We are wizards of pattern recognition. We swear to witness the Virgin Mary in a water stain. The random smattering of paint on the wall suddenly presents a smiling visage. Psychologists have suggested that this tendency to recognize faces *everywhere* is an offshoot from our social cognition. It often misfires, but without analyzing the emotions and intentions of others, transmitted through numerous facial muscles, social interactions as we know them would be crippled.

When we can't gauge the intentions and emotions of others, frustration reigns. The invention of text messaging surely has ruined many relationships because the communication is bereft of the facial and tonal cues critical to understanding. (What does "OK" mean? Is he mad at me? Was he being sarcastic?)

The recognition of faces is then almost so fundamental to us that it goes unnoticed; automatic in the way that the understanding of words is. But the misfires are the curious byproduct. When psychologists test our facial detection, nearly 41% of us see eyes, noses, and mouths in purely "noise" images (think a static TV channel) (Rieth, Lee, Lui, Tian, & Huber, 2011). Overall, the scientific literature suggests that seeing faces or facial parts in simple random patterns is commonplace.

But, as rationalists have known for centuries, perception contours belief. Indeed, the *confirmatio n bias*
shapes reality to a degree that few of us realize (especially in the age of so-called Internet "echo-chambers"). Skeptics for years have characterized many paranormal and religious beliefs to be the byproduct of a hyper-active pattern-seeking. Supporting the skeptics, studies have found that believers in the paranormal are more prone to perceive meaning in random patterns (e.g. Brugger et al., 1993).

It's undoubtedly true that we are all primed to find faces, but how do skeptics, many of whom actively work to inoculate themselves against giving meaning to randomness, compare to both religious and paranormal believers? If you have recognized a pattern here already, I'm sure you can anticipate the answer.

A Tree or An Ent?

Earlier this year, a team of researchers tested 47 participants[1] on a simple facial recognition task. One by one, participants in a dimmed lab evaluated a number of artifact face and non-face pictures, instructed to click on the face if they could perceive one.

Figure 1. Artifact faces. Two pictures of artifact faces (first row) and control pictures (second row)

Nearly 200 face and non-face pictures[2] were flashed to participants in quick succession, with researchers coding the “hits” (identifying a face and clicking on the “middle of it”) and “misses” (identifying no face when one was there). False alarms (identifying a face in a non-face picture) and correct rejections (identifying no face in a non-face picture) were also measured. Lastly, the research team asked participants to rate the pictures’ “face-likeness” (how much the pictures look like faces) and emotionality (what degree of positive/negative emotion the faces show).

The results showed that participants who were rated as religious had more false positives and correct hits than the nonreligious, and paranormal believers similarly outperformed skeptics.

Overall, both types of believers were better at recognizing faces in the images (even if one was not there), rated the faces more face-like, and rated the faces more emotional. However, both skeptics and the non-religious were better at indicating when there was in fact no discernable face in a picture.

The researchers conclude:

We may all be biased to perceive human characteristics where none exist, but religious and paranormal believers perceive them even more than do others (Riekki, Lindeman, Aleneff, Halme, & Nuortimo, 2012).

Extracting Meaning

Supporting the assertions of freethinkers, studies like the one above have shown that religious and paranormal believers are more biased in their pattern recognitions (at least with faces). But what can we glean from this? Being primed for face-recognition seems harmless enough, but it speaks to a bigger picture. The above study, keying into the fact that believers rejected non-face pictures less and indicated face pictures more than skeptics and the non-religious, draws the larger conclusion: *religious and paranormal beliefs are associated with a tendency to jump to conclusions on the basis of inadequate evidence* (Brugger & Graves, 1997).

If our discourse is best informed by good evidence, as it is with everything from evolution to climate change, skeptics can take this as a bit of good news. Reducing epistemology down to a simple experiment, it seems that skeptics have inoculated themselves against illusion (whether this is a product of non-belief or skepticism as a process is unclear).

We all seek out faces. We all anthropomorphize. But we get into trouble when we try to derive meaning from this tendency. A difference in pattern-recognition, small but significant between skeptics and believers, could feasibly translate into worldview-determining notions. An experience with religious iconography on toast could either be fodder for a belief-affirming confirmation bias, or a funny Reddit post.

Among believers in the paranormal, the conformation bias is commonplace (Wiseman, Greening, & Smith, 2003). One could argue that this is part of a sinister feedback loop of irrationality. Once primed to believe in spirits, a pattern of shadows becomes a ghost, which reinforces belief in spirits, and so on. Skeptics rarely get good news, but if credulous pattern recognition is at the heart of paranormal belief (as I would argue faith is for religious belief), skeptics are practicing what they preach.

Notes:

1.

Only those scoring highest of the scales of skepticism, religiosity (or lack thereof), or paranormal belief were included in the study, as to not muddy the water with wishy-washy believers or fair weather skeptics. Groups of nonbelievers and skeptics, as well as paranormal believers and the religious highly overlapped. These groups were determined by having participants rate their agreement with statements of belief like “I believe in God” or “Astrology is a good way to predict future events"

2. No humans or animals were in any of the experimental pictures. Artifact face picture also had a control with no perceivable face.

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