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A Look at (or through) Ghosts

A shadow shoots across a room. A bright light appears in a photograph that wasn't there when it was taken. A planchette moves seemingly autonomously across a Ouija board. Are ghosts to blame? In America, belief in the supernatural is commonplace, and paranormality has established itself as a part of American culture. Ghost stories can be a source of entertainment, but the science behind apparitions and other inexplicable occurrences is just as interesting.

The human brain craves an understanding of everything. When something cannot be immediately explained, the brain will often create its own explanation. Sometimes, emotional reasoning is used to come to a conclusion that could be false. When an assumption *feels* right, and there's no other information readily available, people can construct beliefs from emotions. Then, those same people may reaffirm those beliefs by selectively finding information that agrees with them in a phenomenon called "confirmation bias" (Feldman).

Supernatural belief is hardly a difficult thing to come by in America. A survey in 2019 showed that nearly half of the U.S. believes in the existence of ghosts or other spirits, a figure that has almost doubled in the last 30 years (Kambhampaty). While many are in agreement that ghosts do exist, there's typically a lack of consistency in characteristics. Some may describe ghosts as transparent humans or humanoid figures that come back from the dead to haunt specific places or people. Others may describe them as ambiguous entities that are merely souls trapped between the lands of the living and the dead.

According to different understandings of the paranormal, ghosts can have evil intentions, or they can just be looking for a way to carry on to the afterlife. They might be able to interact with real-world objects, or they might only exist on a "spiritual plane." The proof of their

existence could lie in a photo that displays an orb of light, or, perhaps more convincingly, a picture that appears to show an additional person who wasn't there at the time of capture.

A more consistent assertion about ghosts is that they are intangible beings. Even in iterations that have the ability to affect the real world, they're simply choosing to do so, and are still nonphysical. Despite this, there are some very tangible services and products that claim to interact with spirits in some capacity. One of the most well-known examples of this is the process of an exorcism, which is a ceremony performed by specifically-qualified priests (when official) that attempts to expel an evil spirit from a location or person.

While the idea of an exorcism may seem severely outmoded, the popularity of exorcisms in the U.S. is, surprisingly, on the rise. A journalist for *The Atlantic* spoke to several official exorcists, and they told him that, just seven years prior to the time of writing, there had only been around fifteen American-based Catholic exorcists, but that, in 2018, there was potentially upwards of 100. One exorcist, Father Vincent Lampert, claimed that he had received 1,700 requests for an exorcism that year (Mariani).

Exorcisms tend to use religious artifacts as a means of dealing with spirits or demons, but real, scientific devices *are* used by those attempting to interact with ghosts. Ghost hunters investigate claims of supernatural activity at the request of concerned customers or on their own time. In search of a ghostly guest, hunters will employ the use of thermal imaging cameras, EMF (electromagnetic field) detectors, and sensitive microphones in the hopes of catching some anomaly that may point to the presence of a spirit (Radford, "The Shady Science").

Ghost hunters will often construe the results of these devices as signs, or even evidence, of paranormality. Popular reality TV shows about paranormal investigation, like the aptly-named *Ghost Hunters*, will typically showcase these devices heavily and attempt to portray the findings

as conclusive. The issue with this is that these devices are legitimate scientific tools that are used to detect legitimate occurrences. That cold spot in the corner of the room shown on the thermal camera *could* be a ghost, or maybe there's just an air vent over there.

Ghost Hunters and other portrayals of the paranormal in media can influence people's perception of ghosts. In his article, "Ghost Stories Haunt American Culture," Benjamin Radford, who considers himself one of very few science-based paranormal investigators, wrote, "People who report real-life encounters with ghosts often take their cues from fictional accounts. For example, many believe that pets act strangely in the presence of spirits, that psychic mediums can contact the dead, and that scientific equipment can detect ghosts." This may indicate that at least some part of paranormal experiences can be molded by the experiencer's preconceived notions.

Explanations for claims of supernatural events are nearly endless, but one of the more outlandish possibilities for apparition anecdotes is sleep paralysis. This frightening phenomenon occurs when the brain fails to bridge the gap between REM (rapid eye movement) sleep and waking up. During REM sleep, the brain will paralyze most of the body to prevent dreams being acted out physically. When waking up, the paralysis is supposed to cease, along with the dreams. In the case of sleep paralysis, however, this transition fails, leaving the sleeper conscious but still dreaming and paralyzed. During this state, people can have visual and auditory hallucinations, sometimes nightmarish ones (Hulick).

Sleep paralysis is a compelling explanation, but it only applies in very specific scenarios. If the observer is fully awake or conscious, sleep paralysis can't be to blame, but that still doesn't mean that the experience is inexplicable. A possible perpetrator is the phenomenon of pareidolia. Pareidolia is when the human brain sees patterns or identifiable shapes where there aren't any.

Oftentimes, these will take the form of something that the viewer is familiar with, like faces or figures. In poor lighting, for example, a coat rack donning a jacket and a hat may appear to be a man lurking in the dark. Or, perhaps, a wisp of smoke might seem to briefly take the shape of a face (Hulick).

Pareidolia is a fairly common occurrence (emojis are a good example), but what it encompasses is very narrow. Taking a broader look at the implications of pareidolia, one may consider the concepts of “illusory pattern perception” and the “adaptive-conspiracism hypothesis.” Illusory pattern perception is very similar to pareidolia in that it refers to the detection of patterns where there aren’t any. Unlike pareidolia, however, it applies to a much broader range of ideas. Whereas pareidolia refers to interpreting a pattern or object in random stimuli, illusory pattern perception can refer to the brain interpreting a cause and effect where there is none (Prooijen and Vugt).

The brain’s intention behind this is survival. For example, the last time that the food smelled this way, it caused illness, so if the food smells like that again, the outcome will likely remain the same. But this mechanism can also contribute to other, less important perceptions of patterns, such as superstitious beliefs. A sports fan may think that never washing his or her jersey and wearing it during the game will afford luck to the team, or, perhaps, a believer in the paranormal might correlate descriptions in his or her daily horoscope to certain events that take place throughout the day.

Adaptive-conspiracism hypothesis is a strikingly similar concept, but can have different connotations. Jan-Willem van Prooijen and Mark van Vugt, authors of “Conspiracy Theories: Evolved Functions and Psychological Mechanisms,” illustrated how this hypothesis works with an analogy: “Mistaking a stick for a snake is relatively harmless in that it produces only

unnecessary avoidance behaviors. Mistaking a snake for a stick, on the other hand, can be lethal.” The same can be applied to paranormal beliefs; those strange occurrences that always seem to happen around the house could simply be random and unrelated to each other, *or* they could be a sign that the house is haunted. For the brain, assuming the worst is a safer tactic than ignoring potential danger.

Mental tricks like these are interesting to consider as explanations, but they can only account for so much. At some point, the brain just can’t be blamed for something seemingly supernatural. Sometimes, outside sources can cause conspicuous circumstance. In a blog post, Sabrina Stierwalt, a professor of physics at Occidental College, suggests spectral sightings could be attributed to: an exposure to mold, which can cause delirium, dementia, or irrational fears; a carbon monoxide leak, which can cause auditory hallucinations and paranoia; or even a simple open window, which can cause drafts that shut doors suddenly and bring in cool air.

Supernatural belief continues to be increasingly commonplace in America, but the list of explanations for the paranormal is endless, and that list will only keep lengthening as technology gets better and science uncovers more of the truth. Thinking that ghosts are real may be considered irrational by some, however, despite the many possible answers, there remains no definitive proof that ghosts don’t exist, nor that they do. On both sides of the equation, the speculation surrounding spirits is a simply sprightly sport.

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