

CHAPTER 5

The Pigheaded Brain

Loyalty a step too far

ON THE MATTER OF the correct receptacle for draining spaghetti, my husband demonstrates a bewildering pigheadedness. He insists that the colander is the appropriate choice, despite the manifest ease with which the strands escape through the draining holes. Clearly the sieve, with its closer-knit design, is a superior utensil for this task. Yet despite his stone blindness to the soggy tangle of spaghetti clogging the drain in the sink after he's used *his* method, my husband claims to be able to observe starchy molecules clinging to the weave of the sieve for weeks and weeks after I've chosen to use that. We have had astonishingly lengthy discussions on this issue; I have provided here merely the briefest of overviews. But, after four years of marriage, the problem remains unresolved. By which of course I mean that my husband hasn't yet realized that I'm right.

The sheer staying power of these sorts of disagreements is

well known to us all. I can confidently predict that until somebody invents a colander-sieve hybrid, we will not be able to serve spaghetti to guests. The writer David Sedaris, describing an argument with his partner over whether someone's artificial hand was made of rubber or plastic, also foresaw no end to their disagreement:

"I hear you guys broke up over a plastic hand," people would say, and my rage would renew itself. The argument would continue until one of us died, and even then it would manage to wage on. If I went first, my tombstone would read *IT WAS RUBBER*. He'd likely take the adjacent plot and buy a larger tombstone reading *NO, IT WAS PLASTIC*)

What is it about our brains that makes them so loyal to their beliefs? We saw in Chapter 1 how we keep unpalatable information about ourselves from deflating our egos. The same sorts of tricks that keep us bigheaded also underlie our tendency to be pigheaded. The brain evades, twists, discounts, misinterprets, even makes up evidence—all so that we can retain that satisfying sense of being in the right. It's not only our long-cherished beliefs that enjoy such devoted loyalty from our brains. Even the most hastily formed opinion receives undeserved protection from revision. It takes only a few seconds to formulate the unthinking maxim that a sieve should never get its bottom wet, but a lifetime isn't long enough to correct it. I think what I like most about everything you'll find in this chapter is that if you find it unconvincing, that simply serves better to prove its point.

OUR PIGHEADEDNESS begins at the most basic level—the information to which we expose ourselves. Who, for example, reads *Firearm News*? It's—well, you *know*—*Firearm News* readers. People who like to make the argument that guns don't kill people, people kill people. We don't seek refreshing challenges to our political and social ideologies from the world. We much prefer people, books, newspapers, and magazines that share our own enlightened values. Surrounding ourselves with yes-men in this way limits the chances of our views being contradicted. Nixon supporters had to take this strategy to drastic levels during the U.S. Senate Watergate hearings. As evidence mounted of political burglary, bribery, extortion, and other pastimes unseemly for a U.S. president, a survey showed that the Nixon supporters developed a convenient loss of interest in politics.¹ In this way, they were able to preserve their touching faith in their president's suitability as a leader of their country. (By contrast, Americans who had opposed Nixon's presidency couldn't lap up enough of the hearings.)

Our blinkered survey of the world is only the start, however. Inevitably, sooner or later, we will be confronted with challenges to our beliefs, be it the flat-Earther's view of the gentle downward curve of the sea at the horizon, a weapons inspector's return empty-handed from Iraq, or a drain clogged with spaghetti. Yet even in the face of counterevidence, our beliefs are protected as tenderly as our egos. Like any information that pokes a sharp stick at our self-esteem, evidence that opposes our beliefs is subjected to a close, critical, and almost inevitably dismissive scrutiny. In 1956, a physician called Alice Stewart published a preliminary report

of a vast survey of children who had died of cancer.' The results from her work were clear. Just one X-ray of an unborn baby doubled the risk of childhood cancer. A mere twenty-four years later, the major U.S. medical associations officially recommended that zapping pregnant women with ionizing radiation should no longer be a routine part of prenatal care. (Britain took a little longer still to reach this decision.)

Why did it take so long for the medical profession to accept that a dose of radiation might not be what the doctor should be ordering for pregnant women? A strong hint comes from several experiments showing that we find research convincing and sound if the results happen to confirm our point of view. However, we will find the exact same research method shoddy and flawed if the results fail to agree with our opinions. For example, people either for or against the death penalty were asked to evaluate two research studies.' One showed that the death penalty was an effective deterrent against crime; the other showed that it was not. One research design compared crime rates in the same U.S. states before and after the introduction of capital punishment. The other compared crime rates across neighboring states with and without the death penalty. Which research strategy people found the most scientifically valid depended mostly on whether the study supported their views on the death penalty. Evidence that fits with our beliefs is quickly waved through the mental border control. Counterevidence, on the other hand, must submit to close interrogation and even then will probably not be allowed in.' As a result, people can wind up holding their beliefs even more strongly after seeing counterevidence. It's as if we think, "Well, if *that's* the best that the

other side can come up with then I really must be right." This phenomenon, called belief polarization, may help to explain why attempting to disillusion people of their perverse misconceptions is so often futile.

It would be comforting to learn that scientists and doctors, into whose hands we daily place our health and lives, are not susceptible to this kind of partisanship. I remember being briskly reprimanded by Mr. Cohen, my physics teacher, for describing the gradient of a line in a graph as "dramatic." Mr. Cohen sternly informed me that there was no element of the dramatic in science. A fact was a plain fact, not some thespian prancing around on a stage. Yet a graph that contradicts the beliefs, publications, and career of a scientist is anything but a "plain fact," which is why scientific papers, identical in all respects but the results, are far more likely to be found to be flawed and unpublishable if the findings disagree with the reviewer's own theoretical viewpoint.'

Was this part of the reason that Alice Stewart's research on X-rays received such a stony reception? In her biography she recalls, "I became notorious. One radiobiologist commented, 'Stewart used to do good work, but now she's gone senile.'" Unfortunately for Stewart, a later study run by a different researcher failed to find a link between prenatal X-rays and childhood cancer. Even though the design of this study had substantial defects—as the researcher himself later admitted—the medical community gleefully acclaimed it as proof that they were right and Alice Stewart was wrong. The similarity of this story to the experimental demonstrations of biased evaluation of evidence is, well, dramatic.

Eventually, of course, we got to the point we are at today,

where a pregnant woman is likely to start rummaging in her handbag for her Mace should an obstetrician even breathe the word "X-ray" in earshot. But it took a very long time to get there. By 1977, there was a huge amount of research showing a link between prenatal X-rays and childhood cancer. Yet the U.S. National Council on Radiation Protection remained stubbornly convinced that X-rays were harmless. They suggested an alternative explanation. It wasn't that radiation caused cancer. Ludicrous idea! No, the relationship between X-rays and cancer was due to the supernatural prophetic diagnostic powers of obstetricians. The obstetricians were X-raying babies they somehow *knew* would get cancer. This logically possible, yet nonetheless porcine hypothesis merits but one response: Oink, oink.

It's not just other people's arguments to which we turn the cold shoulder. Once we have made up our minds on a matter, arguments in favor of a contrary view—even points generated by our own brains—are abandoned by the wayside. Remember the volunteers in the study described in Chapter 1, who were set to work thinking about a choice in their life? ⁸ Some students, you may recall, were asked to reflect on a decision they had already made (to book a vacation, or end a relationship, for example). In retrospect, had they done the right thing? Other students deliberated over a dilemma they had yet to resolve. As they sat in quiet contemplation, both groups jotted down all their thoughts. Afterward, the researchers counted up the different sorts of thoughts listed by the students to build up a picture of what their minds were up to during this phase of the experiment. The people who were still uncertain as to whether to forge ahead with a par-

titular course of action were impressively evenhanded in their weighing up of the pros and cons, the risks and benefits. But the other students, in response to the experimenter's request to them to inwardly debate the wisdom of their choice, were careful to avoid overhearing any whispered regrets of their mind. Presumably they too had once pondered both sides of the matter before making their final decision. But they were mulishly reluctant to do so now. The researchers, tallying the different sorts of thoughts the thinkers produced, found that the postdecision volunteers were far less likely to set their wits to work on the potentially awkward issue of whether they had done the right thing. And on the rare occasions their minds did roam toward this dangerous area, they far preferred to dwell on the positive, rather than negative, repercussions of what they had done. So what *were* their minds up to? Procrastinating, it seemed. Rather than risk being proved wrong, even by themselves, their minds instead distracted them with a remarkable number of thoughts (such as "I like the experimenter!") that were safely irrelevant to the task in hand.

Twisting information and self-censoring arguments—strategies we unconsciously use to keep the balance of evidence weighing more heavily on our own side of the scales—keep us buoyantly self-assured. And what is more, the faith we hold in the infallibility of our beliefs is so powerful that we are even capable of *creating* evidence to prove ourselves right—the self-fulfilling prophecy. The placebo effect—in which a fake treatment somehow makes you better simply because you think you are receiving an effective remedy for your complaint—is probably the best-known

example of this.' And when a genuine treatment doesn't enjoy the benefit of the brain's high hopes for it, it becomes remarkably less effective. When you toss down a few painkillers, it is in no small way your confidence that the drug will relieve your headache that makes the pain go away. A group of patients recovering from lung surgery were told by their doctor that they would be given morphine intravenously for the pain." Within an hour of the potent painkiller entering their bloodstream, their pain intensity ratings had halved. A second group of postsurgery patients were given exactly the same dose of morphine via their drip, but weren't told about it. An hour later, these uninformed patients' ratings of the intensity of the pain had reduced only half as much as those in the other group. However, ignorance was bliss (relatively speaking) in a second experiment in which the intravenous morphine was withdrawn. Patients not told that their supply of pain relief had been interrupted remained comfortable for longer than patients who had been apprised of the change in drug regimen. Even ten hours later, twice as many uninformed patients were still willing to battle on with the pain without requesting more relief.

Even more extraordinary are the influences that other people's beliefs can have on *you*. Psychologists first of all directed their interest in the self-fulfilling prophecy upon themselves. Could a psychologist be unwittingly encouraging her volunteers to act in line with her beliefs about what should happen in the experiment? Psychologists found that they did indeed have this strange power over their experimentees." Exactly the same experimental setup reliably yields different results depending on the beliefs of the researcher who is running the

experiment and interacting with the participants. In fact, even rats are susceptible to the expectations of experimenters. Researchers can also unknowingly affect the health of participants in clinical drug trials. In a twist on the placebo effect, the *researcher's* point of view about a drug can influence how effective it actually is. For this very reason, good clinical trials of drugs are now run double-blind: neither the patient nor the researcher knows what treatment the patient is getting.

Psychologists then got curious about whether the self-fulfilling prophecy might be silently at work outside the lab in the real world. In a notorious experiment, two psychologists, Robert Rosenthal and Lenore Jacobson, turned their attention to the school classroom.' They gave a group of schoolchildren a fake test, which they claimed was a measure of intellectual potential. Then, supposedly on the basis of the test results, they told teachers that little Johnny, Eddy, Sally, and Mary would be displaying an intellectual blossoming over the next few months. In fact, these children had been plucked randomly from the class list. Yet the teachers' mere expectation that these children would shortly be unfurling their mental wings actually led to a real and measurable enhancement of their intelligence. Teachers "teach more and teach it more warmly" to students of whom they have great expectations, concludes Rosenthal. It's extraordinary to consider what a powerful impact a teacher's particular prejudices and stereotypes must have on your child. And the prophecy is not only self-fulfilling, it's self-perpetuating as well. When your son unwittingly fulfills his teacher's belief that "Boys don't like reading," that belief will become yet more comfortably established in the teacher's mind.

There is something really very eerie about the power of other people's beliefs to control you without your knowledge. But there is little you can do to protect yourself against an enemy whose potency resides in its very imperceptibility. But even creepier, surely, is the prospect that your own pessimistic convictions could be insidiously working against *you*. A woman's expectations for how her relationship will turn out, for example, may "create her own reality." If she were excessively concerned about a romantic partner's true commitment to the relationship, and overly preoccupied with the possibility of rejection by him, could a woman's hypersensitive reactions to conflict in her relationship bring about the very outcome she feared? In a test of this hypothesis, psychologists invited couples to place the dynamics of their relationship under microscopic scrutiny. Both members of the couple separately rated their feelings about their partner and their relationship, their satisfaction with it, and their commitment. They also filled out a questionnaire that probed for anxieties about rejection from "significant others." Both members of the couple were then brought together again, and seated in a room with a video camera pointed at them. Next, to create a little interesting conflict, they were asked to discuss an issue in their relationship that tended to chill atmospheres and fray tempers. Then, just to see what effect this rattling of each other's cages had had, they were asked once again to rate their emotions about their loved one. Once they had both safely departed from the laboratory, other psychologists (who did not know what the experiment was about) did what we all wish we could do as we rake through the ashes of a scorching argument. They reran the tapes to comb them for unambigu-

ous evidence of scratchy comments, nasty put-downs, hostile gestures, or unpleasant tones of voice.

Before the videotaped discussion (or argument, in some cases), the partners of rejection-sensitive women were just as positive about their relationship as were the partners of women with a more robust attitude toward relationships. But afterward, the partners of the touchier women were quietly fuming. The researchers discovered the reason for this in the videotapes. The women who feared rejection behaved more cantankerously during the airing of conflict-ridden issues and, according to the researchers' statistical analyses, it was this that was so exasperating their partners. Enough to dissolve the relationship? It seemed so. A second experiment showed that the relationships of rejection-sensitive women, despite being just as healthy and happy to begin with, were nearly three times more likely to end than those of women who took conflict in their stride. Expecting rejection, these more vulnerable women behaved in ways that turned their fears into reality.

SO **FAR**, our reluctance to survey the world with an open mind seems to have little to recommend it. Are there any potential benefits to be had from our obduracy? Psychologists have pointed out that a modicum of obstinacy before letting go of our beliefs is only sensible. After all, we would end up in rather a tizzy if our beliefs were forever fluctuating in response to every newspaper report or argument with an in-law. There's also a sense in which our core beliefs are an integral part of who we are. To bid a belief adieu is to lose a

cherished portion of our identity.' Interestingly, people who have recently indulged in extensive contemplation of their best qualities (or been "self-affirmed," to use the cloying terminology of the literature) are more receptive to arguments that challenge their strongly held beliefs about issues like capital punishment and abortion. By hyping up an important area of self-worth, you are better able to loosen your grip on some of your defining values. (Just loosen your grip, mind. Not actually let go.) It is a curious, and somewhat disquieting, fact that effusive flattery dulls the sword of an intellectual opponent far more effectively than mere logical argument. So, contrary to popular belief, flattery *will* get you somewhere.

It would be much more pleasant to leave it at that: we're pigheaded, yes, but it's for good reasons. However, research shows that our stubbornness is so pernicious that even the most groundless and fledgling belief enjoys secure residence in our brains. As a consequence, we are at the mercy of our initial opinions and impressions. In a classic demonstration of this, some volunteers were given a test of their "social sensitivity." They read a series of pairs of suicide notes and, for each pair, had to guess which note was genuine and which was a fake. Some volunteers were then arbitrarily told that their performance was superior; others that it was inferior. A little later the experimenter debriefed the volunteers. The experimenter explained that the feedback they'd been given about their social sensitivity was invented, and that their supposed score had been randomly decided before they even walked into the lab. Any ideas the volunteers had developed about their proficiency in discriminating between genuine and fake suicide notes should have been totally abolished by

this debriefing. After all, the evidence on which those beliefs were based had been entirely discredited. But still, the volunteers continued to believe in their superior or inferior social sensitivity. When the experimenter asked the volunteers to guess how well they would actually do on this and other similar tasks, their answers reflected whether they had been given the "superior performance" or "inferior performance" false feedback on the suicide notes task. What is particularly remarkable about this experiment is that even people who were told that they were social clodhoppers carried on believing it. Even though their vain brains had been handed a bona fide rationale by which their self-esteem could be restored, they continued to believe the worst about themselves.

In a similar experiment, researchers gave high-school students training in how to solve a difficult mathematical problem.¹⁶ Half of the students watched a clear and helpful video presentation. The other half watched a deliberately confusing presentation that left them floundering. Unsurprisingly, these latter students wound up feeling pretty crestfallen over their ineptitude with numbers. This lack of confidence persisted even after the researchers showed them the clear video presentation and explained that their poor math performance was due to the bad instruction, not to their actual ability. Even three weeks later, the students unfortunate enough to have watched the baffling video presentation were less likely to show interest in signing up for other similar math classes. And so, possibly, the entire course of their future lives was changed.

Indeed, at this point you may be beginning to feel uneasy stirrings about the ethics of psychology researchers giving

false feedback—particularly negative feedback—to unsuspecting volunteers. To be sure, the experimenters always debrief the hapless volunteers afterward, but it looks as if this alone isn't enough. The researchers in the suicide notes experiment discovered that normal debriefing procedures are hopelessly ineffective in correcting stubbornly held beliefs. Only by painstakingly explaining the belief perseverance phenomenon, and describing how it might affect the volunteer, were the experimenters able to leave their volunteers in the same psychological condition in which they found them.

This is a little worrisome, although evidently not to psychology researchers. Of course, you can see it from a researcher's point of view. Yes, you tell some helpful person who has kindly agreed to help you in your research that, oh dear, he's scored embarrassingly low on a test compared with almost everyone else who's ever passed through the lab. But then, probably less than an hour later, you clearly explain that what you told them wasn't true, that you didn't even trouble to mark their test. It's hard to absorb that this might be insufficient to rid even the most self-doubting individual of any lingering insecurities.

Clearly, however, normal debriefing *is* strangely inadequate. Why is it that beliefs take such an immediate and tenacious grasp of our brains? One answer is that our rich, imaginative, and generally spurious explanations of things are to blame. You hear a rumor that a friend's teenaged daughter is pregnant. Discussing her dubious situation with another friend, you sadly call attention to the parents' regrettable insistence on treating adolescents as if they were adults, the laissez-faire attitude of the mother toward curfews, and the risque

clothes in which they let their daughter appear in public. In the face of such parental license, the young woman's predicament takes on a tragic inevitability. As a result, when you subsequently learn that the rumored pregnancy concerned someone else's daughter, you find yourself secretly thinking that it is only a matter of time before the slandered girl suffers the same misfortune. You may even comment with the satisfying (if, in your case, misguided) confidence of Cassandra, that "There's no smoke without fire." The initial belief recruits its own web of supporting evidence, derived from the facile causal explanations that we're so good at creating (and which, let's be honest, are so much fun to indulge in). You can then take the initial fact away. The web of explanation is strong enough to support the belief without it.

In an experiment that simulated just this kind of gossipy social reasoning, volunteers were given a real clinical case history to read.¹ One case study, "Shirley K.," was an anxious young mother and housewife whose history included such misfortunes as divorce, the suicide of her lover, her father's death, and the eventual commitment of her mother to a mental institution. Some of the volunteers were then asked to put themselves in the role of a clinical psychologist who had just learned that Shirley K. had subsequently committed suicide. They were asked what clues, if any, they found in Shirley K.'s life story that might help a psychologist explain or predict her suicide. The volunteers embraced this task with enthusiasm. They easily came up with plausible-sounding hypotheses; for example, that the suicide of her lover was "a model that led her to take her own life." Once the volunteers had done this they were told that, in fact, nothing whatsoever was known

about Shirley K.'s future life. The suicide they had been asked to explain was only hypothetical. However, the web of explanation had been spun. When asked how likely it was that Shirley K. *would* in fact commit suicide, the volunteers rated this as being much more likely than did another group of people who had not been asked to explain the hypothetical suicide. In fact, even people told beforehand that the suicide hadn't actually happened, nonetheless found their theories about why a suicide *might* have occurred so very convincing that they, too, pegged Shirley K. as a high suicide risk.

A later study showed just how crucial these sorts of speculations are in helping to bolster a belief. In a variation of the experiment in which volunteers were given made-up information about their ability to tell the difference between genuine and fake suicide notes, volunteers were told (as in the original experiment) that their performance was either superior or inferior. As before, some of the volunteers were then left free to run wild with theories to explain their supposed level of social sensitivity. When later told that the feedback they had been given had been fabricated, they nonetheless continued to cling to their newfound belief about their social abilities (just as did the volunteers in the original experiment). The false feedback they had received was by then just a small part of the "evidence" they had for their opinion regarding the sensitivity of their people-radar. Something very different happened, however, with a second group of volunteers who were prevented from searching for explanations for their allegedly good or bad performance on the task. These volunteers were immediately commanded to keep themselves busy in an absorbing task. Denied the opportunity

to rummage in their brains for other evidence to support their flimsy belief about their social sensitivity, they sensibly abandoned the belief as soon as they learned that it was based on lies. It's our irresistible urge to play amateur psychologist that makes us so vulnerable to our initial beliefs, no matter how bluntly the facts they were based on may be discredited. It's human nature to try to explain everything that happens around us, perhaps as a way to make life seem less capricious.

Our susceptibility to first impressions is compounded by another, rather endearing, human failing. We are credulous creatures who find it easy to believe, but difficult to doubt. The problem is that we believe things to be true as a matter of course. As psychologist Daniel Gilbert has put it, "you can't not believe everything you read." Of course we are not burdened with our gullible beliefs forever, or even for very long. However, it is only with some mental effort that we can decide that they are untrue. Our natural urge (our default position) is to believe. This may be because, in general, people speak the truth more often than not. It's therefore more efficient to assume that things are true unless we have reason to think otherwise.

But there is a problem with this system. If your brain is too busy with other things to put in the necessary legwork to reject a doozy, then you're stuck with that belief. Advertisers and car salesmen will be delighted to learn that incredulity really is hard work for us, or so research suggests. If your brain is distracted or under pressure, you will tend to believe statements that you would normally find rather dubious.' In fact, you may even find yourself believing things you were explicitly told were untrue. In one demonstration of this failure to

..unbelieve," volunteers read from a computer screen a series of statements about a criminal defendant (for example, "The robber had a gun")." Some of the statements were false. The volunteers knew exactly which ones they were, because they appeared in a different color of text. For some of the volunteers, the untrue statements they were shown were designed to make the crime seem more heinous. For others, the false testimony made the crime seem more forgivable. At the same time that the volunteers were reading the statements, a string of digits also marched across the computer screen. Some of the volunteers had to push a button whenever they saw the digit "5." Banal though this may seem, doing this uses up quite a lot of mental resources. This meant that these volunteers had less brainpower available to mentally switch the labeling of the false statements from the default "true" to "false." These busy volunteers were much more likely to misremember false statements as true. What's more, this affected how long they thought the criminal should serve in prison. When the false statements unfairly exacerbated the severity of the crime, the distracted volunteers sentenced him to prison for almost twice as long a stretch.

Indeed, if your reputation is under examination, the gullible brains of others can put you in serious jeopardy. Because of our bias toward belief, we are particularly susceptible to innuendo. In a simulation of media election coverage, volunteers read a series of headlines about political candidates, and then gave their impressions of each of the politicians.' Unsurprisingly, headlines such as "Bob Talbert Associated with Fraudulent Charity" left Talbert's reputation in tatters. Astonishingly though, the headline, "Is Bob Talbert

Associated with Fraudulent Charity?" was just as damaging. And if you're thinking of going into the public eye yourself, consider this: even the headline, "Bob Talbert Not Linked with Fraudulent Charity" was incriminating in the eyes of the readers. Denials are, after all, nothing more than statements with a "not" tagged on. The bit about "Bob Talbert" and "fraudulent charity" slips into our brains easily enough, but the "not" somehow isn't quite as effective as it should be in affecting our beliefs." We are suckers for innuendo, even—as the study went on to show—when its source is a famously disreputable newspaper. Though we all think ourselves immune to it, negative campaigning works.

For any defendant under scrutiny in the courtroom, of course, the beliefs of gullible brains are of crucial significance. Remember the joke circulating prior to the O. J. Simpson trial?

Knock, knock.

Who's there?

O.J.

O.J. who?

You're on the jury.

Pretrial publicity is usually very bad news indeed for a defendant whose future liberty or even life depends on the machinations of twelve pigheaded brains.' Perhaps because of our susceptibility to innuendo and even denials, media reports of crime encourage a pro-prosecution stance in jurors. It has been shown that the more people know about a case before the trial, the more guilty they think the defendant. And grisly

media coverage aggravates the lock-him-up attitude even further, even though the brutality of a crime obviously has no bearing whatsoever on whether that particular defendant is guilty. A juror who wallows in pretrial publicity skews Justice's scales against the defendant, and the pigheaded brain that then biases, distorts, and even makes up evidence to support this belief in the defendant's guilt certainly won't help to restore the balance.

And it is not just jurors who should be on their guard. Prurient spectators, too, of high publicity trials are persuaded into complacent self-assurance. Looking back on the trial from a postverdict vantage point, the brain implacably refuses to concede that its predictive powers were ever anything less than perfect. "I knew it all along," you tell yourself, surreptitiously adjusting memory. With the benefit of hindsight, what has happened seems inevitable and foreseeable, and you convince yourself that you saw it coming. Amidst the scandal of the Bill Clinton impeachment trial, researchers interested in the phenomenon of hindsight bias asked people to estimate, at periods of both three weeks and three days before the much anticipated verdict, how likely it was that Clinton would be convicted.¹ The media reports during this period made it seem increasingly likely that Clinton would be let off the hook, and the respondents' speculations over that time as to his chances did change accordingly. No more than four days after the verdict, these people humbly and correctly remembered that their opinion had shifted over time toward the correct view that Clinton would be acquitted. But just a week after that, they were brashly claiming that they'd been pretty sure all along that Clinton wouldn't be convicted.

Even when researchers explicitly command people to answer as if they do not know about things that have actually happened, or firmly warn them of our propensity to exaggerate how much we would have guessed anyhow, we continue to deny that the knowledge to which we are privy has influenced us, and insist we would have known it all along.' Our refusal to acknowledge that our opinions benefit from hindsight is particularly troublesome for legal cases in which jurors decide whether to award punitive damages. (Punitive damages essentially say to the defendant, "Naughty! Should have seen that one coming.") In a simulation of this sort of case, people were given testimony about an actual accident in which a Southern Pacific train had derailed, spilling toxic herbicide into the Sacramento River in California.' Some volunteers were told only that the National Transportation Safety Board, reckoning the track to be hazardous, had slapped an order on the railway to stop operations and that the railroad wanted the order lifted. They were shown extensive expert testimony about the various defects and dangers of the condition of the train and its mountainous track as it was just before the real accident none of them knew about. They were then asked to decide whether the risk of an accident was such that the order should stay in place. Totally unaware of what had actually happened on this stretch of railroad, these mock jurors proved fairly optimistic about the safety of the track. Only a third of them thought that the hazards were serious enough to justify stopping the train from running.

Contrast this with the views of the other volunteers, who were able to inspect the details of the case through the crystal clear lens of hindsight. These volunteers were told both of the

derailment and the consequent pollution of the river. They then viewed exactly the same expert testimony as the other group of volunteers. Before the accident occurred, they were asked, was there a grave danger or risk of harm that was a foreseeable and likely consequence of the condition of the tracks? Knowing that such harm had indeed occurred, and unable to perform the mental gymnastics necessary to pretend they didn't, two-thirds of the volunteers said yes, an accident was likely and the railroad should have realized this. In their view, punitive damages should be awarded. The difference in the outlooks offered by foresight and hindsight suggests that, once an accident has happened, our assessments of responsibility can become unreasonably harsh.

We have seen how the brain pretends to know what it did not know, or would not have known. But things don't stop there. The brain also lays claim to knowledge of what it *cannot* know. As a final embarrassment in this sorry catalogue of our cocky tendencies, we think we know what (if we only knew it) can't be known at all. So omniscient does the pig-headed brain think itself that it even affects to be acquainted with knowledge that doesn't exist. University student volunteers were given a hundred general knowledge questions to answer.' Sneakily scattered among them, however, were twenty questions to which there was no answer (such as, "What is the name of the only type of cat native to Australia?" or "What is the name of the legendary floating island in ancient Greece?" or "What is the last name of the only woman to sign the Declaration of Independence?"). On about 20 percent of these unanswerable questions the volunteers claimed

to be on the verge of dredging up the answer. They *knew* it was in there somewhere. It was on the tip of their tongue!

Blinded by our own brilliance, we think we know it all.

THE RAMIFICATIONS of our pigheadedness spread far wider than controversy over the correct method for draining spaghetti. Far beyond the dramas of the kitchen sink, our complacent obstinacy rears its ugly head everywhere: it is in the bedroom, the classroom, the social scene, the scientist's laboratory, the political stage, the courtroom. Pervading, as it does, every aspect of our lives, is there anything we can do to lessen the shameful and often dangerous effects of our stubbornness and conceit? At this point, psychology texts like to make a few half-hearted suggestions as to how we can combat the mulish tendencies of our minds. "Entertain alternative hypotheses," we are urged. "Consider the counterevidence." The problem, of course, is that we are convinced that we are already doing this; it's simply that the other guy's view is absurd, his arguments laughably flimsy. Our pigheadedness appears to be irredeemable. It is a sad fact that the research fully bears out the observation by the newspaper columnist Richard Cohen that, "The ability to kill or capture a man is a relatively simple task compared with changing his mind."

My husband would do well to bear that in mind, come dinnertime.