

Talking Hands

WHAT SIGN LANGUAGE REVEALS ABOUT THE MIND

“Fox takes readers on a fascinating tour of deaf communication, clearly explaining difficult concepts, and effortlessly introducing readers to a silent world where communication is anything but slow and awkward.”

--*Publishers Weekly*

In **TALKING HANDS (Simon & Schuster; August 21, 2007; \$27.00)**, *New York Times* reporter Margalit Fox takes readers on a journey to a remarkable place: a remote Middle Eastern village whose inhabitants “speak” their own sign language—a language that may open a new window onto the workings of the human mind. Fox accompanies a team of four linguists, two from the United States and two from Israel, as they visit the village and begin to decipher this extraordinary language. But the linguists are after something much larger. Because this language has arisen entirely on its own, outside the influence of any other language, it offers a living demonstration of the “language instinct” – people’s inborn capacity to create language. If the linguists can decode this language, they will discover compelling new evidence in the search for the ingredients essential to all language, signed and spoken. And in so doing, they will help to illuminate one of the most fundamental aspects of what it means to be human.

Everyone Here Speaks Sign Language

Fox, an acclaimed journalist originally trained as a linguist, combines the exciting popular science of Oliver Sacks and Steven Pinker with the engaging narrative style of Tracy Kidder and John McPhee. Vividly evoking the people and culture of an insular Bedouin village, she traces the attempt to figure out a language witnessed by few outsiders and never before described. As the result of an unusually high level of hereditary deafness, an indigenous sign language that is used by Deaf and hearing people alike has sprung up in the village, known as Al-Sayyid. In nearly every house, in the fields and in the mosque, at every hour of the day, there are people of all ages talking in sign. Yet the researchers seeking to comprehend this new language – hearing and Deaf, all fluent in several signed and spoken languages – were at first completely unable to understand it.

The Myths of Signing Explored

As Fox explains, contrary to the belief of many hearing people, there is no single universal sign language, known to Deaf people the world over. In fact, there are scores of signed languages, perhaps well over a hundred. Speakers of American, Chinese, and Israeli sign languages, for example, can no more understand one another than can speakers of English, Chinese, and Hebrew. Furthermore, sign languages are very much “real” human languages, as complex and subtle as spoken languages, although this fact has been accepted by science only since the 1960s. Bound by their own rules of grammar and syntax, sign languages are neither word-for-word versions of a spoken language nor a set of primitive gestures. In fact, many

MARGALIT FOX

linguists now believe that the only truly significant difference between signed and spoken languages is that instead of operating acoustically by using sounds, sign languages work spatially by using the movement of the hands and body.

The History of American Sign Language

Fox charts the history of American Sign Language, or ASL, from its roots centuries ago in France through the pioneering work of Thomas Gallaudet in the early nineteenth century (Gallaudet University in Washington, D.C., the world's only liberal-arts university for Deaf people, was named for him). The second half of the nineteenth century saw the start of an unfortunate campaign to eradicate sign language, and to teach Deaf people speech and lip-reading in "oral" schools. Until the 1970s, "oralism" remained the dominant model for the education of the American Deaf, yet ASL endured underground.

The Science of Signing

Today, linguists see sign language as a living testament to how the mind, in the absence of speech and hearing, makes language anyway. As it turns out, sign language offers a wealth of information on how all human language operates inside our heads, including how it is acquired by children, how it is stored in memory, and how it is handled neurologically by the brain. Fox chronicles the birth of the scientific study of sign language, and examines the legacy of early signing communities. She describes the grammar of signed languages, focusing on the unusual means by which they build words and sentences. In addition, she explores the psychology of sign language—including the spontaneous errors by signers known as "slips of the hand"—and what the changes in signing ability among Deaf stroke patients tell us about the neurological workings of sign language in the brain.

What's So Special about Al-Sayyid?

What is it about the sign language of Al-Sayyid in particular that holds so much scientific promise? Fox explains that the longer a human language has been around, the more excess baggage it acquires – grammatical bells and whistles that can obscure its underlying structure. For linguists, the ideal language would be one in its infancy, pure and streamlined, yet not staggering under the weight of its accumulated grammar. The sign language of Al-Sayyid, in use for just three generations, seems to be ideal. In the form spoken by the older villagers, it appears to be uninfluenced by other signed languages, or by any spoken language.

Moreover, the conditions that create a "signing village" like Al-Sayyid – where hundreds of the village's 3,500 people, both hearing and Deaf, are habitual signers – are extremely unusual. First, you need a gene for inherited deafness. Second, you need huge families to pass the gene along, yielding a large Deaf population in a brief span of time. This critical mass of Deaf people allows a robust form of signed communication to develop on its own. A lack of stigma attached to deafness and the presence of many hearing signers also play a crucial role. (Because the hearing villagers aren't sent to state schools for the Deaf, where the signed language of the majority culture can choke off the indigenous one, they help to preserve the native language for the community as a whole.) "All in all," Fox writes, "a case as spectacular as Al-Sayyid comes along perhaps once in a lifetime."

The Signing Brain

It is in just such a natural environment as Al-Sayyid, linguists believe, that human language first began tens of thousand of years ago. For that reason, the four scientists in Fox's book are deeply hopeful that the signed language of Al-Sayyid, sprung from the minds of Deaf

people in an isolated community, will provide unprecedented insight into the intricacies of the human grammar-making machine. If so, they may be well poised to answer some of the most basic questions of cognitive science: What, if anything, does Al-Sayyid Bedouin Language (ASBL) share with other signed languages of the world? Even more significant, what universal features, arising from the human mind and shared by signed and spoken languages alike, will turn out to lie hidden beneath the surface of this language in the desert?

Sure to be of special interest to anyone captivated by language and the science of the brain, as well as by Deaf people and their hearing friends, family members and colleagues, **TALKING HANDS** is a story about fascinating people, exotic places, and important ideas. And it is written in clear, colorful language by a prominent journalist whose education and experience make her ideally suited to her subject.

ABOUT THE AUTHOR:

As a reporter in the celebrated Obituary News department of *The New York Times*, **Margalit Fox** has written send-offs of some of the leading cultural figures of our era. Reprinted in newspapers throughout North America and around the world, her work has been anthologized in *Best Newspaper Writing, 2005* and featured in *The Dead Beat*, the recent popular book by Marilyn Johnson about the pleasures of obituaries. A former editor at *The New York Times Book Review*, Ms. Fox has written numerous articles on language, culture, and ideas for *The New York Times*, *Newsday*, *Variety*, and other publications. She holds bachelor's and master's degrees in linguistics from Stony Brook University and a master's degree from the Columbia University Graduate School of Journalism. She lives in New York City with her husband, the writer and critic George Robinson.

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ABOUT THE BOOK:

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By Margalit Fox

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A CONVERSATION WITH MARGALIT FOX, AUTHOR OF TALKING HANDS

How did you come to write *Talking Hands*?

As a journalist with two degrees in linguistics, I enjoy combining my two fields whenever possible and writing about language for the general reader. For years, I've dreamed of writing a popular book about language that would be universally accessible yet contain the scientific insights—and the narrative elegance—of a book by Oliver Sacks or John McPhee. But for years, no compelling enough topic presented itself.

In the summer of 2001, I was having lunch with Mark Aronoff, an internationally renowned linguist and my former academic adviser. I was telling him about my desire to write such a book, and bemoaning the lack of a suitable topic. Let's face it: I was whining.

"Come with us," Mark said.

That was when he told me about the research project that is the centerpiece of *Talking Hands*. With three colleagues, Mark had been working secretly in Al-Sayyid, a remote Bedouin village where, as the result of an abnormally high incidence of hereditary deafness, an indigenous sign language had sprung up, "spoken" by deaf and hearing people alike. It was a language few outsiders had ever seen. By decoding this mysterious language, Mark and his colleagues hoped to isolate the most basic ingredients from which all human languages, signed and spoken, are made.

But tagging along with the scientists turned out to be no simple matter. After nearly a year of trans-Atlantic negotiations with the research team's leader, Professor Wendy Sandler of the University of Haifa (I literally flew to Europe, where she was then working, for a single day, just to take her to lunch and plead my case), I was finally granted permission to accompany the team on a visit to the signing village in the summer of 2003. The story of that trip — a journey to a village where everyone speaks sign language — is the narrative heart of *Talking Hands*.

What are sign languages, anyway? Did someone sit down and invent them?

The sign languages that Deaf people speak every day are real, natural languages, as grammatical complex and fully human as any spoken language. No one sat down and invented them. Instead, they arose spontaneously in places where Deaf people had the opportunity to congregate, and have evolved historically over time, just as spoken languages do. Sign languages even have regional and ethnic dialects!

Is there one universal sign language, used by Deaf people around the world?

No. Nearly every country has its own national sign language, each one different from the next. Today, there are scores of sign languages in use around the globe, possibly hundreds, from American Sign Language to British Sign Language, Irish Sign Language, German Sign Language, Danish Sign Language, Swedish Sign Language, Turkish Sign Language, Israeli Sign Language, Saudi Arabian Sign Language, Chinese Sign Language, Hong Kong Sign Language, Japanese Sign Language, Mozambiquan Sign Language, Zimbabwean Sign Language, and more.

Is American Sign Language simply a manual version of English?

No. ASL, the language of a quarter- to a half-million North Americans, is an autonomous language that evolved independently of English, with its own grammatical structure. Linguists have compared aspects of ASL grammar to Japanese and Navajo. Strikingly, ASL and British Sign Language, though both used in English-speaking countries, are mutually unintelligible. A Deaf American will actually have an easier time understanding a Deaf Frenchman: ASL is historically descended from French Sign Language.

Why do signers seem to grimace while they're signing?

Those facial expressions have nothing to do with emotion: they're actually a crucial part of sign-language grammar. In the sign languages of the world, the face, head and eyes also play a vital role, conveying extra grammatical information—turning a declarative sentence into a question, for example—while the signer's hands are "busy talking."

Which side of the brain controls sign language — the right, where our visual and spatial faculties lie, or the left, where spoken-language ability resides?

That was the fundamental question confronting the first sign-language researchers in the 1970's and 80's. It was an open question whether sign language was controlled by the right half of the brain or the left, and persuasive arguments could be made on both sides. Then, one brilliant scientist was inspired to study Deaf signers who had suffered strokes. The findings were astonishing — and they answered the question once and for all. I explore these studies of the signing brain in detail in Chapter 16 of *Talking Hands*.

What was it like going to the village of Al-Sayyid? Exactly where is it, anyway?

Al-Sayyid (pronounced es-SAYY-id) is hot, dusty and like nowhere else on earth. You reach it from a series of ever-narrower, unmarked dirt roads, miles from the nearest town. There are olive groves, and grazing sheep and goats, all around. A typical village home might consist of two simple rooms in a whitewashed, tin-roofed building. The head of the household might have three wives (the community is polygamous) and twenty children, six of whom are deaf. Inside, you sit on the floor on hand-loomed rugs, drinking sweet tea and eating a meal of fragrant kebabs and homemade pita bread, and watch, amazed, as a dozen lively conversations—all in sign language, used by deaf and hearing members of the family alike—erupt in the air around you. Then you look up to see a camel shambling by the front door. Definitely a not-in-Kansas-anymore feeling!

As for the location of the village, all I can say is this: Al-Sayyid is somewhere in Israel. The four scientists working there are, understandably, quite adamant that the villagers' privacy be protected. As a result, I have disguised the precise location of Al-Sayyid in my book. Consider the village a kind of signing Brigadoon, impossible for any outsider to find. But Al-Sayyid is very real, and *Talking Hands* will take you there.

Why is the language of a “signing village” like Al-Sayyid so crucially important to science?

A brand-new, indigenous sign language like that of Al-Sayyid, offers scientists an unprecedented opportunity to see the human “language instinct” in action—to watch what happens when the mind has to make a language from scratch.

As Wendy Sandler, one of the four scientists profiled in *Talking Hands* says: “A linguist never has the opportunity to see how language is born. All spoken languages are either thousands of years old or came about as a result of contact between languages that are thousands of years old. So in spoken language there is no such thing—*there can be no such thing*—as a new language born of nothing. Only in a sign-language situation can that happen. If you get a deaf community, then a language will be born, and there are no other languages in the environment that are accessible.”

Are there other “signing villages”?

Yes — about a dozen at last count, all in remote corners of the world. Scientific work in these villages is just barely beginning. At the end of *Talking Hands*, I take readers to an international meeting of researchers who are studying these “signing villages,” the first time in history that all of them had convened in one place. And, as scientists are now discovering, there may be even more of these “signing villages” out there than anyone ever realized, waiting to be discovered. . . .

Why is the study of sign language in general such a hot topic in cognitive science?

For decades, everything that scientists knew about the structure of human language (and, by extension, everything they knew about how language works in the human mind), came from the study of spoken language. Sign languages, to the extent that anyone thought about them at all, weren't considered languages: ASL was only discovered to be a “real” language in 1960! And only in the 70's did scientists fully realize that this language in another modality—a language transmitted by hand and received by eye—held deep, surprising clues to the kinds of mental systems that all human languages belong to.

Today, the study of signed languages is revealing dramatic new evidence of how all language, signed and spoken, is processed, stored and remembered in the mind.

What did the mysterious sign language of Al-Sayyid turn out to reveal about the structure of human language?

That is the \$64,000 question. For the answer, you'll have to read the book!

DID YOU KNOW? . . .

- No one sat down and invented the sign languages of the deaf. Sign languages are *real human languages*, which arise spontaneously wherever deaf people have the opportunity to congregate. As such, they are natural products of the human brain, just like spoken languages.
- Far from being pantomime or crude pidgin, sign language is as richly detailed and grammatically complex as spoken language. The main difference is this: Where spoken languages transmit information acoustically, from mouth to ear, sign languages transmit information spatially, from hand to eye.
- Deaf children of deaf parents acquire sign language from birth, spontaneously and without formal instruction, in much the same way that hearing children acquire spoken language.
- Sign languages have large vocabularies, with the same “parts of speech” that spoken languages do. They can be used to discuss the most complex ideas imaginable. They even have regional and ethnic dialects.
- American Sign Language was only discovered to be a “real” language in 1960. Previously, it was considered a crude manual version of English, and deaf people were made to feel ashamed of it.
- Today, between a quarter- and a half-million deaf people in the United States and Canada use ASL as their first language. Many thousands of hearing people, including sign-language interpreters and the hearing children of deaf parents, are also fluent in it. According to the National Association for the Deaf, **more than 28 million Americans** consider themselves deaf or hard of hearing.
- ASL is currently taught as a foreign language in more than 100 colleges and universities throughout the United States. Many other organizations, such as community colleges and the National Association for the Deaf, offer adult-education classes in the language.
- Besides ASL, there are more than a hundred different sign languages in use around the world, from Australian Sign Language to Zimbabwean Sign Language.
- A deaf American cannot readily understand a deaf Englishman: American Sign Language and British Sign Language, though both used in English-speaking countries, are two completely distinct languages. In fact, ASL is much closer to French Sign Language, from which it is historically descended.
- American Sign Language isn’t just “English on the hands”: it has a grammatical structure different from that of English, with its own unique ways of putting words, phrases and sentences together. (Some linguists have compared aspects of ASL grammar to Japanese and Navaho.) Similarly for the world’s other signed languages.
- Did you ever wonder why signers seem to grimace when they sign? Those facial movements are actually part of sign-language grammar: a particular expression can change a declarative sentence into a question; another can negate an entire sentence, and so on.
- Because sign languages spring from the same human brains as spoken languages do, they offer scientists a vivid new window onto the workings of the human mind. Researchers are now learning that analyzing the structure of sign languages, provides long-sought clues into the basic ways in which all human language, signed and spoken, operates inside our heads.
- When signers have strokes or other brain injuries, they can suffer from language dysfunctions – that is, *sign-language dysfunctions* – much as hearing stroke patients do with spoken language.
- Because sign language is transmitted in a different physical modality from spoken language, it lets us see how the mind, in the absence of speech and hearing, goes ahead and makes language anyway. Research on sign language has been revolutionizing the field of cognitive science for the last quarter-century. But these exciting findings have been unknown to the general public until now.
- In particular, “village” sign languages, like the one in Al-Sayyid, the Bedouin village at the center of *Talking Hands*, offer dramatic demonstrations of what happens when the mind has to make language out of thin air, free from the influence of any other language.
- As *Talking Hands* reports for the first time, there are more “signing villages” out there in remote corners of the world, waiting to be discovered, than anyone ever realized.