

TARIQUE AZIZ / CSE

WHAT IS CONSCIOUSNESS?

Despite fanciful theories by psychologists, physicists, neuroscientists and computer scientists, consciousness remains an abiding mystery

If you are depressed, you could either take a pill that tweaks the gray matter to induce a sense of euphoria, or you could opt for the “talking cure” in which a therapist blows away the blues by finessing your mind. However, even as we use the mind-brain yo-yo to fight depression, our sense of how the brain gives rise to the mind, or how the mind works on the brain, remains at best a muddle, and a frustrating mystery, at worst.

This elusive play between mind and matter—immortalised by the French philosopher Rene Descartes’ aphorism “I think, therefore I am”—lies at the heart of the conundrum of consciousness. It’s a little weird to imagine an “I” trying to unravel itself. But the alternative—of alienating yourself from the very thing you want to grasp—is no less freaky. Descartes tried to jump over this treacherous mind-brain abyss, claiming both are autonomous

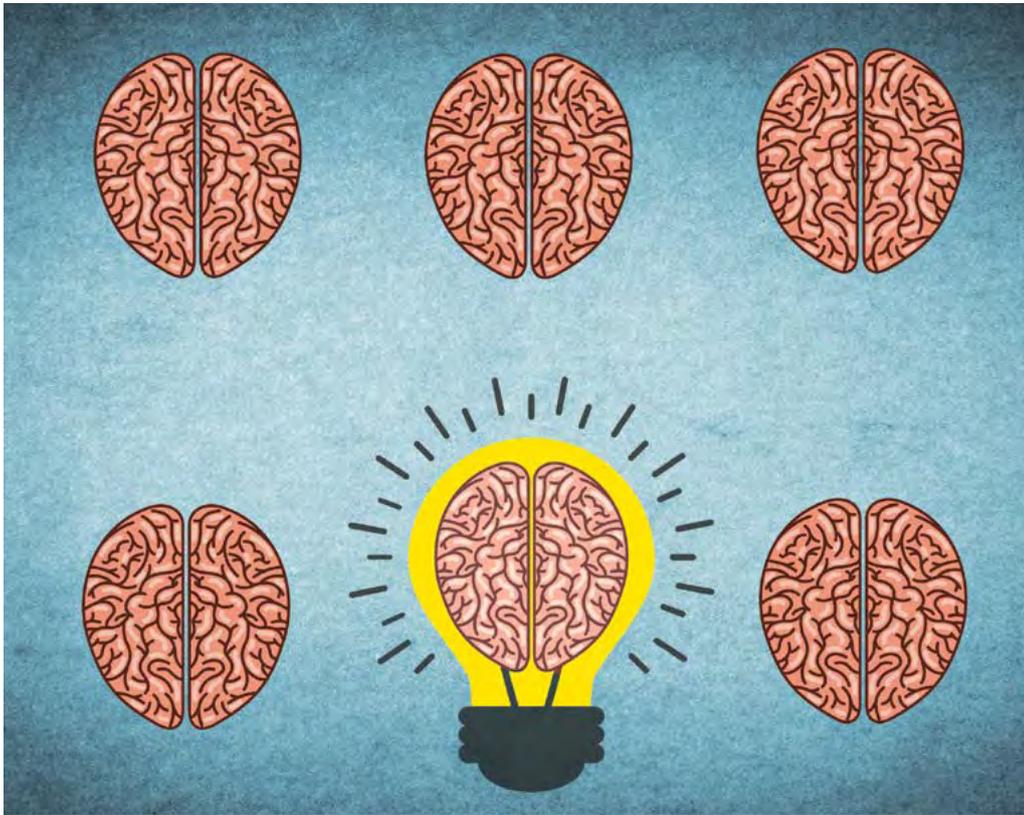
spheres, albeit linked in the pineal gland. But he had no explanation for why this tiny organ should be the privileged go-between.

Despite this inherent glitch, most religions subscribe to some variety of dualism. However, most contemporary philosophers and scientists reject it in favour of a single fundamental material reality, even though there is no consensus as yet on how the brain generates the mind. The Australian philosopher David Chalmers dubbed it the “hard problem” of consciousness. He considers explaining cognitive attributes, such as memory, perception and learning as the “easy problem”. He believes science will eventually crack all the “easy problems”, but the “hard problem”—why and how all these processes translate into experience—will never be solved by the human mind.

In 2016, Edward Witten, a theoretical physicist at Princeton University, added his voice to the chorus of naysayers, deprecatingly called “mysterians”, that includes luminaries like Noam Chomsky, Roger Penrose, and Steven Pinker. And yet, ironically, the field of consciousness studies has never been more vibrant and happening. Panoply of insights from disciplines as disparate as psychology, biology, neuroscience and computer science are coming together to conjure up the magic wand that pulls the rabbit of consciousness out of the hat of brain.

In the early 1990s, Francis Crick, who along with James Watson and Rosalind Franklin unravelled the structure of the double helix, proposed that consciousness is nothing but an emergent property of the collective feverishness of millions of neurons. Taking cue from Crick’s hypothesis, biologist and Nobel laureate Gerald Edelman proposed that consciousness could be explained as the result of the Darwinian struggle amongst tribes of neurons. Around the same time, mathematician Roger Penrose equated consciousness to the cold calculus of subatomic particles in brain cells. Likewise, some computer scientists have likened the brain to a computer and posited the existence of a neural code that, like the genetic code, translates neuronal noise into the rhythms of perception, memory, emotions and eventually into consciousness. As if these flights of imagination were not fanciful enough, neuroscientist Giulio Tononi proposed the Integrated Information Theory, which claims that any physical system, including the human brain, could be said to be conscious if it crosses a certain threshold of complexity. Many scientists reject this idea for its occultist overtones as it resonates with the panpsychism of religious philosophies such as Vedanta and Mahayana Buddhism.

Nevertheless, frustrated by the lack of a cogent explanation of how the brain brews consciousness, some philosophers and scientists, including Chalmers, are veering towards panpsychism. Clearly, there is a carnival of consciousness theories going on. As Chalmers said at a recent conference, “There is nothing like a consensus theory or even a consensus guess.” If mysterians like Witten are right, scientists might be well advised to devote their intellect to more realistic pursuits. But if not, we can expect more daring adventures along the mind-brain Mobius strip. Who knows some day in the future, computers might become smart enough to hold interesting conversations with human minds, or we might be able to download consciousness into our computers.



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DEFINE A GENIUS

A complex ensemble of moral, emotional and intellectual resources of the creative individual makes a genius

Not many know that Thomas Harvey, the doctor who did the autopsy on Einstein's dead body, secretly pinched the great scientist's brain and kept it pickled in his house for 40 years hoping that someday science might tease out the secret of what makes a genius. No brain expert himself, he had the gray matter chopped into 240 pieces, occasionally mailing a few to curious scientists. Before his death in 2007, Harvey even tried returning it to Einstein's granddaughter, who apparently refused to accept it. His heirs eventually donated whatever was left of the brain to science.

Anyhow, for all the drama surrounding the well-meaning heist, it turns out that there is nothing exceptional about Einstein's brain after all. A few studies did claim something special about his brain, but they were eventually dismissed as guilty of what psychologists call confirmation bias—a kind of lazy thinking that makes us look for something that we already think is true.

Be that as it may, the sobering lesson from Einstein's brain saga hasn't dimmed boffins' fetish for uncovering the presumed secret of genius. Early this month, French scientists scanned the cranium of the 17th century French philosopher René Descartes (of the "I think, therefore I am" fame) and fabricated a likeness of his missing brain. Again, on

the face of it, they found nothing spectacularly different. However, researchers believe a more sophisticated excavation might reveal subtle differences that might explain his extraordinary mind.

This obsession with the idea of genius raises a couple of prickly questions. The first has to do with the definition: what is genius and who deserves to be called one? The word acquired its modern meaning after the Renaissance when “genius” was attributed to someone who created something original and brilliant. In the 19th century, psychologists gave it another connotation: someone with an intelligence quotient (IQ) of more than 140.

It’s no surprise that the two modern definitions have little overlap. In other words, you may have an IQ much lower than 140 and yet be a genius like Einstein or Tagore. Conversely, an IQ above 140 doesn’t automatically make you a genius. Clearly, exceptional achievement seems a much more useful and credible criterion to define a genius. But the issue is far from settled. For instance, does it apply to idiot savants who possess extraordinary abilities like doing complex calculations? Indeed, can we extend the epithet, which many do, to philosophers, writers, artists, musicians, military strategists, social scientists and even criminals?

The second question is about the origin of genius. It’s yet another variation on the all-too-familiar nature-versus-nurture debate—some believe it is inborn, while others claim it is acquired. The truth, as always, lies somewhere in between. Genius seems to be an outcome of the mysterious interplay of various factors, including genes, environment, and social and material conditions.

For instance, the much-banded about association between madness and genius may be true in some cases, but surely it can’t be proposed as a general rule. Likewise, an injury to the parietal lobe—a part of the brain involved in abstract thinking—may trigger an extraordinary mathematical ability in some, but, again, it should be seen no more than a happy accident. In fact, many psychologists now reject the idea that creativity is located in a particular part of the brain. They believe any creative process involves the whole brain, with the creative individual invoking a complex ensemble of moral, intellectual and emotional resources.

For all the intellectual speculation on the nature of creative genius, the idea itself remains controversial, not to mention exclusively western with dangerously racist overtones—none of the studies have cared to account for creative genius in other cultures. Only a more nuanced and deeper analysis might offer a cross-cultural perspective on the subject. Meanwhile, we might do well to heed Descartes’ wise words: “It is not enough to have a good mind. The main thing is to use it well.”