if made by a visitor. Correspondingly, with much more known today about cross-cultural differences in nonverbal behavior, it behooves the visitor to proactively learn what signs, gestures, and other nonverbal behaviors should be avoided when travelling to a particular area. Another useful option is to employ the services of an experienced travel guide or interpreter to help avoid or smooth over potential cross-cultural misunderstandings.

Because identical signs, gestures, and other nonverbal behaviors can have different meanings around the world, it is likely that efforts to generate a universal or nearly universal gestural communication

system will include some gestures that are offensive to someone somewhere. One approach to resolving this issue would be to have users of any sign-communication system modify the offending gesture for use in that particular culture or to recommend that signs with related meanings be used in place of the offending one (see Mindess 2014 for a discussion of multicultural issues in the context of sign language interpreting). A second way to resolve this problem would be to note which signs might be offensive in which cultures so that the learner of a particular sign system might know beforehand which gestures or signs should be avoided while in that certain country. Despite these obstacles, if a gestural or sign-communication system could be developed that was both relatively easy to learn and useful in many different situations, then it would likely be helpful in overcoming many spoken language barriers.

Finally, it should be remembered that a widely used and easily learned sign-communication system was developed at least once before — by the Indigenous inhabitants of North America. Their success in this domain shows that it is possible for a sign-communication system to be embraced by a wide range of people who speak (or sign) many different languages. Furthermore, some of the same telecommunications technology that is bringing the world closer together might also be harnessed to disseminate information about such a sign-communication system.

Sign Communication in North America

With estimates of at least 400 different spoken languages (and probably hundreds more) in existence in North America at the time of Christopher Columbus' arrival (Farb, 1968; Goddard, 1996; Silver & Miller, 1997), communication through speech alone among members of separate Native American nations or tribes was a serious problem. Members of different nations needed a system of communication that could help them overcome numerous spoken language barriers. This problem was largely resolved by the use of a manual sign-communication system, Plains Indian Sign Language (PISL), also known as North American Indian Sign Language or American Indian Hand Talk (Davis, 2006, 2010). Members of a Native American nation typically would employ

signs when they interacted with members of another nation who did not understand their spoken language. With members of many different nations able to sign, sign communication served as a common “language” or lingua franca (Campbell, 1997; Davis, 2005, 2010, 2016). In addition to this intertribal usage, Plains Indian Sign Language was commonly used as an alternative means of communication within a tribe, not only with deaf tribal members, but with hearing members as well (Davis, 2017). Moreover, signing was used concurrently with the spoken language of a tribe, or rather, as an augmentative means of communication. PISL also has been transmitted as a native language across multiple generations (Davis, 2017).

Because the culture of most Native Americans in North America historically was not a written one, obtaining information about their sign communication proved an arduous task for outsiders in early contact situations. The frequent hostilities between Native Americans and European immigrants made earning the confidence of tribal members, much less learning their language and culture, a difficult undertaking. Much of what we know about Native American sign communication was acquired during the nineteenth century through the efforts of a relatively small number of individuals, among them Garrick Mallery, William P. Clark, and Lewis Hadley.⁷ Mallery had become quite knowledgeable about Native American signs and culture during his service in the west as a lieutenant colonel in the U.S. Army. His 1881 *Sign Language among North American Indians* contains information on the history and nature of signed languages together with written descriptions of Native American signs that he and other early investigators had recorded. Clark, a captain in the U.S. Army, provided detailed written descriptions of over 1000 signs in his 1885 volume *The Indian Sign Language*. His thoroughness proved quite helpful both to contemporary and subsequent investigators. Finally, Hadley’s 1893 *Indian Sign Talk* included drawings, many for the first time, of how nearly 600 different signs were formed.

7 Lewis F. Hadley was a missionary of Quaker parentage allegedly born in Salem, Massachusetts and who lived for some time in what was then Anadarko (Oklahoma), Indian Territory. Hadley travelled widely among Native Americans for much of his life, initially compiling vocabularies of various Native American spoken languages before focusing on their Indigenous sign languages (Foreman, 1949). It is unclear which Native American nation or individual(s) bestowed upon Hadley the name of Ingonompashi, but there is some evidence that Hadley preferred this designation over his given birth name, especially in his published works on their sign language.

The use of manual signs to communicate was, at one time, quite widespread among Native Americans (Mallery, 1880, 1881/2001). Mallery reported that signs were used as far north and west as Alaska, in the north and east among the Cree and Iroquois, and south into Mexico.⁸ Although Mallery marveled at the extent to which sign communication permeated North America, he was at pains to point out that there was not a single, universal sign system used throughout the continent by all Native Americans. In support of this latter claim, Mallery described the situation of the Utes and Paiutes (of western North America). Mallery observed that the Utes and Paiutes not only had their own signs, but that they recognized clear differences between their own signs and those of other Native American nations. These differences in sign systems, however, should not obscure the observation that there was considerable similarity in the signs used by many different nations, especially those signs used by members of the nations who inhabited the Great Plains of North America (e.g., Cheyenne, Comanche, Kiowa). The sign-communication system of the Plains Indians was used over a vast geographical area, extending from present-day Texas northward into Canada (McKay-Cody, 1998).

Since this sign system served to facilitate communication among members of many different Indigenous nations, it needed to be relatively easy to learn, as it typically would not be the principal means of communication for those who used it. It also needed to be easily understood and remembered by all. The Plains Indians used a sign vocabulary that met these important criteria by creating manual signs that often resembled the concepts for which they stood (that is, the signs were iconic or representative). In many ways, the development of this sign system was a remarkable human intellectual achievement and its widespread dissemination a testament to its practical value in overcoming communication barriers. Indeed, Mallery (1880, 1881/2001), who saw the elements of many of the signs he observed as reflections of

8 There is evidence that manual signing was used even farther north than Mallery envisioned. Sailors who accompanied the Englishman Martin Frobisher on his three voyages to the Arctic during the 1570s commented on the widespread use of signs by the Indigenous people they encountered there, the Inuit. The sailors and the Inuit of present-day Baffin Island, the largest island of the Arctic Archipelago, interacted with each other primarily through manual signs and gestures (Sherley-Appel & Bonvillian, 2014).

images from nature, advanced the view that such a manual sign system might help overcome many barriers to communication worldwide.

What were the origins of the sign-communication systems used by Native Americans? Some of the early investigators asked members of various tribes or nations about the origins of their signs (Dodge, 1882/1978; Scott, 1898/1978). Members of all these tribes and nations indicated that the sign language they used was of great antiquity and that it had been passed down from one generation to the next much like spoken language. Unfortunately, a definitive response as to a specific origin was not forthcoming. Members of many different nations, however, did observe that the Kiowa nation traditionally had been credited with inventing it. In one account, the Kiowas were depicted as often conducting raids among Native Mexicans, capturing numerous horses. The other tribes on the Northern Plains would then journey to the Kiowa and trade for horses. Because the Kiowa were already adept at sign communication, members of other Indigenous nations learned to sign from them.

Although this traditional account provided an explanation for the similarity of the signs used on the Great Plains, it did not explain how the Kiowa came to have such a system. This account also suggested that sign communication followed the re-introduction of horses to the Americas by Europeans. Mallery (1881/2001), however, observed that the conditions favorable for the emergence of a sign-communication system (many distinct spoken languages in one geographical area) predated the arrival of Europeans and their horses to North America. It is quite possible that the Indigenous peoples of present-day Mexico and Guatemala had sign-communication systems that long preceded the arrival of Europeans (Fox Tree, 2009), and that one of these sign-communication systems was learned by members of the Kiowa (or other groups) through intertribal contact (Brennan, 1998).

Alternatively, perhaps, the occurrence of hearing impairment or deafness among tribal members may have spurred the creation of manual signs.⁹ Such signs might then have been adapted for communication

9 Native American children have a much higher incidence of otitis media, or middle ear inflammation, than American children with European ancestry (Bluestone, 1998; Bluestone & Klein, 2007). This much higher incidence of otitis media in Native Americans may result in overall increased rates of impaired hearing or

across spoken language barriers. Deaf members of Native American communities, moreover, apparently played important roles historically in the development and transmission of these sign-communication systems (Davis, 2016). Signs, either produced alone or accompanying speech, also played important roles in various other tribal activities such as storytelling (Farnell, 1995), rituals, prayers, conversation, and games (Davis, 2014). Furthermore, it should be noted that various Indigenous groups, including Native Americans, made considerable use of manual sign communication when hunting (Davis, 2017). To successfully bring down medium- or large-sized animals, Indigenous hunters often operated in groups (Divale & Zipin, 1977). A likely reason for this group action is that such animals typically needed to be wounded multiple times before the fatal blow was delivered. With the limited range of their weapons (e.g., bows and arrows, spears), the hunters also needed to get relatively close to their prey without being detected. The use of manual signs or gestures enabled members of a hunting party to effectively coordinate their actions in silence, greatly increasing the likelihood that they would not be detected. This ability to communicate silently in the presence of large predators may also have increased the likelihood that people would survive such encounters. These different uses and advantages provided by manual signs may help explain why signing became so widely used on the Great Plains in particular and more generally throughout North America.¹⁰

One explanation advanced for the origin of Native American signs that is not well supported is the hypothesis that European newcomers introduced the practice of communicating through signs to Native Americans (Samarin, 1987). Although many Europeans may have been exposed to the use of pantomime or gestural communication before embarking for America, the journals of a number of early Europeans

deafness in this population (Hammond & Meiners, 1993; McShane & Plas, 1982). Contemporary deaf children from Native American communities often attend schools for deaf students where they acquire facility in American Sign Language as opposed to their Indigenous sign language (Davis, 2016).

10 Over the past century, many of the spoken languages of the Indigenous peoples of North America have become endangered, as these languages often are not being transmitted to children (Hornberger, 1998; McCarty, 2008). In an effort to reverse this trend, gestures and manual signs currently are being used as effective vehicles of vocabulary learning in various programs of Native American language instruction (Borgia, 2014; Kipp, 2007).

underlined the presence of signing among the Native Americans at the time of the Europeans' arrival in North America. One such European was Cabeza de Vaca, whose trek took place only a few years after forces under the command of Hernán Cortés toppled the Aztec Empire (which eventually resulted in the conquest of Mexico for Spain). It is extremely unlikely that any system of manual communication introduced by Cortés or other colonizers could possibly have spread so widely throughout North America in such a brief period. To the contrary, there is considerable evidence that the Spaniards encountered sign communication in their interactions with Native Americans in their early travels into present-day Mexico and the area north of Mexico (Díaz del Castillo, Trans. A. P. Maudslay, 1908; Mallery, 1881/2001; Wurtzburg & Campbell, 1995).

Europeans in the New World and their Communicative Interactions through Signs

Álvar Núñez Cabeza de Vaca was not the first or only European to rely on manual communication in his interactions with Indigenous peoples in North America, but the story of his travels is a particularly compelling and illustrative one. Filled with twists and turns of fate and fortune, Cabeza de Vaca was able to parlay a rather inauspicious start to an expedition focused on exploiting and absconding with the natural resources of a foreign land into a more equitable and respectful relationship with various Native American nations he encountered (Bonvillian, Ingram, & McCleary, 2009).

The Adventures of Cabeza de Vaca

We passed through a great number and diversity of languages. With all of them God our Lord favored us, because they always understood us and we understood them. And thus we asked and they responded by signs as if they spoke our language and we theirs... (Cabeza de Vaca in Adorno & Pautz, 1999, p. 233)

In the English translation of his report to his king quoted above, the Spaniard Álvar Núñez Cabeza de Vaca provided an account of his incredible trek across much of North America. It was a story of

survival and perseverance in a foreign land, despite great hardships and innumerable obstacles. Essential to the survival of Cabeza de Vaca and his three companions from the Old World was the fact that they were able to communicate successfully with Native Americans by using manual signs. Without this ability, Cabeza de Vaca's odyssey might have had a very different, and perhaps fatal, ending.

Cabeza de Vaca was chosen to serve as the treasurer on an ill-fated Spanish expedition that reached present-day Florida in 1528. About 300 Spaniards disembarked there and began an overland campaign in search of riches in gold. Cabeza de Vaca observed that the native people he encountered in this expedition were quite active in their use of manual signs. Furthermore, both the Europeans and Native Americans relied heavily on manual signs and gestures in their communicative exchanges. Disease, a serious lack of food, and hostilities between the two groups, however, brought this part of the expedition to its end.

Unable to locate the ships that had brought them to Florida some months before, the Europeans constructed five rafts that they used for transportation along the Gulf Coast as they searched for Spanish-controlled territory. The rafts eventually washed ashore on the coast of present-day Texas; Cabeza de Vaca was one of only a small number of survivors. Taken captive by members of a tribe who lived on an island in the area of present-day Galveston Bay, Cabeza de Vaca suffered mightily as a result of forced labor before escaping to the mainland. On the mainland, he experienced better treatment and eventually established himself as a neutral merchant among many different Native American nations. His trading ventures brought him deep into the interior of North America and into contact with diverse groups of people. Because the members of many of these nations spoke different languages, Cabeza de Vaca likely acquired and used the manual sign-communication system employed by the Native Americans he encountered (Wurtzburg & Campbell, 1995).

In 1534, Cabeza de Vaca and three other survivors of the expedition began another attempt to locate Spanish-controlled territory. Initially, they moved slowly along the Gulf Coast, crossing the Rio Grande before turning to the northwest in the summer of 1535 (Adorno & Pautz, 1999). In the ensuing year, these four men wandered widely. Although their precise route remains a topic of scholarly debate, they most likely

traveled through present-day northern Mexico, then southwest Texas, and probably into southern New Mexico. The men then changed direction again, this time heading to the southwest until they reached the Gulf of California in early 1536. From this point, they moved down the coast until they arrived at Spanish-controlled territory in present-day Mexico. In the course of their journey, Cabeza de Vaca and his three companions gained much respect among the Native Americans as great faith healers. Their reputation as healers preceded them in their travels, facilitating their movement among tribes or nations hostile to one another (Howard, 1997). Nevertheless, their trek is an incredible tale of human endurance in the face of extreme privation (Reséndez, 2007).

An important aspect of Cabeza de Vaca and his three companions' survival was their ability to communicate effectively in signs with the different tribes or nations that they encountered. Cabeza de Vaca claimed that although he passed among peoples who used many dissimilar tongues, he successfully asked questions and received answers by signs (Tomkins, 1931/1969). In his account, Cabeza de Vaca made clear that the sign-communication systems he encountered (particularly the one used by the Native American nations or tribes of the Great Plains) were both quite widespread and highly efficient (Wurtzburg & Campbell, 1995).

Other Early Contact Situations

Indeed, manual communication played an important role in many of the early explorations and settlements of the New World by Europeans. When Europeans first arrived in North America, they encountered a serious communication barrier with the Indigenous inhabitants. Not only was there no shared spoken language, but two vastly different cultures were colliding. This communication dilemma was resolved to some extent by both parties (the Europeans and the Native Americans) using manual signs and pantomime.

Christopher Columbus, in his log book entry on the first day of contact between his crew and Native Americans, 12 October 1492, described how he tried to make sense out of what he was seeing: "Many of the men I have seen have scars on their bodies, and when I made signs to them to find out how this happened, they indicated that people from

other nearby islands come to San Salvador to capture them; they defend themselves the best they can" (Columbus, 1492, Trans. R. H. Fuson, 1987, pp. 76–77). Columbus apparently felt that this gestural communication was relatively effective. He observed: "I asked by signs," "I could find out by means of signs" (Ohler, 1986, Trans. C. Hillier, 1989, p. 75), and "I already understood something by means of signs" (Columbus, 1492, Trans. R. H. Fuson, 1987, p. 158). Columbus' assessment of how much he was learning through signs, however, likely was an overly optimistic interpretation (Axtell, 2000).

Although early Europeans in North America made frequent use of manual signs and gestures in their interactions with Native Americans (Greenblatt, 1991; Quinn, 1979), their assessments of the effectiveness of this approach varied considerably. Giovanni da Verrazzano, who explored the east coast of North America in 1524, observed on one occasion that the Native Americans "showed us by signs where we could more conveniently secure our boat" (Verrazzano, 1524, Trans. J. G. Cogswell, 1841/[1896], p. 2), whereas on another occasion he complained: "As to the religious faith of all these tribes, not understanding their language, we could not discover either by sign or gestures any thing certain" (Verrazzano, 1524, Trans. J. G. Cogswell, 1841/[1896], p. 11). Perhaps Verrazzano's effort to probe Native Americans' depth of religious understanding was too complicated an undertaking for an early encounter involving signs and gestures. The same, however, cannot be said for the Frenchman Jacques Cartier (1491-1557), the first European to travel the Gulf of St. Lawrence. Cartier became frustrated when his efforts at gestural communication did not have the effect he intended: "...we did not care to trust to their signs and waved to them to go back, which they would not do but paddled so hard that they soon surrounded our long-boat with their seven canoes. And seeing that no matter how much we signed to them, they would not go back, we shot off over their heads two small cannon" (Cartier, 1534, in Quinn, 1979, p. 299). That action resulted in the Native Americans paddling a safe distance away. Unfortunately, this was just one instance of how gestural and spoken communications between Europeans and Indigenous peoples did not produce the desired result.

Certainly, among the most effective manual sign communication that any of the early Europeans encountered was that of the Plains

Apache. Pedro de Castañeda was a member of the 1540–1542 expedition led by Francisco Vázquez de Coronado that travelled much of what was to become the southwestern United States and parts of the Great Plains. Castañeda observed of the Plains Apache: “That they were very intelligent is evident from the fact that although they conversed by signs they made themselves understood so well that there was no need of an interpreter” (Castañeda, Trans. G. P. Winship, 1933, p. 38). Evidently, when signing was done skillfully, information was clearly transmitted.

These early communicative interactions between Europeans and Native Americans underline several important points. One is that the Europeans recognized aspects of the communication barriers they would face and, starting from their very first encounters, tried to overcome these barriers by using manual signs, pantomime, and gestures. Correspondingly, the Native Americans, who often signed when interacting with members of other Indigenous nations, relied heavily on manual communication in their interactions with Europeans. Another point is that these early communicative interactions in some instances were not entirely successful. It became evident that certain manual signs or gestures whose meanings were viewed as readily apparent or transparent in one culture might prove unclear to members of another. A final observation is that the Europeans came to recognize that certain individuals and groups were more adept at manual communication than others and that people could acquire proficiency in sign communication. Indeed, in the famous eighteenth-century voyages conducted by James Cook, considerable reliance was made on sign communication, and Cook himself was seen as becoming “adept at sign language” in these encounters (Hough, 1994, p. 244).

Early European Gestural Communication

What background in gestural or manual communication did the early Europeans bring to their encounters with Native Americans? One view is that the use of signs and gestures by Europeans in the years before Columbus was already a well-established approach and deemed sufficiently commonplace not to merit particular attention. Hewes (1974, p. 5) wrote:

Encounters between people ignorant of each other's language are frequently described in the narratives of travel and exploration prior to 1492, although explicit reference to sign-communication is rare, not because it did not occur, but because resort to it has been usually taken for granted.

Why might this be so?

Apparently, the use of signs and gestures in communication was quite widespread in medieval Europe (Nitschke, 1997). In the Middle Ages, mimes and jesters relied on members of the audience rapidly discerning the relationships between the gestures they produced and their meanings (Rée, 1999). Actors in medieval drama also made extensive use of pantomime and gestures to convey important information to their audiences (Enders, 2001). Indeed, the use of mimetic gestures in theatrical productions has a very long history, extending back to the ancient Greeks (Golder, 1996; Lawler, 1964). Orators and preachers during the Middle Ages and Renaissance often utilized a variety of gestures to supplement and to clarify their oral presentations. Many of the gestures used by actors and orators in their presentations were common across much of Europe (Barnett, 1990). This use of widely recognized and easily understood gestures helped many people overcome considerable spoken language barriers. The Europeans also may have benefited from witnessing the behavior of merchants involved in international trade. These merchants frequently encountered situations where their spoken language skills did not suffice. To overcome this obstacle, the merchants often relied on easily understood manual signs or gestures.

Use of Signs by Monastic Orders

Other sources of manual signs for Europeans were the sign lexicons developed and used by members of various monastic orders. Over the centuries, certain groups of devout hearing persons made a concerted effort to communicate without using speech. For these groups, an atmosphere of silence was an important aspect of their contemplative lives. Silence was perceived as assisting the monks in their religious reflection, with manual communication used when and where spoken language was not permitted. For some in the monastic world, being silent also was in accord with a heavenly ideal that was devoid of human speech (Bruce, 2007). The Benedictines were an early Christian religious

order in which the monks frequently employed manual or signed forms of communication (Bragg, 1997). Cistercian monks were another such group (Barakat, 1975).

The precise date of introduction of signs to Christian monastic orders is uncertain. There is, however, every appearance that early monastic orders relied on the use of signs when speech was deemed undesirable (Barakat, 1975; Bruce, 2007). The use of signs as an alternative to spoken language in monasteries was set forth explicitly in the tenth century (Kendon, 1990). Benedictine monks needed to use signs to communicate in certain areas of the monastery during hours when speech was disallowed (Bragg, 1997).¹¹ By 1068, a list of the distinct signs being used by monks was drawn up; it totaled 296 in number. This document and subsequent sign compilations over the centuries provided valuable information on what signs were being used as well as descriptions of how they were formed. These lists served to standardize sign formation across a religious order and, to some extent, control the range of discourse. In spite of a relatively short list of signs, the monks were able to convey many other concepts by combining or compounding two, three, or more individual signs (Barakat, 1975; Kendon, 1990). Monks also created their own signs as communication needs arose in their particular monastery. As a result, each monastery evidently developed, in part, its own sign lexicon (Kendon, 1990).

For many of the manual signs created and used by monks, there was a clearly discernible tie between the sign and what it stood for (its referent). A sign for an object often visually resembled the object as a whole or a prominent feature of the object. Another frequent basis for a sign was the habitual action associated with the referent (Bruce, 2007). These discernible ties between the signs and their referents likely made the signs easier for the monks to learn and remember. Although the use of manual signs enabled the Benedictines, Cistercians, and other monastic groups to communicate extensively in silence, their sign systems should not be viewed as constituting distinct languages (Stokoe, 1978/1987). This is because the monks typically produced their sign utterances in the word order patterns of the spoken languages they knew, as their sign systems had no separate grammatical or syntactical structures of their own.

11 With the Second Vatican Council (founded 1962), however, this policy of silence and corresponding use of manual communication was largely set aside.

Monasteries, in addition to helping spread Christianity and serving as seats of learning, provided a safe place for medieval travelers to eat and to sleep. The monks' reliance on sign communication may also have helped many travelers overcome spoken language barriers (Ohler, 1986, Trans. C. Hillier, 1989). A traveler needed to know only a small number of the manual signs used by the monks to be able to communicate adequately with members of monastic orders located over a wide geographical area. This use of manual signs by European travelers, members of monastic orders, and performers in the Middle Ages may have helped inspire Europeans to use manual signs and gestures during their voyages to North America and in their encounters with Native Americans.

Concluding Remarks

Historical records have shown us that when people who did not speak the same language needed to communicate with each other, they often made use of gestures or manual signs. To facilitate communication in such settings, the meanings of many of the signs or gestures needed to be relatively transparent in order to be understood. In addition, because the signs used would not be the principal language of members of any party, the signs needed to be relatively easy to learn and to remember. This outcome provides a basis for believing that a sign-communication system such as the Simplified Sign System can be a successful alternative or supplement to spoken communication. This approach to overcoming spoken language barriers may also be an effective communication strategy for persons who are unable to speak because of cognitive, motor, or language impairments. Such persons include individuals with an intellectual disability, cerebral palsy, autism spectrum disorder, or aphasia (these groups are discussed in Chapters 4, 5, and 6). Before addressing these different populations, however, it is first important to understand the basic properties of the full and genuine sign languages used as the principal means of communication by persons who grow up Deaf. An analysis of the general characteristics of such sign languages will prove helpful in comprehending the choices we made when selecting or developing signs for the Simplified Sign System.