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## Experience the Magic, Study the Magic

by Greg Miller

"Magicians for centuries have been hijacking our brains ... to make us believe in the impossible," said Society for Neuroscience President Tom Carew as he introduced magicians Eric Mead and Apollo Robbins this morning at the SfN annual meeting in Chicago. "There's no better way to find out how our brains work, and by extension how our minds work, than by finding out how we can be deceived."

Mead and Robbins were the feature attraction in this year's Dialogues Between Neuroscience and Society lecture, a popular tradition that

started in 2005 with the Dalai Lama and has included figures such as architect Frank Gehry and tech entrepreneur Jeff Hawkins.

This year's presentation was more entertaining than most. Mead started off with a demonstration of memory manipulation. He enlisted a woman from the audience, showing her a card on which he'd drawn five shapes and asking her to remember them for a few minutes. Handing the card to another person in the audience for safekeeping, he then asked the woman on stage to close her eyes and picture herself on a beach, drawing an X in the sand with her toe. Then, he asked her to imagine a sailboat on the water with a bright red sail, a row of houses on a nearby cliff, and the bright orb of the sun in a clear sky. Finally, he asked her to name the shapes on the card she'd looked at earlier. She correctly remembered a circle, triangle, a cross, and a pentagon but forgot all about a star--the one shape Mead hadn't reinforced in his story.

In another example, Mead explained how he might recount the sequence of events in a card trick--but omit a key detail--to make a volunteer and the audience forget that he (Mead) had handled a deck of cards at a crucial point in the trick. "It's very important that after a show the audience remembers certain things and doesn't remember certain things," Mead said. Magicians have many tricks for manipulating memory, he noted, and some of them might come in handy in neuroscience experiments.

A slick promo video introduced Robbins, a.k.a. "The Gentleman Thief." He too recruited a volunteer from the audience, a man who clearly eyed Robbins and his highly touted pickpocketing skills with suspicion. Robbins engaged his mark in lively banter and a variety of where's-the-coin-there's-the-coin-type tricks, all the while extracting the man's watch and cell phone. (Yes, he gave them back.)

Whereas many magicians and neuroscientists alike think of attention as a spotlight, to be directed toward objects of interest, Robbins said he prefers a pie analogy: The more pieces of the pie he can take away, the less attention people have left to figure out what he's up to. He discussed various pie-slice-stealing strategies, including using arcing hand movements instead of straight ones, invasions of personal space, and trying to create an "interior dialogue" in a volunteer's mind (such as having him think the trick involves keeping track of a coin instead of keeping track of his watch). Speaking of magicians, he said, "we're your guides and our job is to misguide you."

After the presentations, Mead and Robbins joined Carew and neuroscientist Susana Martinez-Conde on stage for a discussion and questions from the audience. As in years past, I felt like a lot of this talk amounted to quizzing the presenters about what they do instead of really looking for ways to bridge the gap between neuroscience and the featured discipline. There has already been some discussion of how neuroscientists might employ magic tricks in their research, but a more concrete discussion of the subject would have been welcome here. In response to a question from Carew, Mead conceded that so far magicians haven't learned much from neuroscientists, but he hoped that someday they would. It would have been great to hear some neuroscientists chime in with ideas--even totally off-the-wall ones--about how the tools of their trade could be employed to devise more mind-blowing magic tricks.

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