Chapter 11

Biopolitics, Neuropolitics, and Genopolitics

During the last ten years or so, the terms "neuropolitics," "genopolitics," and "biopolitics" have begun to appear—or in the case of the latter, re-appear—in the vast literature which links psychology and politics. Neuropolitics and genopolitics are relatively new at the time of writing, and are still not as familiar to many political scientists as they ought to be. One thing I've tried to do throughout this book is to explain political psychology in a simple, accessible, and direct way. Writing about these topics in that fashion is admittedly rather hard to do, though, not least because *hardly anyone* is an expert in all the areas that these three general approaches or fields of study draw upon. In order to get a real handle on these subjects, you first of all need to be trained in political science, of course. But you also need to know about cognitive neuroscience, psychology, biology, physiology, primatology, ethology, and behavioral genetics as well! This is a pretty tall order, and I take my hat off to anyone who feels they're truly "expert" in all of these simultaneously (while retaining a healthy suspicion at the same time about anyone who makes this kind of claim).

Part of the problem, of course, goes back to the issues with which we started this book. On the whole, academia has traditionally rewarded those who specialize in narrowly defined areas which, by their very nature, are not interdisciplinary. As an undergraduate, you will probably take courses in a variety of areas. From one perspective, you are getting exposed to a broad range of topics. On the other hand, it can be hard to see how all of these "link up," and relatively few courses in universities today even try to do that for you. In other words, our appreciation of the woods tends to get lost in our fascination with particular trees. Writing a PhD thesis, moreover, usually involves a high degree of specialization within a single field, and both tenure and promotion within political science are hard to achieve without a similar, single-minded focus. Moreover, there is a great deal of bureaucratic resistance to incorporating genetic explanations (for instance) into the study of politics,

and I have personally heard people who do this described in private as "loonies" or "crazies."[1] This kind of resistance is perhaps understandable, but it also inhibits the accumulation of learning and knowledge. And of course there is the problem of getting natural scientists to "do" politics. Salaries are generally higher in the natural sciences than they are in the social ones, so why go to the trouble and expense of working in a political science department when you can make much more money in a department of biology?

Fortunately, we *are* beginning to see more and more individuals trained in behavioral genetics or social neuroscience (for instance) working in political science departments. And an ever-bigger growth industry is the tendency of social scientists to collaborate with colleagues based in natural science departments, and to publish in natural science journals.[2] We are increasingly getting around the "expertise problem" by simply talking to (and working with) people in departments other than our own. And this tendency, of course, goes back to Harold Lasswell and Charles Merriam, both of whom (as we saw in earlier chapters) realized early on in the development of the subject this book covers that a full understanding of political behavior could not be acquired without training oneself in the materials traditionally covered only by non-political science departments.

As we shall see in the concluding chapter, these new perspectives also provide a handy way of combining our situationist and dispositionist approaches. Although in Chapter 11 we present neuroscience as an approach which is more dispositionist than situationist, in reality both neuropolitics and genopolitics *combine* dispositionist and situationist arguments to form a more rounded explanation of political attitudes and behavior. Neuropolitics and genopolitics may yet be formally (or informally) merged with one another to form a single approach—possibly with a new and different label that hasn't been coined yet—and indeed the terms are often used interchangeably. While they do in fact overlap in significant ways—and many researchers mix and match various elements of these complex topics—they should be logically distinguished from one another, and it's important that students get a good sense of this.[3]

While neuropolitics and genopolitics are relatively new additions to the political science *oeuvre*, biopolitics is a much older and more well-established approach which has undergone a major revival in recent years, and both neuropolitics and genopolitics are new approaches within the general label of biopolitics. Neuropolitics is the study of the role played by the human brain in politics, and is logically separate from genopolitics, which examines the genetic roots of political attitudes and behavior. The two are often linked, though, in the sense that genopolitical arguments often involve a theory of how the brain has evolved and thus become neuropolitical as well. Before

we look at areas of overlap between biopolitics, neuropolitics, and genopolitics, of course, we first need to understand what these various terms mean. We'll take each in turn.

Biopolitics

Biopolitics is probably the easiest of the three to describe and understand. Setting aside its usage in postmodernism—where it has a rather different and specialized meaning—the term "biopolitical" in political psychology refers to approaches which examine the relationship between human biology and political behavior.[4] It is easily the oldest of the three approaches, first being used as a term in the 1920s and 1930s. Arguably, though, its use as a general approach can be traced much further back than this, to both Plato and Aristotle and certainly to the "state of nature" arguments of Thomas Hobbes and John Locke and Jean-Jacques Rousseau. The state of nature is a real or hypothetical condition employed by a number of thinkers, in which they imagined what life would be like if government did not exist and men and women were essentially left to their own devices. Hobbes famously concluded that life under such conditions would be "nasty, brutish, and short," while Locke and Rousseau both countered that the state of nature would in fact be a state of harmony in which everybody "got along" (to paraphrase Rodney King). Each of them justified their preferred form of government by these claims, but Hobbes in particular was making a biological (or biopolitical) argument about human nature. Human beings, he suggested, are born with certain predispositions and these "are" a certain way, regardless of what we might like to be the case.

For many years after World War II, biological explanations languished in political science, partly because state-of-nature-type explanations were regarded as unscientific by the 1950s and 1960s, an era in which *behavioralism* reigned supreme in political science. Not to be confused with the behaviorism that we examined in Chapter 3, this was a movement in political science which insisted that cumulative progress could only be made in attaining or accumulating knowledge about politics if the appropriate scientific (usually statistical) techniques were followed. The arguments of theorists like Hobbes and Locke were often deemed not to fulfill such criteria. Probably more important, though, was the almost automatic but ill-considered association which developed in many people's minds between the "Eugenics" movement, Nazism, and biological explanations of politics in general. As we saw earlier in this book, this movement had an impact not just on Germany—where pseudo-biological theories were used by Nazis to "justify" genocide—but in the United States of the 1920s and 1930s, where anti-immigration policies were drawn

up in response to biological theories which claimed that immigration from Eastern Europe was somehow "poisoning the race."

The political fallout from Nazism and the Eugenics movement tended to tar *all* biological explanations with the same brush, regardless of their precise nature or scientific basis. Taken to their extreme, biological explanations of politics like eugenics can become highly deterministic, claiming that human behavior is fixed and that education or training is therefore effectively a waste of time. If human behavior is fixed and more or less predetermined, why bother with educating people and trying to make their lives better? While behaviorism (with its notion of the blank slate) reigned supreme in the rising and affluent America of the 1950s, biological explanations (which suggested that the slate was at least partially filled at birth) were never going to dominate psychology either. Since the late 1960s though, there have always been political scientists like Albert Somit who carried the torch for biopolitical approaches during a period where many others considered this odd or quaint. More recently, however, such approaches have been significantly revitalized by developments in cognitive neuroscience and evolutionary psychology, and most of all by advances in behavioral genetics. Moreover, political psychologists in particular have stressed that biological accounts need not be deterministic at all.[5] At the very least, they can be used as a supplement to situationist accounts which claim that your voting behavior (for instance) is entirely determined by your life circumstances. And at their best, they may provide better, independent accounts of behavior which rely on dispositionism rather than situationism. In many ways, neuropolitics and genopolitics are both revitalized versions of this older tradition, and we'll turn to each of these next.

Neuropolitics

Neuropolitics investigates the relationship between the human brain and politics, dealing with how each influences the other. How does the brain affect political behavior? And how, for that matter, does politics then affect our brains? This is of course a highly interdisciplinary subject, drawing on insights gleaned from political science, neuroscience, biology, and a number of the fields already mentioned above. Consider some of the classic questions that traditional political scientists ask. Where do our political attitudes come from? How do we judge candidates for political office? Are most of us racially biased, and how does race affect our political behavior? What role does emotion play in decision-making? Neuropolitics uses the methods of cognitive neuroscience (most notably, "neuroimaging" techniques) to investigate these issues in a way that traditional political scientists were never able to.

In late 2010, the British actor Colin Firth—best known to Americans for his starring (and stuttering) role in *The King's Speech*—guest-presented an episode of a radio program in England. During the broadcast, he casually and light-heartedly suggested that scientists should scan the brains of politicians—especially the brains of people who disagreed with him politically! He suggested that there might be differences in brain structure between those on the political left and those on the right (or what are termed "liberals" and "conservatives" in the U.S. context).

Firth probably did not expect anyone to actually do it, but psychologists at University College London took up his challenge. The result was an article published in the journal *Current Biology* the following year which credited the actor and his producer as "co-authors." The real work, of course, wasn't done by Firth but by Tom Feilden and Ryota Kanai of that university's Institute of Cognitive Neuroscience. To begin with, they scanned the brains of Alan Duncan, a member of the British Conservative Party, and Stephen Pound, representing the U.K. Labour Party, using fMRI (or functional magnetic resonance imaging) to map the brain structures of each. All of this was unusual enough, but the results themselves were even more surprising. Of course, there is little one can conclude in a social scientific sense from just two cases, so Rees and Kanai continued their research by adding ninety more subjects. But they found that Firth's intuition was correct. There are in fact differences in brain structure between those on the left and those on the right, they discovered, so much so that after the researchers replicated the study on another sample of participants, they felt able to conclude that it is possible to *predict* someone's political preferences—with an astounding 72 percent accuracy—just by looking by looking at the structure of his or her brain. How is this possible? The authors argued that certain regions are "thicker" in Conservatives, while other regions are thicker in Labourites, allowing a researcher to predict with a great deal of confidence which one they are looking at. Just from the images on a computer screen.[6]

The invention of functional magnetic resonance imaging has played no small role in creating the new field of neuropolitics because it has given anyone interested in the political brain new tools to address questions that couldn't really be answered before. Of course, like anything else, fMRI results need to be used with care. In 2009, neuroscientist Craig Bennett and his colleague Abigail Baird put a dead salmon in their fMRI machine. Amazingly, this produced "evidence" of brain activity, as if the salmon was alive and thinking! This was actually just the kind of random "false positive" that is possible when this kind of technique is used, but Bennett and Baird did it in order to show how easy it is to misinterpret fMRI results. Bennett says that he's "so tired about hearing about 'the brain lighting up.' It makes it sound like you see lights

in the head or something. That's not how the brain works." Many people, he argues, misunderstand what fMRI results actually mean.

> Those beautiful colorful maps . . . they're probability maps. They show the likelihood of activity happening in a given area, not *proof* of activity. According to our analysis, there's a higher likelihood of this region using more blood because we found more deoxygenated blood in this area. It's also correlational. Here's a time frame and the changes we'd expect, so we see which bits of brain correlate with that.[7]

In other words, while fMRI gives us a good indication of brain activity, it does so indirectly by estimating blood flow in the brain rather than "seeing" brain activity directly.

Some of the first studies in neuropolitics used fMRI techniques to find out whether there were differences in brain activity between political sophisticates and non-sophisticates (in other words, between people who knew a lot about politics and those who did not). Darren Schreiber and Marco Iacaboni asked subjects an array of questions while their subjects lay inside an fMRI machine.[8] It was a bit like a high-tech version of what Alex Trebek does on the TV show *Jeopardy*, since the categories involved a mixture of political and non-political subjects. The researchers found that the politically knowledgeable and the politically ignorant reacted in different ways to questions about U.S. national politics. The knowledgeable showed elevated levels of activity in regions of the brain associated with social cognition, while political novices showed diminished activity in those same areas. Other early experiments looked at how the brain responds to political candidates and their messages. The neuroscientists Jonas Kaplan, Joshua Freedman, and Marco Iacoboni of UCLA conducted experiments like these prior to the 2004 and 2008 presidential elections in the United States. At the same time—that is, just before the 2004 presidential election—Drew Westen and his colleagues at Emory University were independently conducting a very similar kind of experiment.[9] In both cases, the experiments used fMRI techniques to discover how voters respond to political images.

Kaplan, Freedman, and Iacoboni hooked up a Democratic voter called John Graham to an MRI machine and showed him images designed to evoke emotional responses, such as a Bush campaign commercial which used images from the events of September 11 and the (in)famous "daisy chain" commercial from Lyndon Johnson's 1964 presidential campaign. They subsequently followed this up with an imaging study of other Democratic and Republican voters looking at images of George W. Bush and John Kerry.[10] More recently, in 2007 (as the campaign for the 2008 election was in full swing) Iacoboni

and his colleagues tested twenty subjects—ten men and ten women—who were self-declared swing voters, and showed them still and moving images of various candidates.[11] They also asked subjects to rate candidates on a traditional "feeling thermometer," from "very favorable" to "very unfavorable."

The results the neuroscientists obtained were interesting. For instance, in the 2007 study when men were shown the word "Republican," the amygdala and the insula—both areas associated with anxiety and disgust—activated quite noticeably, as they did to a lesser extent when both men and women viewed the word "Democrat." The experiment also confirmed the expectation that voters are divided in their emotions towards Hillary Clinton, but more unexpectedly they found that the divide on Clinton is as much within each party as it is between them. As Iacoboni and his colleagues note, voters who rated Mrs. Clinton unfavorably on a questionnaire (which subjects also had to fill out) appeared not entirely comfortable with their assessment. When viewing images of her, these voters exhibited significant activity in the anterior cingulate cortex, an emotional center of the brain that is aroused when a person feels compelled to act in two different ways but must choose one. It looked as if they were battling unacknowledged impulses to like Mrs. Clinton. John Edwards similarly provoked strong reactions. "When looking at pictures of Mr. Edwards, subjects who had rated him low on the thermometer scale showed activity in the insula, an area associated with disgust and other negative feelings," while "swing voters who did not give him low ratings, when looking at still photos of him, showed significant activation in areas of the brain containing mirror neurons—cells that are activated when people feel empathy. And that suggests these voters feel some connection to him."[12]

A few years earlier—that is, just before the 2004 presidential election—Drew Westen and his colleagues were independently working on a broadly similar project.[13] While the study by Kaplan and his colleagues investigated how partisans reacted to images of both their own party's candidate and those of the opposing parties, Westen and his colleagues looked at what goes on inside the brains of partisans who are presented with information that puts their candidate and the opposing one in a poor light. The experimenters first recruited fifteen strong Democrats and fifteen strong Republicans. While hooked up to an fMRI machine, the subjects were presented with contradictory statements (in reality, fabricated by the experimenters) supposedly made by both their favored and disliked candidates. In each case, the second supposed quote from a candidate clearly contradicted the first.

The experimenters hypothesized that those parts of the brain that deal with contradiction and negative affect would be activated, quickly removing the inconsistency in the case of their preferred candidate, and this was in fact what they found. Although they do not note the fact, this research is remarkable to

the extent that, for the first time, it provides independent neurological evidence for the party identification model. Party ID, it will be recalled, is an affective or emotional tie to a particular political party, and its originators were much influenced by cognitive consistency theory. Westen and his colleagues' study similarly suggests that strong partisans "screen out" unfavorable information about their own candidate, and for the first time we can see something which at least looks like this process going on in brain scans.

The previous chapter noted that one of the most promising avenues for the measurement of emotion right now is coming from the field of neuroscience. Advances in our understanding of how the human brain works, spurred by significant advances in the technology used to observe its functions, have created the opportunity to increase our understanding of human perception and reasoning, especially our comprehension of the ways in which these are affected by emotion. That said, the study of neuropolitics is still in its infancy at the time of writing, so much so that there exist very few book-length introductions to the topic written for political scientists.[14] There are of course plenty of textbooks aimed at neuroscientists themselves and their students, but as students of politics we face an immediate problem: we are unfamiliar with the extensive terminology used in the field. As John Ratey notes:

> The language used to describe the brain is, if anything, more opaque than any of the old psychoanalytic terminology, which was itself so obscure that only trained professionals could wade through the literature. Most people never even bother to learn such terminology, deeming that, like the language of the computer scientists of the early 1970s, it is better left to the nerds. If anyone should doubt it, a brief glance into a modern textbook on neurophysiology is all that is needed to make one want to run and hide.[15]

Nevertheless, appreciating the potential of neuroscience requires us to grapple with at least some of the terminology of the brain, since as we have already seen, this is central to an understanding of how this growing branch of cognitive science might throw light on a range of political behaviors.

The Human Brain 101

The human brain has evolved over millions of years. As Westen notes, "its creation was an elegant patchwork of circuits, one grafted onto the next, as the edifice grew larger and more complex."[16] Moving down from the outer layers of the brain to the spinal cord, the human brain is a kind of living "archeological" record of itself. First the brain stem developed—a highly

primitive version of the brains we have today—allowing us to feel and think and regulating basic drives such as hunger. After this, the cerebrum developed. "Further evolution led to structures higher up that are crucial to our experience of emotion," Westen notes. Among the most noteworthy of these structures is the amygdala, which "is involved in many emotional processes, from identifying and responding to emotional expressions in others, to attaching emotional significance to events, to creating the intensity of emotional experience, to generating and linking feelings of fear to experiences."[17]

The human brain as it exists now is in some ways like a Swiss army knife, where each of the components performs a specific task; in other respects, however, it is more like a separation of powers, where different functions are shared by different components rather than being wholly divided or parceled out. Westen compares the brain to a "federal system."[18] Certain areas—particularly those that developed first when the brain was in its primitive state—act as specialized centers for particular functions. The amygdala is particularly associated with fear and anger, for instance, while the insula is especially associated with disgust. Other regions, however, play a role in a variety of processes, which makes it difficult to generalize about them. As Westen notes, "no single structure has one function, and the more neuroscientists study the brain, the more we realize that every mental act of any consequence occurs through the activation and coordination of circuits throughout the brain, from the more primitive circuits of the brainstem to the more recently evolved circuits of the frontal lobes."[19]

On top of the cerebellum lies the cerebral cortex, and the area from just behind the eyes to the top of the head—known as the prefrontal cortex—is especially important in reasoning processes. The top and sides of the cerebral cortex are known as the dorsolateral prefrontal cortex. This is an area which, as Westen notes, "is always active when people are making conscious choices." This is a kind of "reasoning circuit," playing a role when people are weighing up the costs and benefits of particular actions.[20] In the language we have been using in this book, it involves primarily "cold" reasoning processes. Then there is the ventromedial prefrontal cortex, which is involved with emotions and emotional reasoning (what we have been calling "hot" cognition). This area also seems to act as a link between hot and cold processes.

When early doctors began to open up the human skull, they had little idea what role each part of the rather unattractive grey mass inside played in thought. Gradually, however, we began to learn how the human brain functions by observing what happens to an individual's behavior when he or she has undergone some sort of neurological damage.[21] In the previous chapter, we briefly described the work of Antonio Damasio, a neuroscientist whose work has had a particular impact on how political psychologists are starting to look

at emotion. One of Damasio's most celebrated arguments relates to the *interdependence* of reason and emotion. This argument is based in large part on what happens to individuals who have damage to the area in and around the ventromedial prefrontal cortex, the region of the brain which we noted deals with the integration of reasoning and emotions. Damasio begins his book *Descartes' Error*, for instance, by telling the famous story of Phineas Gage.[22] Gage was a railroad construction foreman who met with a potentially fatal accident in 1848, when an explosion at his work site drove an iron rod through the front of his brain. Such was the force of the blast that the rod exited through the top of his head. To the disbelief of his workmates and his doctor, Gage not only survived the injury but appeared to have suffered minimal damage to his mental functions, even sitting up and relating the incident calmly and rationally to others right after it had occurred.

Phineas Gage appeared to make a full recovery, at least in a physical sense. But those who knew him noticed pronounced changes in his personality. "Gage was no longer Gage," as Damasio puts it. This "new" Gage was given to profanity, was impatient with others and would endlessly debate ideas and then drop them, none of which he had done before. He could no longer hold down a steady job. He seemed to have lost all interest in social conventions and ethical rules. He began making bad life choices, again a marked change from his previous behavior. Why did this happen? Using state-of-the-art imaging techniques and Gage's skull to reconstruct an image of his brain, Damasio argues that Gage had suffered damage to the ventromedial prefrontal cortex, an area "critical for normal decision-making."[23] Producing a range of similar cases, Damasio shows convincingly that "emotional" parts of the brain are essential to make sound, reasoned decisions, turning on its head the age-old assumption that emotion and reason are separate attributes or routes that can be taken in isolation from one another.

The Potential of fMRI and EEG

It would be nice if we could always precisely distinguish, using imaging, between different positive emotions (e.g. pride, love, empathy) and negative ones (e.g. disgust, hatred, fear), and to some extent—provided that such methodologies are used with care—we already can. The 2004 election study conducted by Kaplan and his colleagues attests to the fact that we are often able to do this. As Marco Iacoboni puts it, "there is evidence for some nice relationships between brain areas and emotions (amygdala and fear, insula and disgust), but there isn't a deterministic one-to-one mapping. Each activation should be interpreted in light of the experimental conditions in which the activation is observed."[24]

The reason for this again is that the human brain is in some ways like a Swiss army knife, but many of its functions are distributed across various regions. Referring to the amygdala, for instance, Ralph Adolphs argues that it is probable that a given structure participates in several processes, depending on the time at which its activity is sampled and on the details of the task and context. It is conceivable that the amygdala participates both in the initial, rapid evaluation of the emotional significance of stimuli, and in later assessment within a given context and goal.[25] Even though interpreting the results of brain imaging sometimes provokes disagreement among experts, it is fairly evident that brain imaging is superior in many ways to questionnaires. There are two main reasons for this. First of all, we cannot always trust what respondents in questionnaires tell us about the emotions they are experiencing (or other things they say about their political beliefs). According to political psychologist Shanto Iyengar, "academic research in political science into the effects of campaign advertising is 90 percent bogus, relying as it does on self-reported exposure to a multitude of disparate messages and images. Any efforts to isolate viewers' actual responses to ads—be they neurological, verbal or behavioral—is a step in the right direction."[26]

A great advantage of fMRI over self-report questionnaires is that respondents in a questionnaire may not be consciously *aware* of the emotions they are really experiencing, or may not be able to articulate these in a clear way. Iacoboni argues that "the nice thing about imaging is that it gives us information that we cannot get from verbal reports," not least because "there is plenty of evidence of dissociation between metarepresentation of cognitive states and the cognitive states themselves."[27] On the other hand, fMRI is still expensive to use. "In our center," Iacoboni notes, "machine time costs $600/hour, and this rate is pretty standard." Anyone who has had an MRI done in the United States and looked at the portion picked up by his or her insurance carrier—or, God forbid, had to pay the entire bill themselves—can attest to how expensive it is. This means that its use in political psychology is inevitably dependent on the researcher's ability to obtain large grants. The scenario with which we began this chapter is already technologically feasible, but the most prohibitive obstruction would be its cost. On the other hand, many neuroscientists would question whether a whole movie theater of subjects would be *necessary* to get the kind of data social scientists are interested in. The latter almost always prefer a large number of subjects for reasons of statistical reliability, but as Iacoboni notes, imaging specialists tend to look at this question differently:

> Even if one has unlimited financial resources, it is difficult (and probably not even so useful) to do studies encompassing hundreds of subjects. First of all, fMRI generates tons of data even from one session in one subject. Studies with hundreds of subjects would produce serious data management issues. Second of all, it is not even clear whether one gets better information with more subjects. These days, typical sample sizes in imaging are between 15 and 25 subjects (it used to be less than that).

From the studies Iacoboni has done, his own impression is that "with fMRI one does not gain in signal-to-noise just by piling up subjects."[28] Not everyone agrees that small numbers of subjects are sufficient when addressing topics like voting behavior, however. As Dr. Jeffrey Bedwell—a clinical psychologist with experience in brain imaging at the University of Central Florida—notes, fMRI studies traditionally have not concerned themselves much with socioeconomic comparisons, for instance. However, political scientists know that it is essential to have a representative sample in order to draw broad conclusions about a wider population. It is not the case, Bedwell notes, that one brain is necessarily identical to another; the brain's precise development can potentially vary across gender, socioeconomic status, and age, for instance. The same kind of comparisons that are sought in traditional voting studies, he argues, are also needed when fMRI is the method of choice.[29]

For medical purposes, EEG (Electroencephalography) is conventionally used to detect general levels of brain activity. This technique is used, for instance, to detect interruptions in brain activity among patients who suffer from seizures. Potentially, this kind of device can be used to detect attentional mechanisms (whether, for instance, people are paying attention to political ads and other audio or visual stimuli). Unlike fMRI, however, it does not provide many details about the specific parts of the brain that are being activated, and hence can tell us little about the precise feelings people are experiencing. While it can tell us that a particular candidate is provoking emotional responses of some sort, it cannot tell us what *kind* of emotional response. As Iacoboni puts it, "the problem with EEG is that it does not give us enough spatial information to know exactly where the signal comes from, especially when it comes to emotions and reward, which are often linked to subcortical structures."[30] On the other hand, if one needs timing in the order of milliseconds, then EEG (Electroencephalography) is preferable to fMRI (the latter has sluggish temporal resolution in the order of seconds, not milliseconds).[31] EEG is also much cheaper than the latter, however, and this is its primary advantage. As long as its limits are appreciated, it can be used to do some interesting things, and new generations of political psychologists are beginning to do interesting things with it. As we shall see later in the work of Elizabeth Phelps on race, we can potentially use "eye-blink startle" measures as well in order to assess the presence or absence of racial bias or ingroup favoritism (see Chapter 15).

Many neuroscientists—including Iacoboni—are cautious about what we can expect imaging to add to our knowledge of politics. As Director of the Center for the Study of Brain, Mind, and Behavior at Princeton University, Jonathan Cohen notes that "brain imaging offers a fantastic opportunity to study how people respond to political information. But the results of such studies are often complex, and it is important to resist the temptation to read into them what we may wish to believe, before our conclusions have been adequately tested."[32] One limitation of current studies of political decision-making using brain imaging is that there is a certain indeterminacy about what exactly is going on inside the brains of those exposed to political images. We know a certain amount about the role played by various parts of the brain already, but that knowledge is far from complete. While neuroscientists can observe parts of the brain associated with emotional processing "lighting up," in some cases it is difficult to tell exactly *why* this is happening. For instance, in the study by Kaplan and his colleagues discussed earlier, the authors admit that some of their findings are consistent with a number of different hypotheses. For instance, they find evidence of activity in both the dorsolateral prefrontal cortex and the anterior cingulate cortex when voters look at images of the opposing candidate. It is not clear, though, whether this is happening because partisans are suppressing negative emotions in general because these are unpleasant, or suppressing positive feelings which they might harbor towards the opponent, or attempting to increase their negative feelings towards that opponent.[33]

Political scientists should also resist the temptation to use brain imaging or EEG for their own sake.[34] Like other methods, each is best thought of as simply one approach among many. There are times when the use of fMRI may be appropriate—again, it seems useful where we have reason to believe that self-reporting techniques are inadequate, for instance—but there are other occasions when better (but less "trendy") methodologies are available. There are also behavioral methods for going beyond self-reports, such as measuring reaction time to masked stimuli. Imaging may be able to provide us with moving images of the brain, but if we are interested in illustrating the link between thought and *behavior*—which is often the case in political psychology—there may be better strategies available. Given the high cost of imaging techniques in particular, we should always ask ourselves whether imaging will tell us something critical that we cannot just as well get somewhere else.

Neuropolitics is as much a *method* as it is a coherent body of theory; the neuroscientific approach is clearly dispositionist in the sense that it zeroes in on the characteristics of individuals. It is yet another perspective that assumes that it is the attributes of individuals—in this instance, their particular brain chemistries—that shape their behavior. As far as political scientists are

concerned, there is no value added from political neuroscience unless what goes on in our heads actually makes a difference to how we act politically. On the one hand, neuroimaging might merely show us what changes take place in the brain when someone feels compelled to act against their own best judgment or values: an interesting thing in itself, but not something which really adds much to our explanation of behavior. As Dustin Tingley notes, "observing a pattern of brain activity 'x' alongside behavior 'z' does not necessarily give us a better understanding of why 'z' happened, or why departures from 'z' happened, in the context of the political questions we are interested in."[35] On the other hand, advocates of neuropolitics are united in their optimism that our understanding of political behavior is increasing. Brain imaging has the increasing potential to allow us to "see" ordinary people thinking about politics, and techniques such as EEG (while more limited in what they can tell us) are appropriate when we are simply interested in whether a political message is having some sort of resonance with the voter. So far neuroscientific advances have been employed almost exclusively to understand voting behavior, sophistication, and tolerance, and have been used in particular to investigate how the brain responds to racial outgroups (a literature we will discuss in Chapter 15). However, they have the potential to revolutionize how political scientists look at *all* cognitive processes, and not just those that have conventionally been regarded as dominated by hot cognitive processes.

Genopolitics

Last, but certainly not least, comes genopolitics, a term usually attributed to the political scientist James Fowler. As the name suggests, genopolitics is the study of the genetic basis of political attitudes and behavior, and while it is closely related to the field of neuropolitics—indeed, many of its advocates use both approaches simultaneously—its focus is more on our unique genes as humans and unique DNA as individuals than on brain scans or the use of neurological techniques. It's at the cutting-edge of the most interesting work being done by political psychologists today, and offers a chance for social scientists to collaborate with their natural science colleagues.[36] *The Chronicle of Higher Education* ran a feature on this topic in 2008, as did *The New York Times* the same year.[37] There are essentially two types of genetic argument in the study of politics, both of which qualify as genopolitical: those drawn from evolutionary psychology, which stress our *similarities* as a species, and those drawn from behavioral genetics, which emphasize our individuality and our *differences*.

The reader may recall that we briefly alluded to each approach in Chapter 1. In the first category, consider the arguments of Konrad Lorenz, an ethologist who wrote a famous book called *On Aggression*.[38] Lorenz was

interested in probing our true nature, and he was rather pessimistic on this score. But he also developed a more interesting and less straightforward argument than Hobbes or Machiavelli. We often criticize others by saying "you're behaving like an animal," but Lorenz would see this statement as highly ironic, because in reality most animals are actually *better behaved* than us. With the possible exception of certain types of monkey, we are the only known vertebrate which kills its own kind (and perhaps the only one which takes pleasure in doing so). Murder or homicide seems to be almost uniquely human, as is suicide.

The old "nature versus nurture" debate offers us two competing explanations for this tendency. On the one hand, it could be that human beings are inherently aggressive or warlike, and that this can never be changed (a dispositionist claim). On the other hand, killing and war could be a learned behavior, a social practice that can be changed because it can be unlearned, perhaps through conditioning (a situationist argument). Lorenz argued the former position in *On Aggression*. He reached this conclusion by assuming that humans are animals who have evolved aggressive instincts for evolutionary purposes. At the same time, we are "nonlethal" creatures. To see what he means, consider the following. This might be a rather unsavory image, but imagine two naked men wrestling on the ground and trying to kill one another. One can pound the other's head into the ground, but let's assume that this is cheating, because the ground is being used to kill. You also can't use a gun or knife, since these are man-made weapons that don't exist in nature. Practically the only way that one man can kill the other without using the surroundings or a weapon, then, is by punching or strangling, both slow and inefficient means that probably won't be successful without an almighty and all-consuming struggle. When contrasted with lions or tigers, which of course have razor-sharp teeth, we are simply not *made* to kill, Lorenz argues.

At the same time, the technology of war has massively increased our ability to kill one other. We can now kill from thousands of miles away, from offices using unmanned "Predator" aircraft (commonly known as drones) or using missiles fired from the decks of ships. We never even need to see blood or suffering, unless we choose to do so. And of course since the 1940s the invention of nuclear weapons gives just a few people the capacity to destroy all of mankind. So technological innovations have made war more and more lethal. At the same time, *we have stayed the same*. And unlike (say) lions or tigers—which can kill very rapidly—we have never developed the evolutionary mechanisms which inhibit killing. As menacing as they look, lions (for instance) are quite restrained in the sense that they will only kill if they feel threatened or they need food. But humans have no such evolutionary "inhibitors." No such inhibitor was *needed* in a creature which is so ill-equipped by nature to kill, Lorenz argues. In this context, our intelligence, and especially our ability to dream up new and more inventive ways to kill, is a real curse. We are like no other species, in the sense that we kill over ideas and political differences, personal differences, and many other things not related to simple survival. Put very simply, it is as if we have placed a loaded gun in the hands of a child or a lunatic.[39]

Of course, one of the problems with evolutionary arguments is that they are difficult, and even impossible, to test, and others have generated contrasting arguments based on evolution that are equally convincing. The military psychologist Dave Grossman, for instance, argues in *On Killing* that we have evolved a predisposition *not* to kill, a position which in many ways jars with that of Lorenz.[40] Grossman makes the simple point that, for evolutionary purposes, it is beneficial for the species not to kill its own members (otherwise it would quickly die out). But this means that we need to be trained to kill, since it is not in our natures. To bolster this argument, he cites the example of "non-firers," soldiers who deliberately fire over the heads of the enemy during wars, or else don't fire their weapons at all. He cites evidence that non-firing in World War I and World War II used to be quite common, but that it has been far less so since the Vietnam War. In an argument that combines dispositionist with situationist positions, he argues that since the 1960s the U.S. Army has trained soldiers to kill far more effectively than it did, breaking down the natural resistance to killing with unrelenting behavioral conditioning.

Genetics 101

The upshot of all of this is that—for good or ill—many political scientists find evolutionary arguments of this first kind a bit too speculative to be considered "real science." For these reasons and others, many have turned to a second approach to genopolitics, drawn from modern behavioral genetics. Some readers may have heard of the Human Genome Project, a truly international and collaborative research program created back in the 1980s whose goal is to completely "map" human genes and DNA. Almost everyone has heard about "cloning" as well—the artificial manufacture of an identical copy of a human being, animal, or other living entity—and many political debates, works of science fiction, and Hollywood movies have focused on whether this is actually possible, and (if so) whether it is actually desirable in an ethical sense. Few of us, though, have more than a general sense derived mostly from these popular sources of what genetics really is and whether cloning actually goes on in real life. "Dolly the sheep" was the first animal to be cloned in 1996 by researchers at the University of Edinburgh in Scotland. Several other species have been cloned since, but never (as far as we know) human beings. As you might expect

this whole area has been enormously controversial, and human cloning is banned in a number of countries.[41] Popular fear of the uses to which genetics can be and has been put, unfortunately, often clouds our understanding of what genetics is and what it can potentially offer us as a social science explanation.

It's important not to confuse genes with DNA (a distinction common enough in high school biology classes, but not conventionally drawn by political scientists). Every member of the human race has (almost) the same set of genes, and there are about 20,000 genes in all.[42] We share about 95.5 percent of our genes with other humans, and this is what gives broad evolutionary arguments their force (genetically, we are *nearly* "all the same"). But there is 4.5 percent left over, and the variation between humans comes from this small but vital difference. The 4.5 percent affects our physical appearance, for instance. While there is no "brown haired gene" or "blonde haired gene," there is a gene for hair color, and all of us have subtly different genetic versions that are ultimately what make us brown-haired, blonde, or something else. Of course, human behavior is a good bit more complex than this, because we all know that two brown-haired people selected at random may be entirely dissimilar otherwise (both physically and psychologically). Our DNA and chromosomes are what further subdivide us. We can think of DNA as a tiny subset of genes. DNA provides a kind of "instruction book" or set of instructions for replicating an exact copy of you as a person. Your DNA is what makes you uniquely *you* (this is why DNA tests are used by policemen and lawyers to prove whether a particular individual was present at a crime scene, for instance). The molecules of DNA in your cells are in turn organized in chromosomes. These chromosomes are then further grouped into short segments of DNA called genes. These relationships are depicted in Figure 11.1.

Fair enough, you might say. All very interesting, but I signed up for a course in political science. How does all of this affect political beliefs? How does it affect how I behave when I do political things? I can understand that the fact that I have brown or blonde or red hair is coded in my genes. But that's a physical thing, and politics is 100 percent the product of man-made ideas and more generally with socially constructed things that come from the environment around me. Or is it? Is this entirely true? Surely there's no "Democratic Party gene" or "Republican Party gene"? Surely there's no "liberal gene" or "conservative gene"? Well, yes and no. As we will see in what follows, the answers to these questions are complex but compelling.

Twin Studies and The Politics in Your DNA

When I was growing up in the North of England in the 1970s, my best friends were a pair of identical twins called Andrew and Peter (I'll use their

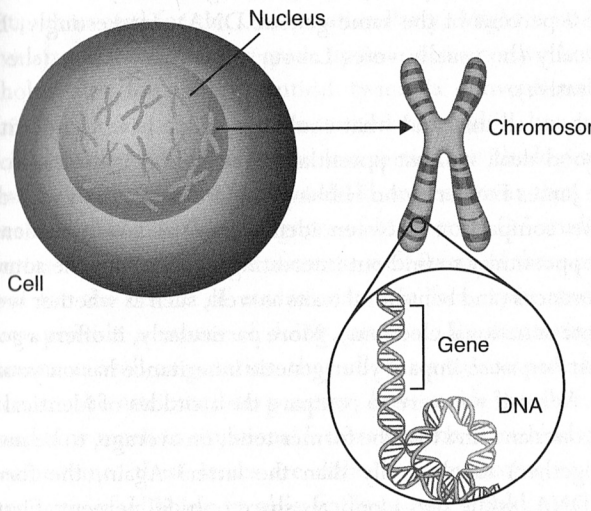

Figure 11.1 Genes, chromosomes, and DNA

Source: Shutterstock. (Compiled from Shutterstock images 47271088 & 110503349)

real names here, as they've given me permission to do that). I first met them in primary (grade) school, and while I don't remember meeting them for the first time—this was well over forty years ago, around about 1971—they both claim today that they remember meeting me (both have quite exceptional memories, something I've unfortunately not been blessed with). But I do know that most people who meet Andrew and Peter for the first time cannot tell them apart, and although I could tell the difference, it amused me a great deal as a child that many others (including their teachers) very often could not. Both Andrew and Peter are politically conservative as well, and readily concede that they tend to vote for the U.K. Conservative party. Their mother and father are fairly conservative politically, so they were brought up in an environment that was also quite conservative.

Like all "identicals," Andrew and Peter share 100 percent of their genetic DNA. In biological terms, this means that the egg they came from was fertilized with the same sperm, and the egg then split into two separate embryos (this type of twin is known technically as MZ, or "monozygotic"). Not everyone knows, though, that there is another kind of twin. In this type, two eggs are fertilized at the same time by different sperm (these twins are known as DZ, or "dizygotic"). I also just happen to know twins of this latter kind, whose names are Bill and Mary (again, they've given permission to use their real names). They are also English and were born a few years before me. While they may look very similar—indeed, many people often mistake them for

one another—Bill and Mary are not identical genetically (like all DZs, they share about 50 percent of the same genetic DNA). Interestingly, Bill is left-leaning politically (he usually votes Labour), but Mary is not (she ordinarily votes Conservative).

Why talk about all this, and what could it possibly have to do with politics? Actually, a good deal, at least potentially. For geneticists—and for political scientists like James Fowler, John Hibbing, and Peter Hatemi, who do work in this area—the comparison between identical twins and non-identical ones offers a real opportunity to find out interesting things about the sources of our political preferences (and behavioral traits as well, such as whether we regularly show up to vote at national elections). More particularly, it offers a good chance to find out just *how much* impact your genetic inheritance has on your attitudes and behavior. What if we were to compare the attitudes of identical twins and non-identical ones and find that the former tend, on average, to be more similar (or closer together) ideologically than the latter? Again, the former share 100 percent DNA, while non-identicals share only 50 percent. First of all, of course, we need to get hold of a large database of different kinds of twins from somewhere that also includes data about their ideological views, but let's assume that we have done this. Now, if the identical twins tend to be more similar ideologically than non-identical ones, we will have good grounds for concluding that genes are at work in determining ideological preference. This is exactly what several of the twin studies have found.

Psychologists and behavior geneticists have been conducting twin studies since the mid-1980s, but it wasn't until 2005 that the first political science article using this technique appeared in the pages of the *American Political Science Review* (*APSR*). John Alford, Carolyn Funk, and John Hibbing looked at a large database of MZ and DZ twins in just the way suggested above, and concluded that genetics influence the way in which we respond to the environment.[43] MZ twins *are* more alike ideologically than DZ twins, they find. While our genes don't determine which party we identify with—that bit is pretty much socially constructed, since there are different political parties in different countries—they do affect the ideological positions that we take, the authors conclude. Nevertheless, the "left–right" divide is identifiably part of political life everywhere (at various times and places), and the authors contend that there is a biological basis for this.

"Hang on a minute—not so fast!" critics have protested. The whole biopolitics or genopolitics approach remains controversial, and some critics like Evan Charney (a Duke University political scientist) have been especially vocal in denying that these studies are really showing what we think they are showing.[44] Twin studies are a simple idea, but if the situationist–dispositionist debate were this easy to resolve, wouldn't we have done it by now? I mentioned

before that both Peter and Andrew grew up in a conservative environment, with parents who voted for the Conservative Party. Might it be that they are conservative simply because they grew up in a conservative household, and that this holds also for other identical twins (a conventional situationist proposition)? Might MZ twins just be treated more alike because they look alike? And might Bill and Mary have had less partisan or ideological parents, so that they were less influenced by household environment than Andrew and Peter (more situationism)? The designers of MZ versus DZ studies and those who utilize this research design are of course well aware of these problems, and they control for the effects of environment. In fact, twin studies are used because they provide a means of doing just that. By measuring the impact of environment as well as genetics, they allow us to compare how much of the variation can be attributed to genetics, how much to other dispositional variables, and how much to situational factors like the household environment.

At the same time, these issues are difficult to overcome entirely. To be 100 percent sure of Hibbing et al.'s findings, we would need to see how twins behave in different environments in order to conclude that genetics really do influence attitudes and behavior. As Doron Shultziner puts it:

> the closest possible method for testing the same genotype under different environments is investigating the case of twins who have been separated at an early stage of childhood and have been reared apart . . . a greater degree of trait similarity under these circumstances may suggest that the same genotype results in similar traits despite developing under unequal environments, assuming that the upbringing environments are indeed sufficiently dissimilar.[45]

Let's say that Andrew had been raised in Liverpool, England and Peter in Outer Borneo, and that we had a lot of other cases that we could add them to (two quite dissimilar environments, in other words). Sounds fair enough as a design, but the problem is that substantial databases of this sort are thinner on the ground, since twins are usually raised in the *same* environment to one another. Technically, we would also need to compare not just types of twins, but twins to *non-twins*. Many of these studies simply assume that if the role of genetics in behavior is more powerful for identical twins than it is for non-identical ones, it must also be powerful for unrelated "non-twins" (e.g. two typical members of the population chosen at random). But twin studies are of course only comparing identical twins to non-identical ones, not twins to the rest of the population. So technically all we can conclude from twin studies with 100 percent confidence is that identical twins are more alike in attitudes than are non-identical twins, and some might question

whether we can extrapolate the results to the broader conclusion that genes exert a powerful impact on *everyone's* political behavior. At the same time, existing studies provide very few if any reasons for concluding that twins differ in their political behavior to non-twins.

Allford, Funk, and Hibbing's 2005 study provoked enormous controversy in the wider field. Many traditional scholars of voting behavior—as we will see in Chapter 12, a great many are died-in-the-wool situationists who were themselves "reared" on *The American Voter*—dismissed the result as absurd on its face. So genetics influence how we vote, and how we see politics in general? They had never heard of such a thing, and the techniques of Alford, Funk, and Hibbing were even less familiar to them. The notion that we are born with predispositions was alien to them, and even seemed crazy to some. Are people born as little conservatives and little liberals? How can this be? Others freaked out at the very notion of examining the genetics of twins, with its lurking overtones of Dr. Josef Mengele and *The Boys From Brazil*.[46] These people thought of eugenics and its horrors, and warned of biological determinism in social science. Others were somewhat convinced by the study, but countered with other points. It might be, for instance, that genetics can explain attitudes, but attitudes don't necessarily equal behavior. How about backing up the initial study with a study of actual political behavior, then?

A follow-up 2008 article by James Fowler, Laura Baker, and Christopher Dawes did just this. Focusing on the Los Angeles area, the authors wanted to use the twin research design to discover whether there was a relationship between genetics and voter turnout (as well as other forms of political behavior). To do this, they compared a registry of twins in LA to voter registration records in that city and to self-reported turnout.[47] They found that genes and environment both have a significant effect on variations in political behavior, but the biggest surprise for many political scientists—and even many political psychologists—was of course that there was any relationship *at all* between genes and voting! Scholars have also moved beyond this stage, looking for specific "candidate" genes that might be associated with political behaviors and attitudes.[48] It is fair to say that at the time of writing this issue has been difficult to pin down. But the hunt is still on.[49]

While it might be useful to know which particular genes (or more likely combinations of them) are linked to particular personalities, beliefs, and behaviors, given the still-limited state of our knowledge this may be a step too far right now, in terms of the highly complex relationships which exist between particular genes; it seems that behavior is often the product of the interaction of several genes together. There is certainly no single "gene for voting," for instance, and many political scientists would argue that particular genes or streams of DNA are primarily of interest in the natural sciences, or

that political scientists "don't need to know" about this in specificity or depth. Perhaps the most important development, though, is the progress that has been made by Hibbing, Fowler, and others in breaking down resistance among situationists to the basic idea that there might be some genetic basis to beliefs and behavior (an uncontroversial claim in biology, but marginalized within political science as a field).

Most recently, Hibbing, Smith, and Alford have written an interesting and accessible book called *Predisposed* which examines the biology of political differences.[50] The kind of political fault lines that currently bedevil politics in Washington D.C. (and the seemingly endless debate over "Obamacare" in particular) are so enduring and hard to resolve because they are in fact biologically rooted, they claim. While it isn't the case that we are born with "liberal genes" or "conservative genes," we are born with a whole set of genes which *predispose* us towards one view or another (notice that the authors did not give the book the more forceful title "Predetermined," since they are only arguing that this is a matter of tendency rather than fate). We inherit from our parents not just hair color or eye color or other physical traits, but aspects of our personalities as well as genes which predispose us to particular political views and make it more likely that we'll be liberal or conservative (such as our views about human nature). Hibbing and his colleagues suggest that liberals and conservatives tend to cluster around other beliefs and attitudes that you might not think of initially as being "political," such as whether you like arugula (a kind of rock salad or cabbage leaf) or can't stand it, and whether or not you like to drink lattes and peruse *The New York Times* in Starbucks or prefer to swill Bud Lite at a NASCAR meeting. In fact, there is a whole neural architecture behind our ideological beliefs which sustains and supports them, making everything "hang together."

One "deep" factor which seems to affect political preferences, for example, is the simple perception of threat. Hibbing and his colleagues argue that liberals and conservatives appear to come pre-packaged with different attitudes toward threat. "Each of us is primed to respond physiologically and psychologically to certain categories of stimuli—just not to the same stimuli and not to the same degree," they argue. "Show a group of people the same stimulus and some will flatline while others will get a case of the vapors."[51] They cite the work of psychologist Joseph Vigil at the University of Florida, who finds that those on the political right (in America, conservatives or Republicans) are more likely to perceive an ambiguous signal or communication as threatening than are liberals. And overall, they note that "evidence exists that conservatives perceive disgusting images more unfavorably than do liberals, that they perceive threatening images slightly more unfavorably than do liberals, and that they perceive positive images more favorably than do liberals."[52] The research is still suggestive rather than definitive, but research conducted at

the University of Nebraska by Hibbing and his colleagues suggests that skin-conductivity responses to threatening stimuli (like loud, unexpected noises) may be predictive of attitudes to things like war and capital punishment.

Conclusion

We noted in this chapter that neuropolitics is basically a dispositionist approach, in the sense that it begins from the assumption that individual differences lead to variations in behavior. If we believe in *neuroplasticity*—the capacity of our brains to be shaped by the outside world, or by the things to which we have been exposed—then any argument that starts with dispositions must also take account of how our brains are themselves molded and shaped by situations. Genopolitics, of course, starts from the same bio-political assumption. But it is hard to find any practitioners of either approach who are biological *determinists*; in other words, few (if any) advocates of these approaches argue that biology alone determines our attitudes and behavior. John Hibbing in particular explicitly argues that political behavior is the result of the *interaction* between dispositions and situations. This is an intriguing perspective and one which has a direct bearing on the themes of this book, so we'll come back to it at the very end when we discuss "The Future of Political Psychology." We have stressed also that neuropolitics and genopolitics are both biopolitical approaches and sometimes strongly reinforce one another. For instance the finding that liberals and conservatives have different brain structures can be used in support of the argument that many attitudes are "heritable." On the other hand, they are logically separate. As we'll see in the next chapter, neuropolitical perspectives often stress the centrality of emotion in voting choice, while many genopolitical approaches emphasize the extent to which many people's attitudes are already relatively fixed and are thus hard to sway.

We have now seen that there are different forms of both situationism and dispositionism. In the final section of the book we shall attempt what is admittedly a rather daunting task: bringing together a number of empirical areas which have been studied by political psychologists—a highly diverse group operating with a variety of theoretical mindsets and exhibiting a range of interests—under the rubric of the general organizing device we have been using. As we admitted at the beginning of the book, however, no conceptual framework is perfect, and the reader may sometimes encounter areas of ambiguity where a theory does not appear to fit into one category or another, or rather more commonly, where it seems to fit both simultaneously. This is to be expected, since relatively few theories emphasize psychological beliefs and personalities of actors to the wholesale exclusion of contexts, environments, and situations; equally, there are few theories that are purely situationist in character, saying absolutely

nothing about the psychological makeup of political actors. In most areas of political psychology, as we shall see, research within a particular field has emphasized one or the other, with fashions changing over time.

Notes

1 It would be impolitic, of course, to identify the people I heard talking in these terms!

2 Peter Hatemi and Rose McDermott, "Introduction," p.6 in Hatemi and McDermott (eds.), *Man Is By Nature A Political Animal: Evolution, Biology, and Politics* (Chicago, IL: University of Chicago Press, 2011).

3 John Hibbing, "Ten Misconceptions Concerning Neurobiology and Politics," *Perspectives On Politics*, 11: 475–89, 2013. See Jonas Kaplan, Joshua Freedman, and Marco Iacoboni, "Us Versus Them: Political Attitudes and Party Affiliation Influence Neural Response to Faces of Presidential Candidates," *Neuropsychologica*, 45: 55–64, 2007; and Drew Westen, Pavel Blagov, Keith Harenski, Clint Kilts, and Stephan Hamann, "The Neural Basis of Motivated Reasoning: An fMRI Study of Emotional Constraints on Political Judgment During the US Presidential Election of 2004," *Journal of Cognitive Neuroscience*, 18: 1947–58, 2006. The latter study is also summarized in Drew Westen, *The Political Brain: The Role of Emotion in Deciding the Fate of the Nation* (New York: Public Affairs, 2007), especially pp.x–xv.

4 See for instance Albert Somit and Stephen Peterson, *Biology and Politics: The Cutting edge* (New York: Emerald Group Publishing Limited, 2011) and Robert Blank and Samuel Hines, *Biology and Political Science* (New York: Routledge, 2001).

5 See Hibbing, "Ten Misconceptions."

6 Ryota Kanai, Tom Feilden, Colin Firth, and Geraint Rees, "Political Orientations Are Correlated With Brain Structure in Young Adults," *Current Biology*, 21: 677–80, 2011. See also David Amodio, John Jost, Sarah Master, and Cindy Yee, "The Neurocognitive Correlates of Liberalism and Conservatism," *Nature Neuroscience* 10: 1246–47, 2007.

7 See Maggie Koerth-Baker, "What A Dead Fish Can Teach You About Neuroscience and Statistics," accessed at http://boingboing.net/2012/10/02/what-a-dead-fish-can-teach-you.html.

8 See Darren Schreiber and Marco Iacoboni, "Sophistication in Evaluating Political Questions: Neural Substrates and Functional Mechanisms," paper presented at the Political Methodology Annual Conference, Stanford, California, 2004; and Schreiber, "Political Cognition as Social Cognition: Are We All Political Sophisticates?", in Russell Neuman, George Marcus, Michael MacKuen, and Ann Crigler (eds.), *The Affect Effect: Dynamics of Emotion in Political Thinking and Behavior* (Chicago, IL: University of Chicago Press, 2007).

9 See Jonas Kaplan, Joshua Freedman, and Marco Iacoboni, "Us Versus Them" and John Tierney, "The 2004 Campaign: Using MRIs to See Politics On The Brain," *New York Times*, April 20, 2004. The author is indebted to Dr. Marco Iacoboni, Director of the Transcranial Magnetic Stimulation Laboratory at Ahmanson Lovelace Brain Mapping Center, UCLA and Dr. Jeffrey Bedwell of the Clinical Cognitive Neuroscience Laboratory at the University of Central Florida for

their assistance in answering the author's questions about the utility of different scanning techniques and their role in measuring emotion. Thanks also to David Pearl of Washington State University for stimulating my interest in the general topic of neuroscience and EEG in particular.

10 Marco Iacoboni, Joshua Freedman, and Jonas Kaplan, Op-Ed, "This Is Your Brain on Politics," *New York Times*, November 11, 2007.

11 Ibid.

12 Ibid.

13 See Westen, et al. "The Neural Basis of Motivated Reasoning" and Westen, *The Political Brain*.

14 The exceptions are George Marcus's excellent *The* Sentimental *Citizen: Emotion in Democratic Politics* (University Park, PA: The Pennsylvania State University Press, 2002), especially Chapters 3 and 4, and Westen's *The Political Brain*. Also important in this growing literature is the work of Darren Schreiber on political communication. See especially Schreiber, "Political Cognition as Social Cognition," "The Evolution of the Political Brain: An Agent-Based Model," paper presented at the annual meeting of the American Political Science Association, Philadelphia, 2006, and "Monkey See, Monkey Do: Mirror Neurons, Functional Brain Imaging, and Looking at Political Faces," paper presented at the annual meeting of the American Political Science Association, Washington, D.C., 2005; as well as Joel Weinberger and Drew Westen's work on subliminal political advertising. See Weinberger and Westen, "RATS, We Should Have Used Clinton: Subliminal Priming in Political Campaigns," paper presented at the International Society of Political Psychology Conference, Portland, OR, 2007. For discussions of the utility of neuroscience in understanding politics, see Rose McDermott, "The Feeling of Rationality: The Meaning of Neuroscientific Advances for Political Science," *Perspectives on Politics*, 2: 691–706, 2004; the special edition of *Political Psychology*, Volume 24, 2003 on neuroscience; Marcus, "The Psychology of Emotion and Politics," in David Sears, Leonie Huddy, and Robert Jervis (eds.), *Oxford Handbook of Political Psychology* (New York: Oxford University Press, 2003); and Dustin Tingley, "Neurological Imaging as Evidence in Political Science: A Review, Critique, and Guiding Assessment," *Social Science Information*, 45: 5–33, 2006.

15 John Ratey, *A User's Guide To The Brain: Perception, Attention, and the Four Theaters of the Brain* (New York: Vintage Books, 2001).

16 See Westen, *The Political Brain*, p.50.

17 Ibid., p.57.

18 Ibid., p.53.

19 Ibid., p.60.

20 Ibid., pp.60–61.

21 See for instance Oliver Sacks, *The Man Who Mistook His Wife For A Hat And Other Clinical Tales* (New York: Touchstone, 1998).

22 Antonio Damasio, *Descartes' Error: Emotion, Reason, and the Human Brain* (New York: Penguin, 1994).

23 Ibid., p.32.

24 Dr. Marco Iacoboni, communication with the author, December 7, 2007.

25 Ralph Adolphs, "Cognitive Neuroscience of Human Social Behavior," *Nature Reviews: Neuroscience*, 4: 165–78, 2003; Tingley, "Neurological Imaging as Evidence in Political Science," p.19.

26 Quoted in Tierney, "The 2004 Campaign."

27 Iacoboni, communication with the author.

28 Iacoboni, communication with the author.

29 Bedwell, conversation with the author, December 13, 2007.

30 Iacoboni, communication with the author.

31 Quoted in Tierney, "The 2004 Campaign."

32 Daniel Amen, "Getting Inside Their Heads . . . Really Inside," *Los Angeles Times*, December 5, 2007. For instance, Bedwell notes that the sophistication of brain imaging has not yet reached a level where confident predictions can be made about later Alzheimer's in any case. Bedwell, conversation with the author.

33 Kaplan, Freedman, and Iacoboni, "Us Versus Them," pp.60–61.

34 On this point, see also Darren Schreiber, "Race and Social Norms: An fMRI Study," paper presented at the International Society of Political Psychology Conference, Portland, OR, 2007.

35 Tingley, "Neurological Imaging as Evidence in Political Science," p.6.

36 James Fowler and Darren Schreiber, "Biology, Politics, and the Emerging Science of Human Nature," *Science*, 322: 912–914, 7 November 2008; see also Fowler and Christopher Dawes, "In Defense of Genopolitics," *American Political Science Review*, 107: 362–74, 2013.

37 Richard Monastersky, "The Body Politic: Biology May Shape Political Views," *Chronicle of Higher Education*, September 19, 2008; Emily Biuso, "Genopolitics," *The New York Times*, December 12, 2008.

38 Konrad Lorenz, *On Aggression* (New York: Harcourt Brace, 1966).

39 Ibid.

40 Dave Grossman, *On Killing: The Psychological Cost of Learning To Kill In War And Society* (Boston, MA: Little, Brown, 1995).

41 It is currently banned in the United Kingdom, for instance, but not in the United States.

42 This discussion draws closely on that provided at the website www.23andme.com/gen101/genes/, which provides a straightforward summary of the basics geared towards beginning students.

43 John Alford, Carolyn Funk, and John Hibbing, "Are Political Orientations Genetically Transmitted?," *American Political Science Review*, 99: 153–67, 2005. See also Peter Hatemi, John Hibbing, John Alford, Nicholas Martin, and Lindon Eaves, "Is There a 'Party' In Your Genes?," *Political Research Quarterly*, 62: 584–600, 2009; and Jaimie Settle, Christopher Dawes, and James H. Fowler, "The Heritability of Partisan Attachment," *Political Research Quarterly*, 62: 601–13, 2009.

44 Evan Charney, "Genes and Ideologies," *Perspectives on Politics*, 6: 299–319, 2008; Charney and William English, "Candidate Genes and Political Behavior," *American Political Science Review*, 106: 1–34, 2012. For an especially noteworthy response to Charney, see Rebecca Hannagan and Peter Hatemi, "The Threat of Genes: A Comment on Evan Charney's 'Genes and Ideologies'," *Perspectives on Politics*, 6: 329–35, 2008.

45 Doron Shultziner, "Genes and Politics: A New Explanation and Evaluation of Twin Study Results and Association Studies in Political Science," *Political Analysis*, 21: 350–67, 2013.

46 Originally a novel by Ira Levin, the film presents a fictionalized account of Simon Wiesenthal's hunt for the Nazi war criminal Josef Mengele. In both the book

and the film, Mengele is trying to clone "more Hitlers" genetically some time in the 1970s, having obtained a DNA sample from the Führer many years earlier. Interestingly, he realizes that he has to recreate the situational forces which shaped Adolf Hitler's life and made him what he became, as well as using Hitler's own genetic material. While the plot sounds a bit silly, the themes of the movie get to the very heart of the situationist–dispositionist debate.

47 James Fowler, Laura Baker, and Christopher Dawes, "Genetic Variation in Political Participation," *American Political Science Review*, 102: 233–48, 2008.

48 James Fowler and Christopher Dawes, "Two Genes Predict Voter Turnout," *Journal of Politics*, 70: 579–94, 2008.

49 Peter Hatemi et al., "Genome-Wide Analysis of Liberal and Conservative Attitudes," *Journal of Politics*, 73: 271–85, 2011.

50 John Hibbing, Kevin Smith, and John Alford, *Predisposed: Liberals, Conservatives, and the Biology of Political Differences* (New York: Routledge, 2014). See also Avi Tuschman, *Our Political Nature: The Evolutionary Origins of What Divides Us* (New York: Prometheus Books, 2013). Tuschman is an evolutionary anthropologist, and his argument is more focused on the evolutionary advantages of particular types of predisposition than that of Hibbing et al.

51 Hibbing et al., *Predisposed*, p.20.

52 Ibid., p.136.

Suggested Further Reading

Antonio Damasio, *Descartes' Error: Emotion, Reason, and the Human Brain* (New York: Putnam, 1994).

Peter Hatemi and Rose McDermott (eds.), *Man Is By Nature A Political Animal: Evolution, Biology, and Politics* (Chicago, IL: University of Chicago Press, 2011).

John Hibbing, Kevin Smith, and John Alford, *Predisposed: Liberals, Conservatives, and the Biology of Political Differences* (New York: Routledge, 2014).

Drew Westen, *The Political Brain: The Role of Emotion in Deciding the Fate of the Nation* (New York: Public Affairs, 2007).

Part III

Bringing the Two Together