

Nayef Al-Rodhan / October 22, 2016

Neuroscience has emerged as a new form of philosophy in recent years, with implications far beyond healthcare. At a time of divisive and turbulent politics, the study of the way the brain functions has opened the way for a new understanding of ourselves and our societies.

The tools of neuroscience, and especially functional magnetic resonance imaging (fMRI), have provided unprecedented insights into the real-time workings of the human brain. Topics and debates previously reserved to philosophy can now be mapped in neurochemical and neuroanatomical terms.

We are now beginning to understand some facets of human emotionality, decision-making, morality, trauma and the drive for political power down to the cellular level, by observing changes in neurochemistry, neural pathways, and neuro-anatomical transformations in the brain.

How fear, emotions and ideologies play out in the brain

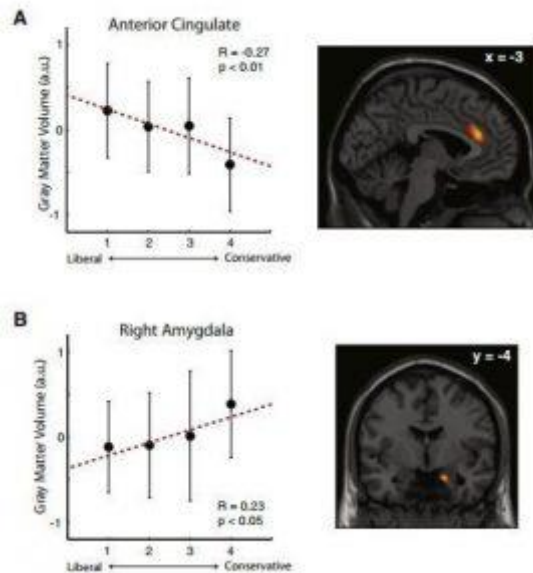
Neuroscience has offered some evidence-based claims that can be uncomfortable because they challenge our notions of morality or debunk the myth about our 'rational' brain.

Critically, neuroscience has enlightened us about the physicality of human emotions. Fear, an emotion we have inherited from our ancestors, is not an abstract or intangible sense of imminent danger: it is expressed in neurochemical terms in our amygdala, the almond-shaped structure on the medial temporal lobe, anterior to the hippocampus. [The amygdala](#) has been demonstrated to be critical in the acquisition, storage and expression of conditioned fear responses. Certain regions in the amygdala undergo plasticity – changes in response to emotional stimuli – triggering other reactions, including endocrine responses.

Similarly, the way our brains produce moral reasoning and then translate it in the social context can now be studied to some extent in neuroscientific terms. For instance, [the role of serotonin](#) in prosocial behaviour and moral judgment is now well documented, with a demonstrably strong correlation between levels of serotonin in the brain and moral social behaviour.

Neuroscientists have also looked at how [political ideologies](#) are represented in the brain; preliminary research indicates that an increased gray matter volume in the anterior cingulate cortex can be correlated with inclinations towards liberalism, while increased gray matter volume in the amygdala (which is part of the limbic system and thus concerned with emotions) appears to be associated with conservative values. These early findings, of course, are not meant to be reductionist, deterministic, or politically pigeonhole one group or the other, nor are they fixed. Rather, they can help explain the deep

and persistent divide that we see in party politics across the world. It would very valuable to look into whether these preliminary findings pre-date political affiliation or occur as a result of repeated exposure to politically-inspired partisan and emotional debates.



Source: Political Orientations Are Correlated with Brain

Structure in Young Adults Report

More recently, policy analysis has turned to neuroscience too. For example, in the US [2016 election](#) cycle, some have correlated the appeal of some candidates to the so-called [hardwiring](#) in our brains, and to our primordial needs of group belonging, while others have explored the insights from neuroscience on the role of [emotions](#) in decision-making. Similarly, the attitudes surrounding “[Brexit](#)” have also been analysed with references from neuroscience.

Divisive politics – what does neuroscience tell us?

The short answer is: some useful new insights. To be sure, some findings in neuroscience might be crude at this stage as the discipline and its tools are evolving. The human brain – despite tremendous scientific advances – remains to a large extent unknown. We do have, however, some preliminary findings to draw on. Divisive politics have taken centre stage and neuroscience may be able shed some light on how this is expressed in our brains.

“Us” vs. “them”, cultivating fear and hatred towards out-groups that are deemed different (ethnically, ideologically, religiously, etc.), and vicious and virulent attacks against them, are all part of an unsettling picture of growing ethnic and racial hostility. Philosopher Martin Buber identified two opposed ways of being in relation to others: [I-It and I-thou](#). I-It means perceiving others as *objects*, whereas I-thou refers to empathic perceptions of others as *subjects*. Cognitive neuroscientists have studied this distinction with brain imaging techniques and the findings – unsurprisingly – tell us a lot about our increasingly polarised world today and the ways our brains process the distinction between us and “others”.

The urgency to barricade oneself from “outsiders” or “intruders” is largely based on fear and ancestral predispositions, which regard belonging to a tribe, a group, or family as pivotal to survival and reproduction. The neurocircuitry for tribal behaviour has been studied with non-invasive methods, revealing that the distinction between “us” versus “them” occurs in the prefrontal cortex. There, we normally distinguish someone as being an “outsider” or part of “our group” within [170 thousandths of a second](#) from the moment we see them. This instantaneous bias occurs subconsciously and is linked to a primordial hard-wiring.

Further research revealed distinct activation differences in the medial prefrontal cortex (PFC) of participants in a survey who were asked to make inferences about people similar or dissimilar politically. [The results](#) showed different reactions: when asked to make judgments about similar people, areas in the ventromedial PFC became active, and when asked to make inferences about dissimilar people, areas in the dorsomedial PFC became active. Essentially, we judge people differently depending on whether they are known to us or not.

However, while the hard-wiring for creating such a distinction is there, we are faced with a more complex picture – unlike in prehistoric times, the definition of “us” vs. “them” in our modern societies is more subtle and variable. Divisive leaders today play a key role in [manipulating such fundamental human predispositions](#) and, indeed, accentuating and unleashing our fears, often even for the most enlightened or informed members of societies.

Nationalistic sentiments, often exacerbated by populism, thrive on the “us” vs. “them” distinction, reinforcing the sense of belonging and attachment, which is critical for all adults. [Cognitive sciences](#) have shown that attachments to larger groups are part of the normal socialising process of adulthood, as we transition from being egocentric to sociocentric – that is, aware of our existence in larger settings. Paradoxically, nationalism – be it civic, ethnic, or a combination of these two – can be extremely unifying across gender, class, or even political lines, while at the same time identifying the fault line along the idea of national unity.

This [predisposition](#) for “in group favoritism” and “out-group devaluation” is conveniently exploited by populist leaders, who turn “the nation” into a marker of distinction between people. This distinction then goes deeper, and is also reflected in how our [empathy](#) is construed. fMRI experiments have shown that our attitudes towards those we perceive as out-groups are affected by the so-called “mirror neurons” (normally responsible for mimicry and empathy), which are “switched off”, leading us to resist emotional connections.

In extreme forms, such divides can lead to more profound changes in a person’s cognitive and emotional state. The adherence to extremist ideologies has puzzled neuroscientists for a long time, and so has the question of the neurological and neuroanatomical transformations behind “brainwashing”. Some of the initial clues point to extremism being connected to increased anxiety, but that is certainly not an all-explanatory premise. The “us” versus “them” distinction plays an important part, creating profound solidarities among members of the “in-group”. Studies in evolutionary neurobiology posit that these allegiances are so entrenched that individuals could sacrifice themselves in order to help ensure [the well-being of their in-group](#). Many theories remain to be tested in the coming years, but it is without doubt

that the role of the environment (including alienation, indignity, fatalism, humiliation, ignorance, rejection of the other, manipulation etc.) remains paramount in shaping notions of the self and the others.

This has also been noticed in research on [how racial bias works](#) in the brain, which is highly malleable. A wave of neuro-studies on perceptions of race began in the 1990s in the US. These studies – unthinkable until then – help us understand and address problems of biases and negative attitudes. The amygdala, the small group of nuclei critical to emotional learning, is the brain area that has been reported most often in studies regarding attitudes to race. This is the same subcortical structure that reacts to fast unconscious assessment of threats.

In the US and elsewhere, many have claimed that race-based discrimination has decreased because of egalitarian social norms. This assumption, however, goes contrary to the abundance of evidence showing that prejudices continue.

Extensive brain imaging showed how negative attitudes develop in the brain's unconscious neural mechanisms, but that negative attitudes are *not* fixed. Interestingly, a [study](#) showed that amygdala activation for black faces was greater than white faces when faces were presented to participants for only 30 milliseconds – suggesting automatic emotional responses. However, when the same faces were presented for longer (525 ms), the activity difference was not in the amygdala but areas of the PFC and the anterior cingulate – areas also associated with inhibition and control.

Activation in these areas shows greater attempts to reflectively process the information, control unwanted biases and confront them with egalitarian beliefs and norms. The fast activation of negative bias in the 30 ms condition, as opposed to the one in 525 ms, was indicative of the fact that prejudicial responses very often will occur when there is cognitive overload or when reflective processes are not well engaged.

Our primordial brains don't have to hold us back

While the human brain presents primordial predispositions, carried through millennia of evolution, it is also incredibly malleable and plastic. Rather than painting a grim picture, we should think of neuroscience as a discipline that can help us overcome roadblocks in our societies.

An important [study in Nature on the neuroscience of racial attitudes](#) also observed that changing the context for interracial interactions was critical to changing the brain's responses. Similar conclusions can be drawn about divisive politics in general. Neuroscience alerts us to our instinctive biases, offering us the opportunity to correct them. It is critical not to succumb to divisive discourses and populist leaders.

Here, neuroscience provides further guidance, elucidating how to escape the trap of divisive politics, which in essence build upon our hardwired predispositions. Based on insights from neuroscience, I previously described human nature as [emotional, amoral and egoistic](#). Humans are born as a [predisposed tabula rasa](#), with no innate conceptions of good or bad, only an inherited predilection for survival. In

addition, neuroscience has demonstrated that emotionality plays a central role in decision-making, and that our moral compass is malleable, largely determined by circumstances. Therefore, apart from a basic set of instincts, we are otherwise “written upon” by experiences and our environments.

Also part of our hardwiring is what I called the “[Neuro P5](#)”: power, profit, pleasure, permanency, and pride. These powerful human motivators can lead us to excesses and a search for gratification, even when such endeavours are not moral. This also gives us further insights into divisive politics and its connection to political power. Studies of the [neurochemistry of power](#) have found that power, as pleasure, is based on the same neural reward circuitry, leading to an increase in the dopamine level and a subsequent drive to seek more power. Power, in short, is addictive and even more so in authoritarian regimes, where there are few institutional mechanisms to prevent abuses. This neural mechanism is also associated with manic behaviour, paranoia, and exaggerated self-perceptions. In their quest to maintain power at any cost, leaders could resort to any means, evoking real or imaginary enemies and furthering divisions without regard for consequences.

That is why [good governance](#) plays a key role in staving off the malign effect of divisive politics. [Education](#), accountable institutions, responsible electioneering, and a more sensitive entertainment industry contribute to addressing this challenge. They play a key part in reducing biases, increasing exposure and tolerance, and [treating the ‘Other’ with dignity](#) in order for societies to remain peaceful, tolerant, and progressive.

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