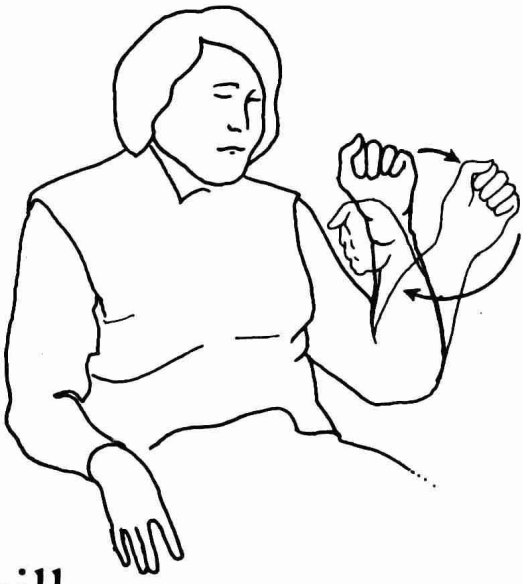
HAND AND MIND

What Gestures Reveal about Thought



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Hand and Mind

For Nobuko

Acknowledgments

I began the project on which this book is based in 1980 in collaboration with Elena T. Levy. Together we collected videos of narratives in the systematic manner that has been a mainstay of the book. In the decade since, so many people have aided me that I may have left out some from this list; I hope not, but if I have I beg their forgiveness.

Several graduate students have written their doctoral dissertations on gestures. In particular Elena T. Levy, Laura L. Pedelty, Debra Stephens, Kaaren Bekken, and Justine Cassell have devoted significant parts of their graduate student careers to sharing my fascination with gestures. Their work has greatly advanced our understanding and I cite them repeatedly in the book itself.

Other students still in the midst of their graduate study or having written dissertations on other topics also have made great contributions to our research on gestures. Brecky Church, Kevin Tuite, Karl-Erik McCullough, Sotaro Kita, and Nancy L. Dray have made important contributions which I cite in the book.

The analytic study of gesture is tremendously time consuming. Just transcribing a gesture and getting the timing right can take 40 to 50 times longer than the gesture itself. Many people have cultivated the peculiarly fatiguing art of gesture observation and transcription. I am extremely grateful to everyone for their sharp eyes and open minds, not to mention their endurance; they first saw many of the phenomena that I describe in this book: Desha Baker, Kaaren Bekken, Joan Boman, Dan Bunnag, Justine Cassell, Brecky Church, Bob Czechin, Nancy L. Dray, Bill Eilfort, Anne Farley, Katie Greeno, Mitsuko Iriye, Sotaro Kita, Elena Levy, Karen Lindig, Suzanne Markel, Karl-Erik McCullough, Elizabeth McGuire, Laura Pedelty, Karen Peterson, Yukiko Shiraishi, Debra Stephens, Kevin Tuite, and Cheryl Whitmore.

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Adam Kendon has read and commented on the entire manuscript of this book, as well as on many others things I have written, and his own contributions to the study of gesture are, I hope, evident from the many references I have made to his work.

Bob Morris, Dick Mowrey, Bill Pagliuca, Naomi Quinn, Michael Silverstein, Josef Stern, Colwyn Trevarthen, Jenny Singleton, and Dahlia Zaidel have been valuable colleagues. George Lakoff deserves special mention, since it was he who, in a conversation a decade ago, pointed out the type of gesture that I describe here as metaphoric. This is one of the most important types of gesture since it shows how abstract thought can be carried out in terms of representations of concrete objects and time and space.

The drawings of gestures add greatly to the clarity and attractiveness of the book. Most are the work of Laura Pedelty, my colleague and former student. Others are by Robert Williams, of the University of Chicago Press. I am extremely grateful to both Laura and Robert for their artistic drawings, and to Laura, not only for her skill and insights, but for her ability to find time in the midst of demanding medical work to prepare so many expressive and accurate illustrations. The index of this book was prepared by Karl-Erik McCullough.

I began writing this book during a year off from the University of Chicago which I spent at NIAS. I wish to thank NIAS for its hospitality and support during that year (1983/84). I was not able to come near finishing the book at NIAS, however, and the book was in fact not finished until 1990. By then I had two more institutions to thank. First is the Department of Anthropology at Duke University. They offered me a forum to present my ideas at an early stage of development. I am particularly grateful to Naomi Quinn for all that she did to make that visit productive and pleasant. Second is the Twelfth International Summer Institute for Semiotic and Structural Studies (ISISSS90), held at the University of Toronto in the summer of 1990. The class I taught there was the first I

ever devoted entirely to gestures and the experience led me to make many structural changes in the book. I wish to express my gratitude to those who sat in on the course; their comments and questions, not to mention their facial expressions, have had a great influence: Pam Sharratt, Colwyn Trevarthen, Richard Schechner, Silja Ikäheimonen-Lindgren, William C. McCormack, Tova Meltzer, and Donna Boregham. To each of them I give my thanks.

Most of all, I wish to thank my family for all their support and guidance. My children, Cheryl and Randall, have virtually grown up with gestures as a topic of family conversation. Their reactions to things I have described have influenced my choices of examples and the ways in which I have presented them. My greatest thanks go to my wife, Nobuko, for her support and encouragement over these years, and also for her inspiration. If the book has any good qualities it owes them to her. It is to her that I dedicate this book.

December 28, 1990

David McNeill

Contents

Introduction

This is a book about gestures and language. The gestures I mean are the movements of the hands and arms that we see when people talk. Sometimes the movements are extensive, other times minimal, but movements there usually are. An example is a person narrating the story of a cartoon and raising her hand while she says, "and he climbed up the rope." The hand and its movement are symbolic; they present thought in action. The hand represents something other than itself. The hand is not a hand, but the character; the movement is not the hand moving up, but this character climbing up; the space is not the speaker's space, but a fictional space, a narrative space that exists only in the imaginary world of the discourse; and so forth. This book is about such symbols of action, movement, and space, and how they are related to spoken language.

These gestures are the spontaneous creations of individual speakers, unique and personal. They follow general principles—the subject matter of the book—but in no sense are they elements of a fixed repertoire. There is no separate "gesture language" alongside of spoken language. Indeed, the important thing about gestures is that they are *not* fixed. They are free and reveal the idiosyncratic imagery of thought. Yet, at the same time, such gestures and the images behind them coexist with speech. They are tightly intertwined with spoken language in time, meaning, and function; so closely linked are they that we should regard the gesture and the spoken utterance as different sides of a single underlying mental process. Gesture provides a new perspective on the processes of language. Language is a broader concept than we ordinarily suppose. This broadening of language is one of the major reasons for an interest in gestures. The effect is like viewing the world through two eyes rather than one. Just as binocular vision brings out a new dimension of seeing, gesture reveals a new dimension of the mind. This dimension is the imagery of language which has laid hidden. We discover that language is not just a linear progression of segments, sounds, and words, but is also instantaneous, nonlinear, holistic and imagistic. The imagistic component coexists with the linear-segmented speech stream and the coordination of the two gives us fresh insights into the processes of speech and thought.

I credit the discovery that there is a unity of speech and gesture to Adam Kendon, who presented this insight in two major papers (Kendon 1972, 1980). The present work definitely belongs to this new approach. Kendon's papers emphasized speech sounds and gesture movements in

linking gestures with language. The contribution of the present book is to add other linguistic levels, specifically gestures linked with semantic and pragmatic content. My argument, in a nutshell, is that *gestures are an integral part of language as much as are words, phrases, and sentences—gesture and language are one system.*

Thus one theme of this book is that language is more than words, that a true psychology of language requires us to broaden our concept of language to include what seems, in the traditional linguistic view, the opposite of language—the imagistic, instantaneous, nonsegmented, and holistic. Images and speech are equal and simultaneously present processes in the mind.

A second theme (and seeing this took much time) is that gestures are part of the discourse in which the speaker is participating. Gestures look upward, into the discourse structure, as well as downward, into the thought structure. A gesture will occur only if one's current thought contrasts with the background discourse. If there is a contrast, how the thought is related to the discourse determines what kind of gesture it will be, how large it will be, how internally complex it will be, and so forth. Often, therefore, we can see the overarching discourse structure more clearly in the gesture than in the words and sentences.

A third theme is that the gesture itself has an impact on thought. The gesture supplies the idiosyncratic, the personal, and the context-specific aspects of thought, to be combined with the socially regulated aspects that come from the conventions of language. Such a combination implies a dialectic of gesture and language in which the gesture provides the momentary context of speaking and language carries this individuality to the social plane where it is categorized, segmented, reformatted, and dressed up for the world.

Putting these themes together, we can conceive of thought as fundamentally an inner discourse in which gestures play an intrinsic part. Each new gesture is the breaking edge of an inner discourse that we but partially express to the world. If our mode of thought is narrative, as Jerome Bruner has so eloquently argued in a recent series of books (Bruner 1986, 1990), that is, if our thought is a story that we are required to keep telling in order to think about our world at all, it is gestures that actively influence this story and carry it forward most expressively.

Gestures have attracted the attention of writers for at least two millennia.[1] However, the original interest was mainly in rhetoric. Quintilian,

1. I draw on a useful essay by Adam Kendon (1982) for this brief history of gesture study.

in the first century A.D., specified in detail the gestures that orators should use during their speeches. This use of gesture, as part of rhetoric, has been the theme of many later works as well, most notably, for the English speaking world, the books of John Bulwer ([1644] 1974) whose *Chirologia* and *Chironomia* were the first on gesture published in English. Both Quintilian and Bulwer took care to specify gestures that could be designed in advance as deliberate elements in a choreographed presentation. They are thus quite distinct from the *spontaneous* gestures that are the subject matter of this book. A new basis for interest in gesture developed during the Enlightenment and this interest, to some extent, continues to the present. In the eighteenth century philosophers became deeply concerned with the origin of language and the universal basis of reason. A number of thinkers supposed that the first languages were gestural. Condillac ([1756] 1971), in particular, argued that the original language emerged from "natural" signs, viz., gestures (cf. Harris and Taylor 1989). The connection of gesture to thought was the focus of interest for Wilhelm Wundt ([1921] 1973), the founder of the first modern psychological laboratory, although he confined this interest to conventionalized gestures (Neapolitan, American Indian, deaf signs), the profound differences of which from spontaneous gestures are the subject of chapter 2 of this book. Nonetheless, Wundt made gesture into a major explanatory link for how "inner form" becomes translated into "outer form"—a concept that also figures in contemporary psycholinguistics. None of these early investigators, however, considered the spontaneous gestures accompanying speech that are the chief focus of this book.

Those gestures were not described until the pioneering research of David Efron (1941), a student of Franz Boas. Several methodological issues had to be faced before ephemeral gestures could become the subject of study. Efron's dissertation was a comparison of the gestures of immigrant and "assimilated" Europeans in New York City. Along with his discussion of this question Efron, with great originality, introduced the categories of gesture that have been the foundation of all subsequent schemes of gesture classification and pioneered the method of observing gestures "from life" (see chap. 3). Efron thus opened up to scrutiny the topic of spontaneous gestures and provided the categories for describing them. Despite the pathbreaking character of this work, Efron's findings were limited by technical factors, especially the fact that his recording was done by eye, without benefit of sound film. There was no possibility of replaying gestures to extract the fine movement details that are crucial for getting their meaning and for synchronizing them with speech. (Efron made some slow-motion films, but apparently these were silent.) His

book contains numerous drawings but the exact linkage of the gesture to speech cannot be examined at all.

Scientific interest in human communication took a new turn after World War II, inspired in part by information theory and cybernetics. As Kendon writes, "Once human action was conceived of as if it were a code in an information transmission system, the question of the nature of the coding system came under scrutiny" (Kendon 1982, 53). The analysis of communication fashionable in this period distinguished sharply between digital and analogical codes: a digital code was best exemplified by the linguistic system itself, while analogical codes appeared in the so-called paralinguistic signals—the very terminology asserting a dichotomy. Prosody (voice pitch and loudness), posture, facial expression, and gesture were regarded as analogical signals and thus *para*linguistic—*beside* language. However, language is digital *and* analogical, it is verbal *and* gestural. Far from being "beside" language, gesture is actively part of language. We have to stand the now traditional concept of a gesture on its head. My purpose in this book is to bring to light this new understanding and to suggest some of the far-reaching implications for psychology and linguistics.

My personal interest in gestures goes back to 1962. I can date it so precisely because that was the year I moved from Berkeley to the Center for Cognitive Studies at Harvard. Among the many remarkable things I found at the center were two individuals whose gestures differed so markedly that I could not help noticing them. They were colleagues and often talked to each other, each gesticulating in his own way. These people looked to me like sculptors working in different media. One was always pounding and pushing some heavy blocklike stuff. I imagined that his medium was clay or marble. The other was drawing out and weaving some incredibly delicate spidery stuff. His medium looked like strings or spider webs. That was my inauguration to gestures. At that early stage, I had no idea that gestures and speech should be viewed as two sides of a single system. However, by the time I took up gestures in earnest I was indeed propelled by the idea that gestures and speech must be considered jointly as components of a single process.

A first hint of this single process came in 1974; I suddenly became aware of my son's gestures. He was then four years old, and I was sure that I had earlier seen from him very few gestures of any kind. Something had taken place in his language development that suddenly triggered gestures (the emergence of abundant gestures at about this age has since been documented with larger samples of children; see chapter 11). At about this same time, I also videorecorded a technical discussion between

two mathematicians expressly for the purpose of studying their gestures. Speech and gesture in this discussion were clearly linked (these gestures are described in chapter 6). So began my appreciation of the speech-gesture nexus. My first written discussions of gesture appeared as chapters in several books (Solso 1975; McNeill 1979; Rauch and Carr 1980).

I proposed writing this book in 1983, because by then I believed that I understood the phenomenon of gesture sufficiently well to expound on it at length. No doubt this self-deception served a useful purpose. I doubt now that I would have set out on a project of such vastness if I had known that it would take nearly ten years to finish. The book took this long for two reasons, both I hope respectable. First, my students and I kept finding out new things about gestures and these altered the picture, in some cases profoundly. Also, concurrently with the new discoveries and largely driven by them, my own understanding of what gestures imply for interpreting the functioning of the mind grew ever deeper. Nonetheless, I continued writing; inevitably the book passed through many revisions and with the advent of word processing the revisions have become truly innumerable. I admire and stand in awe of people who write their books in a year or two. In my case, it has taken much longer. Eventually even the name of the book changed. I mention this fact since other publications, by myself and others, have already cited the book under its old name: "Mirrors of Gesture." Although I once rather liked this title, and have even been told that it has a certain air of mystery, I gave it up when I became convinced that the metaphor of a mirror suggests a relationship of gestures to language that is altogether too static. It is at odds with the emphasis on dynamic processes that runs throughout the book. It also is at odds with the active constitutive role that I see gestures playing in our thoughts. A mirror does nothing, it is entirely passive; and passive reflection is far from the case with gestures.

I also have had a problem with nomenclature. What am I to call my subject? The word "gesture" comes from the Latin for action, for carrying out an activity, and for performing. It thus comes from a word whose reference is to serious things, and the word "gestate" has the same source. Even the *OED* does not recognize the sense of "gesture" that now seems to have become dominant. It is undeniable that the word has fallen on hard times: to many people "gesture" implies something "trivial," "ineffectual" or "empty of importance or substance." People talk about something being a "gesture," rather than being the "real thing." Commenting on a new building, one Chicago critic wrote that "they make a gesture that falls aesthetically short of the mark" (*Chicago Tribune Sunday Magazine,* 25 December 1988). Apparently "gesture" and "falling short of

the mark" naturally go together. I gave considerable thought to this problem, even contemplating neologisms such as "temaniotics" (a word formed from Japanese, "temane," which means the hands picturing the world), and the word "gesticulation" that Adam Kendon prefers (Kendon 1980). But temaniotics is obscure and gesticulation conjures up, for some people, an image of windmilling arms. I have thus kept the simple word "gesture." There is also a book on Indian dance and the art of the actor, *The Mirror of Gesture* (Nandikesvara 1917), whose dedication reveals an altogether more welcoming attitude: "The movement of whose body is the world, whose speech the sum of all language, whose jewels are the moon and stars—to that pure Siva I bow!" (p. 13). And so, in this book as well, we shall bow to what, following Nandikesvara, I will simply call "gestures."

Like authors everywhere I hope that my book will be read and appreciated. However, I do not deceive myself: there is more here about gestures than many will want to know. Hence I propose a method for reading this book selectively. The text is divided into four smaller parts. I have not written these parts to be independent, and chapters from one often refer to chapters in another, but this division suggests a way to read selectively. Part 1 is Setting the Stage and consists of chapter 1, which gives an overview of the main gesture types and defends from rivals the hypothesis that gestures and language constitute a single system, and chapter 2, which compares the kinds of spontaneous gestures that accompany speech to systematic manual sign languages. Since so much has been written in recent decades on sign language, it seems appropriate and convenient to begin the exposition of spontaneous gestures by discussing the similarities and differences of gestures and signs. The next part is Varieties of Gesture, a kind of encyclopedia rich in examples that covers the different types of gesture in their great variety and gives the basic statistical data on gesture occurrence: chapter 3 is on the classification and distribution of gestures, including a complete narrative by an adult speaker; chapter 4 is on the gestures of the concrete (the iconics); chapter 5 describes an experimental proof that gestures are meaningful symbols; and chapter 6 is on the gestures of the abstract (the metaphorics, beats, spatials, and abstract deictics). The third part is Theory: chapter 7 presents the relationship of gestures to discourse; chapter 8 develops the concept of the "growth point" of utterances and presents a model of self-organization of utterances and gestures; Chapter 9 develops the concept that gestures have an impact on thought; chapter 10 describes several experiments that probe the self-organizational cycle. The final part is

Topics, which consists of applications of the theory in two important special cases: children (chapter 11) and the brain (chapter 12). The brain chapter includes descriptions of the gestures of aphasic patients and split-brain patients, and reproduces an entire narrative (including gestures) by a split-brain person. Finally, there is an appendix in which I describe in detail the methods of gesture collection, recording, description, and coding that I followed. This kind of description will be of value to researchers but would get in the way of readers who have an interest in the semiotic systems of gesture and language but no interest in carrying out a research project of this kind.