

## Why the Brain Fails: Using Ailments to Understand Normalcy

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In *Phantoms in the Brain*, V.S. Ramachandran discusses many case studies in which he presents patients with neurological ailments. Ramachandran not only speaks of the maladies that afflict the patients, but also connects these maladies with normal brain function. Through this lens, Ramachandran is able to identify certain brain regions in normal functioning by finding those that malfunction in patients with neuropathologies. However, in his book Ramachandran also depicts neurological ailments in a way that is accurate and accessible. Similarly, movies such as *A Beautiful Mind* and *The Diving Bell & the Butterfly*, and novels like *Left Neglected* and *Oxford Messed Up* attempt to portray people with neuropathologies, such that the public has an accurate representation of what these disorders entail.

One disorder Ramachandran discusses is hemineglect. In his chapter, "Through the Looking Glass", he mentions Ellen, a woman who does not recognize her left side. Ellen is "profoundly indifferent to objects and events in the left side of [her] world...including the left side of [her] own [body]" (p. 114). Ramachandran wishes to understand the reasoning behind Ellen's neglect, as well as the fascinating fact that neglect does not occur after damage to the left parietal lobe, but only the right. Taking a holistic approach, Ramachandran looks to Marcel Mesulam of Harvard. Mesulam's theory suggests that the right hemisphere of the brain contains a "searchlight" of attention that encompasses both the entire left and entire right visual fields" (p. 117), whereas the left hemisphere of the brain only directs attention to the right visual field. This holistic approach allows for the understanding that, when the left parietal lobe is damaged, the right compensates and neglect does not ensue; yet, when the right parietal lobe is damaged, the comprehensive searchlight disappears, and attention to the left is lost. Thus, by studying the ways in which the visual field is lost, scientists are more able to understand how it works when fully functioning.

Hemispatial neglect has also been discussed in realms accessible to the public. Lisa Genova, a neuroscientist and author, wrote a novel called *Left Neglected*, which depicts a woman afflicted with hemineglect due to right parietal lobe damage following a car crash. The novel gives an accurate representation of the disorder, probably due in part to the fact that Genova has her Ph.D. in neuroscience. Regardless of the reason, *Left Neglected* portrays hemineglect in a true fashion, without over exaggerating or trivializing the disorder. Although Genova's novel does not discuss in depth the biological underpinnings of the disorder, what is mentioned is accurate. More importantly, Genova uses her novel to demonstrate the rehabilitation process of someone with hemineglect and the toll it takes on the patient and her family members. Genova does not glorify the disorder or its recovery process. Although this may make the book slightly more difficult to read, it allows for the reader to empathize with the characters and gives an accurate representation of what truly occurs during rehabilitation from a neurological ailment.

Another novel that attempts to portray a neurological - or, more specifically, psychiatric - ailment in the correct light is *Oxford Messed Up*. In this novel, Andrea Kayne Kaufman depicts a Rhodes scholar with severe Obsessive Compulsive Disorder (OCD). Unlike many novels and television shows that inaccurately represent the disorder, Kaufman wonderfully describes OCD as a debilitating and harmful disorder that truly overtakes one's psyche. Because Kaufman has personal experience with OCD, she strives to, and does, portray OCD as it actually is, rather than merely depicting the stereotypical symptoms associated with the disorder. As such, Kaufman researched extensively and wrote from personal experience, culminating in a novel that gives the layperson true insight into OCD.

The movie, *A Beautiful Mind*, is yet another example of an accurate portrayal of a neurological condition to the public. Because the story of John Nash, Jr. is true, the moviemakers had a responsibility to represent his schizophrenia truthfully. At times, it seemed that the movie used too many stereotypes of paranoid schizophrenia; but overall, the film was made in a way that conveys the demons of schizophrenia to the public in a direct manner. For instance, Dr. Rosen, Nash's psychiatrist, states in the movie, "You see the nightmare in schizophrenia...things are not gone, but worse, they've never been." This statement gives insight into the nature of schizophrenia; as opposed to other neurological conditions, in schizophrenia, hallucinations and delusions persist, creating a world that is in excess of reality. Additionally, the movie provides the viewer with the ability to understand the difficulty of living with someone who has schizophrenia. Alicia, Nash's wife, becomes distressed as the movie proceeds; her feelings of helplessness and fear grow as she sees her husband controlled by his illness. Nash cannot be trusted to care for himself or for others without help. To see such a brilliant man so deeply afflicted by mental illness is moving and instills a desire for further understanding of the illness, its biological implications, and its treatments.

The movie *The Diving Bell & the Butterfly* gives insight into a very different sort of neurological condition: Locked-in syndrome. The perspective of the viewer, for much of the movie, becomes that of Jean-Dominique Bauby (Jean-Do), contributing to the viewer's understanding of the syndrome. The movie briefly explains the biology behind the syndrome, stating that Jean-Do's brain stem has been damaged after a stroke. However, much of the excellence of the movie is due to the way Jean-Do's experience is portrayed. He states, "Other than my eye, two things aren't paralyzed: my imagination and my memory." The movie accurately depicts the difficulties of locked-in syndrome; although, at times, this makes the movie difficult to watch, the moviemakers fulfill their responsibility of portraying the syndrome as it actually is.

To understand neurological conditions that create unique results, ingenuity and creativity is necessary, as well as a working knowledge of the brain. For instance, in the chapter, "G-d and the Limbic System", of *Phantoms in the Brain*, Ramachandran discusses spiritual revelations that patients often have after temporal lobe seizures. Biologically, scientists like Ramachandran have found that seizures occurring in or near the limbic system cause emotional changes in patients. This finding provides support to the notion that the limbic system is the emotional center of the brain. However, the explanation for religious experience during a seizure is less understood. Ramachandran uses the field of evolutionary psychology to help explain these

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experiences. Although speculative, one hypothesis proposed by Ramachandran is that "human beings have actually evolved specialized neural circuitry for the sole purpose of mediating religious experience" (p. 183). This hypothesis cannot be proven, though it has been shown using Galvanic Skin Response (GSR) that these patients have heightened responses to spiritual and religious items as opposed to all other stimuli. Ultimately, according to Ramachandran, what can be known about these patients "is that there are circuits in the human brain that are involved in religious experience and these become hyperactive in some epileptics" (p. 188).

The only way to truly understand normal brain function is to look at what happens when things go wrong. Scientists like Ramachandran seek to study the unique ailments that can occur in the brain in order to get a better understanding of the way brain circuitry functions and how certain functions are localized in different areas of the brain. As Ramachandran states, "there are some questions about the brain that are so mysterious, so deeply enigmatic, that most serious scientists simply shy away from them...yet these are the very issues that fascinate us most of all" (p. 188). It is vital that researchers continue to study neurological syndromes so that new perspectives of the brain's normal functions can be gained. At the same time, it is necessary that these syndromes be portrayed correctly to the public so that all people, not just educated scientists, will gain an appreciation for the workings of the brain and the atrocities that can occur when normal function ceases.

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