

The anatomy of politics

From genes to hormone levels, biology may help to shape political behaviour.

A popular political advertisement from early this summer begins with US President Barack Obama addressing a crowd of moon-eyed supporters. Suddenly, the screen goes dark to a crescendo of minor chords. Phrases such as “Fear and Loathing”, “Nauseating” and “Divide and Conquer” flash onto the screen, along with video clips of commentators complaining that Obama has used scare tactics to manipulate voters. In the final scene, the iconic poster from Obama’s 2008 election campaign appears, the word HOPE transforming into FEAR as it bursts into flames.

The advertisement, produced by the conservative organization American Crossroads in Washington DC, is typical of those that have come to dominate the US airwaves and YouTube in preparation for next month’s presidential election. Emerging from both the right and the left, these commercials increasingly resemble horror films as they seek to sway voters by triggering basic emotions such as fear, anger and disgust.

That strategy fits with emerging scientific evidence about how people acquire their political beliefs. In the past, political scientists agreed that social forces — most importantly, parents and the childhood environment — strongly influenced whether people became conservative or liberal, and whether they voted or engaged in politics at all. “We now know that it is probably not the whole story,” says John Jost, a psychologist at New York University.

An increasing number of studies suggest that biology can exert a significant influence on political beliefs and behaviours. Biological factors including genes, hormone levels and neurotransmitter systems may partly shape people’s attitudes on political issues such as welfare, immigration, same-sex marriage and war. And shrewd politicians might be able to take advantage of those biological levers through clever advertisements aimed at voters’ primal emotions.

Many of the studies linking biology to politics remain controversial and unreplicated. But the overall body of evidence is growing and might alter how people think about their own and others’ political attitudes.

“People are proud of their political beliefs,” says John Hibbing, a political scientist at the University of Nebraska–Lincoln. “We tend to

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think they’re the result of some rational responses to the world around us.” But in fact, a combination of genes and early experiences may predispose people to perceive and respond to political issues in certain ways. Recognizing that could help the public and politicians to develop more respect for those with opposing viewpoints.

“I’d like to see people have a little less chutzpah about their political beliefs, and understand that some people experience the world differently,” says Hibbing.

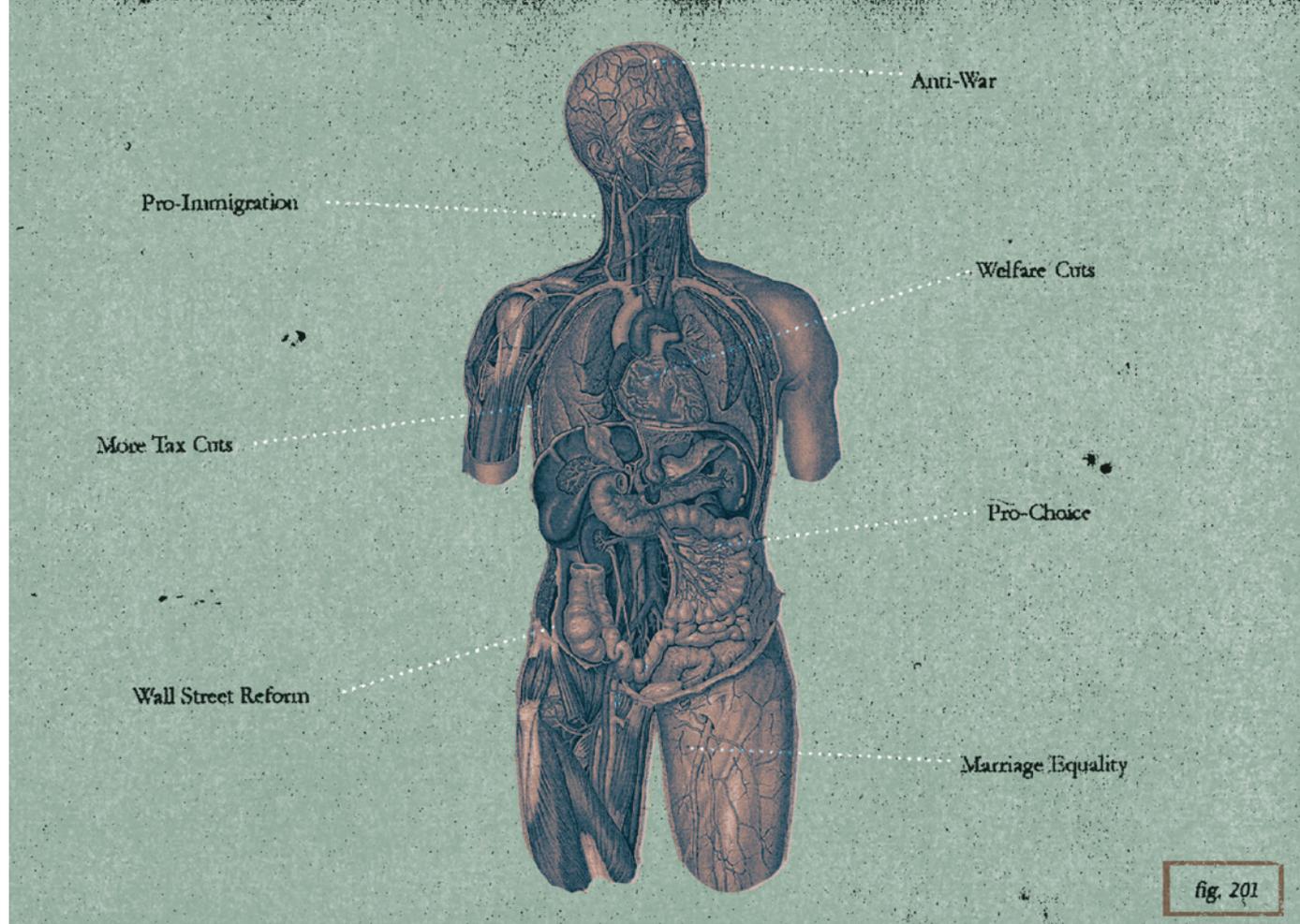
INNATE IDEOLOGY

The past few decades have seen a wave of research connecting genes to disorders such as schizophrenia, depression and alcoholism, and to complex outcomes such as sexual orientation and how far people progress in education. But until the past decade, this trend largely passed by the field of political science. Modern politics seemed too divorced from basic human biology, too recent an innovation in human evolutionary history, to be influenced by genetic material.

In 1986, Nicholas Martin and his colleagues published a study¹ suggesting that genes could exert a pull on attitudes concerning topics such as abortion, immigration, the death penalty and pacifism. Martin, a geneticist now at the Queensland Institute of Medical Research in Brisbane, Australia, used a classic behavioural-genetics technique: comparing genetically identical twins with fraternal twins of the same sex (who share only 50% of genes on average). The identical twins had similar political beliefs more often than fraternal twins did. Because twins tend to grow up in the same family environments, Martin’s team suggested that genes made the difference, and that they have a significant role in helping to shape attitudes on social issues.

Although Martin’s study had obvious implications for political science, researchers in that field ignored the work. The eugenics movement in the early part of the twentieth century and Nazi theories about the biology of human differences had made political scientists extremely wary

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about topics that examined genetic differences among people.

The publication “was like a stone down a well”, says Martin. “There was absolutely no reaction. It just lay there for 20 years.”

But in the early 2000s, Hibbing and John Alford, a political scientist at Rice University in Houston, Texas, learned about Martin’s work. They reanalysed his data and incorporated similar data from a study² of attitudes among US twins. In 2005, Hibbing and Alford published³ findings nearly identical to those earlier studies — showing strong correlations between genetics and political views. These finally caught the attention of political scientists.

It wasn’t the kind of attention that Alford and Hibbing were hoping for, however. “They thought we were crazy,” says Hibbing.

But a few researchers, mainly in the United States, were intrigued enough to follow up with further work. James Fowler, a political scientist at the University of California, San Diego, used the twin method to show⁴ that voter turnout and political participation also had a genetic component. Peter Hatemi, a political scientist at Pennsylvania State University in University Park, found results similar to Alford and Hibbing’s using twins from Australia, Denmark, Sweden and the United States, although the work has not yet been published.

TROUBLE WITH TWINS

The twin studies were far from definitive, in large part because such research cannot completely control for environmental factors. Compared with fraternal twins, genetically identical twins are more likely to have the same friends and to maintain regular contact as adults. Furthermore, parents, friends and teachers often treat identical twins more equally than fraternal twins. All of that makes it hard to unpack how much genes and environment each contribute to the shared political attitudes of identical twins.

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A few attempts have been made to tease apart the various influences. In one study⁵, Hatemi found that identical twins who do not spend much time together are still more concordant than are fraternal twins who do, suggesting that genetic factors do matter. But the twin studies continue to face strong opposition. “I’m very sceptical about estimating heritability from twin studies,” says Laura Stoker, a political scientist at the University of California, Berkeley. “The entire framework is built with a tonne of assumptions.”

Twin studies also offer no insight into how the genome can nudge people to lean left or right on various political issues. For that, researchers have started exploring candidate genes. Genes involved with the olfactory system and the neurotransmitters glutamate, dopamine and serotonin have all been linked to behaviours such as voter turnout⁶ and ideology⁷, although these findings have come under scrutiny and are yet to be independently replicated.

Jeremy Freese, a sociologist at Northwestern University in Evanston, Illinois, says that such studies have found “implausibly large” effects from individual genes. “What’s been revealed over the past few years is just how vulnerable the candidate-gene approach is,” he says.

Part of the problem, says Freese, is that studies linking specific genes to political behaviours have usually been published in political-science journals, rather than scientific journals, so editors and reviewers may not have picked up on some deficiencies in the studies. “The reviewers have not been familiar with the replication problems that exist,” says Freese.

Christopher Dawes, a political scientist at New York University, acknowledges complications in some of his own studies of specific genes and says that more illuminating results might come from molecular techniques such as genome-wide association studies, which scan the genomes of large numbers of people, looking for sequences linked to a behaviour or trait. But researchers in this area are only just beginning

to use such resource-intensive strategies.

“We’re starting to better appreciate the limitations of the data and techniques,” says Dawes.

If other complex behaviours and traits are any indication, the answer is not going to be simple. Even for traits known to have a very large genetic component, such as height, the evidence points to the influence of thousands of genes, each applying a feather-light force. So it seems unlikely that a small number of genes can push someone towards being a liberal activist, a social conservative or a libertarian.

Many researchers have come to the conclusion that it is premature to focus on the genetics of politics. “It doesn’t make sense to go after the most difficult part of the puzzle,” says Alford.

An easier approach is to investigate the pathways that might connect genes with political behaviours and attitudes. One connection that has been suggested is personality. US conservatives may not seem to have much in common with Iraqi or Italian conservatives, but many political psychologists agree that political ideology can be narrowed down to one basic personality trait: openness to change. Liberals tend to be more accepting of social change than conservatives. Some studies⁸ suggest that liberals tolerate more ambiguity and uncertainty, whereas conservatives are more decisive, conscientious and attracted to order.

Theoretically, a person who is open to change might be more likely to favour gay marriage, immigration and other policies that alter society and are traditionally linked to liberal politics in the United States; personalities leaning towards order and the status quo might support a strong military force to protect a country, policies that clamp down on immigration and bans on same-sex marriage. But some researchers balk at such simple links between personality and ideology. Evan Charney, a political scientist at Duke University in Durham, North Carolina, points out that conservatives sometimes embrace change, such as proposals in the United States to alter the tax code and welfare system. He also says that he and most people in his field are liberals — an imbalance that could bias how they interpret connections between personality and politics.

VISCERAL REACTIONS

Some researchers have sought to move beyond personality studies to evaluate how participants’ physiological reactions can influence how they interpret and respond to political issues. In 2008, Alford, Hibbing, Hatemi and others measured how people reacted to threatening images and sudden, loud noises⁹. People who blinked harder and showed heightened sensitivity — as gauged by their skin conductance — were more likely to favour gun rights, capital punishment and the war in Iraq than were those who showed less sensitivity.

In another study¹⁰, Hibbing showed subjects a series of emotionally charged images, including a spider on a man’s face, a maggot-infested wound, a cute rabbit and a happy child. People who described themselves as conservatives tended to respond more strongly when looking at the negative images than at the positive images, whereas liberals reacted more to the positive pictures. Conservatives also stared at the negative images longer than liberals did, which Hibbing connects to the idea that conservatives are more likely to confront fearful or disgusting situations, making them more disposed to support a strong military and harsh sanctions for criminals.

Some researchers are exploring whether hormone systems play a part in political attitudes. A few studies, for example, have looked at connections between people’s prejudices and their levels of oxytocin — the feel-good hormone linked to empathy and bonding with loved ones. In one experiment¹¹, Dutch participants who had taken puffs of oxytocin

responded more favourably to Dutch people than to foreigners, suggesting a bias towards their own group.

Hatemi and Rose McDermott, a political scientist at Brown University in Providence, Rhode Island, are currently investigating whether other hormones, such as testosterone and cortisol, have any connections with ideology. Many of the hormone studies done so far have come under attack, because they often rely on small samples and the reported effects are sometimes weak.

Given the research so far, Hibbing remains “agnostic” about whether genes or environmental factors such as parental guidance influence political behaviour the most. Either way, he says, it is difficult to change someone’s mind about political issues because their reactions are rooted in their physiology.

“If people spend most of their lives focusing on negative rather than positive, they’re probably going to have a different way of experiencing the world than those who do the opposite,” says Hibbing. So people on the right are unlikely to be reached by arguments that seem rational to the left, or vice versa.

But tapping into emotions might prove more successful. After the terrorist attacks in the United States on 11 September 2001, New Yorkers who had been directly exposed to the trauma of the events experienced a ‘conservative shift’, expressing views that were more patriotic, more supportive of the military and more religious than they had before¹². Disgust,

too, can shift attitudes. One study¹³ suggested that people exhibit more conservative views when reminded of impurity — for example, by the proximity of a bottle of hand sanitizer, a sign reminding them to clean their hands or a foul smell.

Does that mean that negative political adverts, designed to invoke fear and disgust, could actually change people’s views? Alford says that these commercials are targeted more at mobilizing favourable voters — and demobilizing the opposition. “People who run political campaigns know that it’s all about turnout,” says Alford. “It’s not about changing hearts and minds; it’s about changing who shows up on election day.”

Regardless of whether biology shapes political choice, it may affect a person’s likelihood of voting in the first place. In an as-yet unpublished study, Hibbing has found that people with high levels of the stress hormone cortisol are much less likely to vote than are demographically similar people who have lower cortisol levels. Hibbing is currently working to find a way to ease voting for these ‘stressed’ people, perhaps through options such as postal voting.

Alford says that the biggest impact of all this research may be to make political discourse more civil and accepting of differences. “It would be nice if political science made dinner tables a little more humane,” he says. ■

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