

Glad to Be Gullible*

By Clare Wilson

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It is five minutes past midnight and I am alone in my house. I am working late, and the only illumination is the blue-white glow from my laptop computer. I live in a quiet London suburb, and at this time of night distractions are confined to the occasional eerie screeches and hisses from marauding urban foxes.

I pick up the phone to call Michael Thalbourne, a psychologist at the University of Adelaide in Australia. I want to talk to him about his research on chance, coincidence and the paranormal. Although the interview time has not been pre-arranged, we have been in contact by email, so it is disconcerting to hear a long pause when I introduce myself. When Thalbourne eventually speaks he sounds taken aback. "I was right in the middle of typing out an email to you," he says.

Thalbourne's instinct is to suspect some paranormal explanation for our synchronicity. My gut reaction is to suggest a more mundane alternative. It looks as if he is what some psychologists would call a sheep, while I am a goat.

The animal terminology stems from a passage in the Bible about a shepherd sorting through his flock to separate the sheep—representing the nations that believe in God—from the goats, or those that do not. Thalbourne and his ilk, however, are interested in belief in the paranormal and supernatural. And such beliefs turn out to be surprisingly common. For example, a 1998 survey of 1000 adults in the UK showed that one-third believed in fortune telling, half believed in telepathy, and a whopping two-thirds agreed with the statement that some people have powers that science cannot explain.

Decades of scientific research into parapsychology have produced no convincing demonstration of the paranormal that can be reliably reproduced—the acid test of scientific inquiry. So why should scientists be so interested in whether or not people believe in it? Research into the differences between sheep and goats has over the years produced some intriguing findings about how the brain works.

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Until recently, sheep might have been forgiven for being cheesed off by all this research—most of the findings were less than complimentary about them. Study after study suggested that sheep saw paranormal events where there were none, simply because they were worse at judging probabilities and randomness, and even at using logical reasoning. But newer research might restore some sheepish pride. It turns out that the kind of thinking involved in belief in the paranormal helps us carry out a range of important cognitive tasks, from spotting predators to recognising familiar faces. Sheep also tend to be more imaginative and more creative. Some psychologists even think that people who believe they have paranormal powers such as telepathy, dreams that foretell the future, or other forms of extrasensory perception (ESP) might actually be accessing information stored in their subconscious without realising it.

Imagine, for example, that you are walking along the street with your old friend Bob, when you start thinking about a mutual college chum, Joe. “I wonder what Joe Smith is getting up to these days,” you say. “That’s amazing!” says Bob. “I was just thinking of Joe myself.” You believe it is simply a coincidence. Bob suspects some form of telepathy. But there is a third explanation: without being consciously aware of it, both you and Bob noticed something that reminded you of Joe. Maybe you passed someone who looked just a little bit like him, or maybe it was something in a shop window that reminded you of him.

It was Thalbourne who first suggested that people who regularly have subconscious information such as this surfacing in their conscious mind would often seem to require the paranormal to explain their experiences. He coined the term “transliminality” for this tendency for information to pass between our subconscious and our conscious mind. He has also designed a questionnaire to measure transliminality. It asks questions such as how good people are at using their imagination, whether they have a heightened awareness of sights and sound and whether they have ever felt they have received “special wisdom”. Thalbourne and others have shown in several studies that transliminality corresponds to where people fall on a sheep-goat scale. In other words, the better you are at tuning in to your subconscious, the more likely you are to believe in the paranormal.

This correlation alone suggests Thalbourne may be onto something. And in 2002, a group at Goldsmiths College in London reported an intriguing practical demonstration of transliminality (*Perception*, vol 31, p 887). They asked people to take part in an apparent test of ESP with Zener cards, which display one of five symbols: a circle, a cross, a square, a star or three wavy lines. The subjects sat in front of a computer monitor displaying the back of a card. They pressed a key to choose which symbol they thought it was. Then they got to see the card’s face.

SUBLIMINAL CLUES

What they did not know was that they were being given subliminal clues as to which symbol was about to appear. Before a card’s back was shown, they saw

a flash of its face lasting for just 14.3 milliseconds, too fast for most people to register. Some participants, however, were able to subconsciously pick up on the clue, and as a result they scored better than chance at predicting which symbol would appear. “To those participants it would appear that they had ESP abilities,” says psychologist Chris French, who led the research. And people who were best at picking up the subliminal image also turned out to be the most transliminal as measured by Thalbourne’s questionnaire. It was a neat demonstration of how access to subconscious information can give the appearance of psychic abilities.

The talents of people who believe in the paranormal don’t end there. It seems that they are also better than non-believers at perceiving meaningful patterns in apparently random noise. The classic example of this trait, which is known as pareidolia, is when people claim to see images of the Virgin Mary, say, on the wall of a building or a tortilla. Pareidolia can be auditory as well as visual, as shown by the current craze for detecting electronic voice phenomena (EVP), supposed messages from the dead buried in the random noise of audio recordings.

Psychologists have traditionally viewed this quality as a shortcoming on the part of sheep. But Peter Brugger, a neuroscientist at the University Hospital Zurich in Switzerland, does not think it is a black-and-white issue. He explains that people commit what statisticians call a type 1 error when they perceive a pattern where none exists—when they are overly gullible, in other words. A type 2 error is when they fail to recognise a pattern that does exist—when they are too sceptical. Brugger points out that pattern recognition is an important aspect of human cognition, allowing us to recognise familiar faces or camouflaged predators. “From an evolutionary perspective, the price for protection against type 2 errors is a susceptibility to type 1 errors,” Brugger says. He theorises that it may be safest to err on the side of gullibility. “If you miss the tiger hidden in the grass, then you are dead. If you always see tigers, you are always running away but you’re not dead.”

What determines our tendency to spot patterns and form associations? It turns out that a key factor is the relative dominance of the right and left hemispheres of the brain. There has been much dubious pop psychology written about the differences between “right-brain people” and “left-brain people”. But most neuroscientists would accept that the left side of the brain is primarily responsible for language and logical analysis, while the right side is more involved in creativity and what might be called lateral thinking—making connections between disparate concepts.

Several recent studies using various techniques suggest that people who believe in the paranormal have greater right-brain dominance. In 2000 Brugger’s group showed, for example, that believers have greater electrical activity in the right hemisphere than non-believers as measured by electroencephalogram (EEG) recordings (*Psychiatry Research: Neuroimaging*, vol 100, p 139). In a different approach, in 2001 they asked people to carry out word-association tasks using different sides of their brain by looking at the words with just one eye at a time. When using their right brains, the sheep among them were faster than the goats at finding connections between distantly related words such as “lion” and “stripe” (the connection

is “tiger”) (*Psychopathology*, vol 34, p 75). In some cases, says Brugger, “the disbelievers didn’t even note that there was a relationship”.

But when taken to extremes, there can be a less welcome side to right-brain thinking. Brugger and others have shown that there is also relatively more right-brain activity in people with schizophrenia, particularly in those whose symptoms involve delusional beliefs. Brugger says this aspect of his research has not gone down well with the paranormal community. “I’m a very disliked person,” he admits.

Of course neither Brugger nor anyone else is saying that people who believe in the paranormal are schizophrenic. But while an enhanced ability to spot real patterns and form connections is desirable, it could be argued that believers in the paranormal have taken this tendency too far. Then again, that depends on whether you are a sheep or a goat.

As a goat myself, I tend to opt for down-to-earth explanations. Here, for example, is how I account for the fact that Thalbourne was emailing me just as I phoned for that interview. Earlier that day, while it was already night-time in Adelaide, I had sent him an email asking if we could arrange a time to talk. Later I decided to chance a phone call anyway, and not wanting to stay up working any longer than necessary, I called at midnight my time, or 8.30 AM in Adelaide, which I figured was probably the earliest he would arrive at his office. He had actually got to work shortly before, and started his day as many of us do by turning on his computer and was responding to the emails he received overnight—which happened to include one from me. QED.

Thalbourne, however, persists in viewing the event as one of life’s intriguing little coincidences. But then he does happily admit to being a sheep. “My life is full of many small and occasionally large coincidences that suggest some unusual form of cause and effect,” he says. “I believe that I can’t disbelieve in it.”

Why We Believe*

By Sharon Begley

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It wasn't immediately obvious to Walter Semkiw that he was the reincarnation of John Adams. Adams was a lawyer and rabble-rouser who helped overthrow a government; Semkiw is a doctor who has never so much as challenged a parking ticket. The second president was balding and wore a powdered wig; Semkiw has a full head of hair. But in 1984, a psychic told the then medical resident and psychiatrist-in-training that he is the reincarnation of a major figure of the Revolution, possibly Adams. Once Semkiw got over his skepticism—as a student of the human mind, he was of course familiar with “how people get misled and believe something that might not be true,” he recalls—he wasn't going to let superficial dissimilarities dissuade him so easily. As he researched Adams's life, Semkiw began finding many tantalizing details. For instance, Adams described his handwriting as “tight-fisted and concise”—“just like mine,” Semkiw realized. He also saw an echo of himself in Adams's dedication to the cause of independence from England. “I can be very passionate,” Semkiw says. The details accumulated and, after much deliberation, Semkiw went with his scientific side, dismissing the reincarnation idea.

But one day in 1995, when Semkiw was the medical director for Unocal 76, the oil company, he heard a voice in his head intoning, “Study the life of Adams!” Now he found details much more telling than those silly coincidences he had learned a dozen years earlier. He looked quite a bit like the second president, Semkiw realized. Adams's description of parishioners in church pews as resembling rows of cabbages was “something *I* would have said,” Semkiw realized. “We are both very visual.” And surely it was telling that Unocal's slogan was “the spirit of '76.” It was all so persuasive, thought Semkiw, who is now a doctor at the Kaiser Permanente Medical Group in California, that as a man of science and reason whose work requires him to critically evaluate empirical evidence, he had to accept that he was Adams reincarnated.

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Perhaps you don't believe that Semkiw is the reincarnation of John Adams. Or that playwright August Wilson is the reincarnation of Shakespeare, or George W. Bush the reincarnation of Daniel Morgan, a colonel in the American Revolution who was known for his "awkward speech" and "coarse manners," as Semkiw chronicles on his Web site johnadams.net. But if you don't believe in reincarnation, then the odds are that you have at least felt a ghostly presence behind you in an "empty" house. Or that you have heard loved ones speak to you after they passed away. Or that you have a lucky shirt. Or that you can tell when a certain person is about to text you, or when someone unseen is looking at you. For if you have never had a paranormal experience such as these, and believe in none of the things that science says do not exist except as tricks played on the gullible or—as neuroscientists are now beginning to see—by the normal workings of the mind carried to an extreme, well, then you are in a lonely minority. According to periodic surveys by Gallup and other pollsters, fully 90 percent of Americans say they have experienced such things or believe they exist.

If you take the word "normal" as characteristic of the norm or majority, then it is the superstitious and those who believe in ESP, ghosts and psychic phenomena who are normal. Most scientists and skeptics roll their eyes at such sleight of word, asserting that belief in anything for which there is no empirical evidence is a sign of mental pathology and not normalcy. But a growing number of researchers, in fields such as evolutionary psychology and neurobiology, are taking such beliefs seriously in one important sense: as a window into the workings of the human mind. The studies are an outgrowth of research on religious faith, a (nearly) human universal, and are turning out to be useful for explaining fringe beliefs, too. The emerging consensus is that belief in the supernatural seems to arise from the same mental processes that underlie everyday reasoning and perception. But while the belief in ghosts, past lives, the ability of the mind to move matter and the like originate in normal mental processes, those processes become hijacked and exaggerated, so that the result is, well, Walter Semkiw.

Raised as a Roman Catholic, Semkiw is driven by a what-if optimism. If only people could accept reincarnation, he believes, Iraq's Sunnis and Shiites might stop fighting (since they might be killing someone who was once one of them). He is dismissive of the idea that reincarnation has not been empirically proved. That was the status of everything science has since proved, be it the ability of atoms to vibrate in synchrony (the basis of the laser) or of mold to cure once-lethal infections (penicillin). Dedicated to the empirical method, Semkiw believes the world is on the brink of "a science of spirituality," he says. "I don't know how you can't believe in reincarnation. All it takes is an open mind."

On that, he is in agreement with researchers who study the processes of mind and brain that underlie belief. As scientists began studying belief in the paranormal, it quickly became clear that belief requires an open mind—one not bound by the evidence of the senses, but in which emotions such as hope and despair can trump that evidence. Consider the Tichborne affair. In 1854, Sir Roger Tichborne, age 25, was reported lost at sea off the coast of Brazil. His inconsolable mother

refused to accept that her son was dead. Twelve years later a man from Wagga Wagga, in New South Wales, Australia, got in touch with her. He claimed to be Sir Roger, so Lady Tichborne immediately sent him money to sail to England. When the claimant arrived, he turned out to be grossly obese, E.J. Wagner recounts in her 2006 book "The Science of Sherlock Holmes." Sir Roger had been very thin. Sir Roger had had tattoos on his arm. The claimant had none. He did, however, have a birthmark on his torso; Sir Roger had not. Although Sir Roger's eyes had been blue, the claimant's were brown. Lady Tichborne nevertheless joyfully proclaimed the claimant her son and granted him £1,000 per annum. Lawsuits eventually established that the claimant was an impostor.

Letting hope run roughshod over the evidence of your eyes, as Lady Tichborne did, is surprisingly easy to do: the idea that the brain constructs reality from the bottom up, starting with perceptions, is woefully wrong, new research shows. The reason the grieving mother did not "see" the claimant as others did is that the brain's sensory regions, including vision, are at the mercy of higher-order systems, such as those that run attention and emotions. If attention is not engaged, images that land on the retina and zip back to the visual cortex never make it to the next stop in the brain, where they would be processed and identified and examined critically. If Lady Tichborne chose not to focus too much on the claimant's appearance, she effectively blinded herself. Also, there is a constant back-and-forth between cognitive and emotion regions of the brain, neuroimaging studies have shown. That can heighten perception, as when fear sharpens hearing. But it can also override the senses. No wonder the poor woman didn't notice those missing tattoos on the man from Wagga Wagga.

The pervasiveness of belief in the supernatural and paranormal may seem odd in an age of science. But ours is also an age of anxiety, a time of economic distress and social anomie, as denizens of a mobile society are repeatedly uprooted from family and friends. Historically, such times have been marked by a surge in belief in astrology, ESP and other paranormal phenomena, spurred in part by a desperate yearning to feel a sense of control in a world spinning out of control. A study reported a few weeks ago in the journal *Science* found that people asked to recall a time when they felt a loss of control saw more patterns in random noise, perceived more conspiracies in stories they read and imagined illusory correlations in financial markets than people who were not reminded that events are sometimes beyond their control. "In the absence of perceived control, people become susceptible to detecting patterns in an effort to regain some sense of organization," says psychology researcher Bruce Hood of the University of Bristol, whose upcoming book "Supersense: Why We Believe in the Unbelievable" explores the mental processes behind belief in the paranormal. "No wonder those stock market traders are clutching their rabbit's feet"—or that psychics and the paranormal seem to be rivaling reality stars for TV hegemony ("Medium," "Psychic Kids," "Lost" and the new "Fringe" and "Eleventh Hour"). Just as great religious awakenings have coincided with tumultuous eras, so belief in the paranormal also becomes much more prevalent during social and political turmoil. Such events "lead the

mind to look for explanations,” says Michael Shermer, president of the Skeptics Society and author of the 1997 book “Why People Believe Weird Things.” “The mind often takes a turn toward the supernatural and paranormal,” which offer the comfort that benign beings are watching over you (angels), or that you will always be connected to a larger reality beyond the woes of this world (ghosts).

As science replaces the supernatural with the natural, explaining everything from thunder and lightning to the formation of planets, many people seek another source of mystery and wonder in the world. People can get that from belief in several paranormal phenomena, but none more so than thinking they were abducted by aliens. When Susan Clancy was a graduate student in psychology at Harvard University, she was struck by how ordinary the “abductees” she was studying seemed. They were respectable, job-holding, functioning members of society, normal except for their belief that short beings with big eyes once scooped them up and took them to a spaceship. They are men like Will, a massage therapist, who was abducted repeatedly by aliens, he told Clancy, and became so close to one that their union produced twin boys whom, sadly, he never sees. Numerous studies have found that abductees are not suffering from any known mental illness. They are unusually prone to false memories, and tend to be creative, fantasy-prone and imaginative. But so are lots of people who have never met a little green man.

Some 40 percent of Americans believe it’s possible that aliens have grabbed some of us, polls show, compared with 25 percent in the 1980s. What makes abductees stand out is something so common, it’s a wonder there aren’t more of them: an inability to think scientifically. Clancy asked abductees if they understand that sleep paralysis, in which waking up during a dream causes the dream to leak into consciousness even while you remain immobilized, can produce the weird visions and helplessness that abductees describe. Of course, they say, but that doesn’t apply to them. And do they understand that the most likely explanation of bad dreams, impotence, nosebleeds, loneliness, bruises or just waking up to find their pajamas on the floor does not involve aliens? Yes, they told her, but abduction feels like the best explanation. Larry, for instance, woke from a dream, saw shadowy figures around his bed and felt a stabbing pain in his groin. He ran through the possibilities—a biotech firm’s stealing his sperm, angels, repressed memory of childhood sexual abuse—and only then settled on alien abduction as the most plausible. The scientific principle that the simplest explanation is most likely to be right is, well, alien to abductees. But again, an inability to think scientifically is exceedingly common. We are more irrational than we are rational; emotions drive voting behavior more strongly than analysis of candidates’ records and positions does. The universal human need to find meaning and purpose in life is stronger and more basic than any attachment to empiricism, logic or objective reality.

Something as common as loneliness can draw us to the paranormal. In a study published in February, scientists induced feelings of loneliness in people by telling them that a personality questionnaire they filled out revealed that, by middle age, they would have few friends and be socially isolated. After this ruse, participants

were more likely to say they believed in ghosts, angels, the Devil, miracles, curses and God than were participants who were told their future held many friendships, found Nicholas Epley, of the University of Chicago, and colleagues.

That we are suckers for weird beliefs reflects the fact that the brain systems that allow and even encourage them “evolved for other things,” says James Griffith, a psychiatrist and neurologist at George Washington University. A bundle of neurons in the superior parietal lobe, a region toward the top and rear of the brain, for instance, distinguishes where your body ends and the material world begins. Without it, you couldn’t navigate through a door frame. But other areas of the brain, including the thinking regions in the frontal lobes, sometimes send “turn off!” signals to this structure, such as when we are falling asleep or when we feel physical communion with another person (that’s a euphemism for sex). During intense prayer or meditation, brain-imaging studies show, the structure is also especially quiet. Unable to find the dividing line between self and world, the brain adapts by experiencing a sense of holism and connectedness. You feel a part of something larger than yourself. This ability to shut off the sense of where you end and the world begins, then, may promote other beliefs that bring a sense of connection, even if they involve alien kidnapers.

Other normal brain functions can be hijacked for spooky purposes, too. Neither the eyes nor the ears can take in every aspect of an object. The brain, therefore, fills in the blanks. Consider the optical illusion known as the Kanizsa triangle, in which three black Pac-Man shapes sit at what could be the corners of a triangle, their open mouths pointed inward. Almost everyone “sees” three white lines forming that triangle, but there are in fact no lines. What does the “seeing” is not the eyes but the brain, which habitually takes messy, incomplete input and turns it into a meaningful, complete picture. This drive to see even what is not objectively there is easily hijacked. “Perceptually, the world is chronically ambiguous and requires an interpretation,” says Stewart Guthrie, professor emeritus of anthropology at Fordham University and author of “Faces in the Clouds.” And suddenly you see Satan in the smoke from the World Trade Center. “We see the Virgin Mary in a potato chip or Jesus on an underpass wall because we’re using our existing cognitive structures to make sense of an ambiguous or amorphous stimuli,” says psychologist Mark Reinecke, professor of psychiatry and behavioral sciences at Northwestern University.

Scientists mean “see” literally. Brain imaging shows that the regions that become active when people imagine seeing or hearing something are identical to those that become active when they really do see or hear something in the outside world. This holds true for schizophrenics (their visual cortex becomes active when they hallucinate people, and their auditory cortex when they hear voices, in ways that are indistinguishable from when they perceive real people and voices) and for healthy people engaging in mental imagery (think of a pink elephant). It is not too far a step for mentally healthy people to see or hear what they are thinking intensely about. Christina Puchalski, director of the George Washington Institute for Spirituality and Health, felt her dead mother’s presence “with me in a very