PRESTO! WHAT MAGIC CAN TEACH US ABOUT THE BRAIN

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It is one of the newest, most unlikely, and most promising attempts to understand the causes, and to develop the cures, for Alzheimer’s, ADHD, and other diseases of the brain: Magic.

“People don’t realize that magicians get at the same issues of attention, consciousness, and failures of the nervous system that academics do,” says Susana Martinez-Conde, director of the lab of visual neuroscience at the Barrow Neurological Institute. (She has recently co-authored two pieces in scientific journals on the topic.)

“We had paid more attention to magicians, we have made discoveries sooner,” she says. “We have arrived at conclusions that they all knew all along.”

Such as: “We often see things that are not there, and just as often see things that are in our direct line of vision. Our experience of the physical world is not only profoundly limited but often wrong. Our perceived reality is just that—perceived. The more we know about the way the things work—the more sophisticated we become at predicting a likely outcome—the more gullible we become. These discoveries, known intuitively, and over centuries by the best Hobbits, have wowed scientists: “The consciousness-awareness community,” says Martinez-Conde, “has not been aware of these resources.”

The timing of the magic and neuroscience is something of a happy accident. A year-and-a-half ago, Martinez-Conde and colleague Stephen Macknik were asked to co-chair a gathering of academics and philosophers. The topic: the study of consciousness. The location: Las Vegas. “We realized we had a great opportunity to bring in magicians—we asked for [the best] to put together a special symposium.”

Among the invited were James Randi (“The Amazing Randi”), Teller (of Penn & Teller, the duo famous for revealing their methods) and Apollo Robbins, who prefers to be called “an honest thief” (his act involves pick-pocketing forewarned audience members).

“There were no biological backings to what we were doing,” says Robbins, who will speak at the New York Academy of Science on Jan. 12 (it’s open to the public). “We’re assuming that misdirection is not just foiling the eyes, but that it’s cognitive.”

“The whole ability to study people in a physiological way is relatively new to science,” says Teller. “People who look for differences in the way we perceive and misperceive things have traditionally been philosophers.”

One of the most revered experiments among cognitive scientists is known, colloquially, as “the gorilla experiment.” It involves asking a control group to watch a short video, in which two teams—one in black, one in white—pass a basketball around. The group is asked to count the amount of successful passes made. Most usually come up with the right number, but most also have no recollection of the man in the gorilla suit standing in the middle of the frame, leisurely pounding his chest, then sauntering off.

This experiment is so beloved because proves the ability of visual scanning to cause a phenomenon called “attention-splitting.” Put simply, we pay attention to everything at once: Assessing demands and determining cognitive resources is an evolutionary adaptation that allows us to advance individually and as a civilization. But, as Robbins points out, “we’re not automatic tasks”—tying a shoe lace, driving a car, texting—“we open up another opportunity to be deceived.” This is because humans are wired to pattern-build: the more outcomes we can rightly predict, the more information we can bypass and synthesize. Hence, we are able to exponentially accomplish more, faster.

“It is commonly believed that because an object is in your visual field, you can see it,” says neuroscientist Macknik. “That’s not necessarily true. The brain selects the objects that are important to you and brings them to your awareness. Our cognition is fundamental to how we perceive everything.”

The potential real-world applications of the neuroscience of magic are staggering. Discoveries in the function and cognition of attention may change everything from teaching to the modification of behaviorally challenged children to the advent of eyewitness testimony in criminal court—even counter-telesmatics methods. (Terrorists are masters in the art of attention-splitting.) Martinez-Conde expresses surprise that no one from the government has yet contacted her or her colleagues: “Maybe they don’t know,” she says.