

Prelude

When I was little, my dad used to read us Sherlock Holmes stories before bed. While my brother often took the opportunity to fall promptly asleep on his corner of the couch, the rest of us listened intently. I remember the big leather armchair where my dad sat, holding the book out in front of him with one arm, the dancing flames from the fireplace reflecting in his black-framed glasses. I remember the rise and fall of his voice as the suspense mounted beyond all breaking points, and finally, finally, at long last the awaited solution, when it all made sense and I'd shake my head, just like Dr. Watson, and think, *Of course; it's all so simple now that he says it.* I remember the smell of the pipe that my dad himself would smoke every so often, a fruity, earthy mix that made its way into the folds of the leather chair, and the outlines of the night through the curtained French windows. His pipe, of course, was ever-so-slightly curved just like Holmes's. And I remember that final slam of the book, the thick pages coming together between the crimson covers, when he'd announce, "That's it for tonight." And off we'd go—no matter how much begging and pleading we'd try and what sad faces we'd make—upstairs, up to bed.

And then there's the one thing that wedged its way so deeply into my brain that it remained there, taunting me, for years to come, when the rest of the stories had long since faded into some indeterminate background and the adventures of Holmes and his faithful Boswell were all but forgotten: the steps.

The steps to 221B Baker Street. How many were there? It's the question Holmes brought before Watson in "A Scandal in Bohemia," and a question that never once since left my mind. As Holmes and Watson sit in their matching armchairs, the detective instructs the doctor on the

difference between seeing and observing. Watson is baffled. And then, all at once everything becomes crystal clear.

“When I hear you give your reasons,” [Watson] remarked, “the thing always appears to me to be so ridiculously simple that I could easily do it myself, though at each successive instance of your reasoning, I am baffled until you explain your process. And yet I believe that my eyes are as good as yours.”

“Quite so,” [Holmes] answered, lighting a cigarette, and throwing himself down into an armchair. “You see, but you do not observe. The distinction is clear. For example, you have frequently seen the steps which lead up from the hall to this room.”

“Frequently.”

“How often?”

“Well, some hundreds of times.”

“Then how many are there?”

“How many? I don’t know.”

“Quite so! You have not observed. And yet you have seen. That is just my point. Now, I know that there are seventeen steps, because I have both seen and observed.”

When I first heard it, on one firelit, pipe-smoke-filled evening, the exchange shook me. Feverishly, I tried to remember how many steps there were in our own house (I had not the faintest idea), how many led up to our front door (I drew a beautiful blank), how many led down to the basement (ten? twenty? I couldn’t even approximate). And for a long time afterward, I tried to count stairs and steps whenever I could, lodging the proper number in my memory in case anyone ever called upon me to report. I’d make Holmes proud.

Of course, I’d promptly forget each number I so diligently tried to remember—and it wasn’t until later that I realized that by focusing so intently on memorization, I’d missed the point entirely. My efforts had been doomed from the start.

What I couldn’t understand then was that Holmes had quite a bit more than a leg up on me. For most of his life, he had been honing a method of mindful interaction with the world. The Baker Street steps?

Just a way of showing off a skill that now came so naturally to him that it didn't require the least bit of thought. A by-the-way manifestation of a process that was habitually, almost subconsciously, unfolding in his constantly active mind. A trick, if you will, of no real consequence, and yet with the most profound implications if you stopped to consider what made it possible. A trick that inspired me to write an entire book in its honor.

The idea of mindfulness itself is by no means a new one. As early as the end of the nineteenth century, William James, the father of modern psychology, wrote that "the faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will. . . . An education which should improve this faculty would be the education par excellence." That faculty, at its core, is the very essence of mindfulness. And the education that James proposes, an education in a mindful approach to life and to thought.

In the 1970s, Ellen Langer demonstrated that mindfulness could reach even further than improving "judgment, character, and will." A mindful approach could go as far as to make elderly adults feel and act younger—and could even improve their vital signs, such as blood pressure, and their cognitive function. In recent years, studies have shown that meditation-like thought (an exercise in the very attentional control that forms the center of mindfulness), for as little as fifteen minutes a day, can shift frontal brain activity toward a pattern that has been associated with more positive and more approach-oriented emotional states, and that looking at scenes of nature, for even a short while, can help us become more insightful, more creative, and more productive. We also know, more definitively than we ever have, that our brains are not built for multitasking—something that precludes mindfulness altogether. When we are forced to do multiple things at once, not only do we perform worse on all of them but our memory decreases and our general well-being suffers a palpable hit.

But for Sherlock Holmes, mindful presence is just a first step. It's a means to a far larger, far more practical and practically gratifying goal. Holmes provides precisely what William James had prescribed: an

education in improving our faculty of mindful thought and in using it in order to accomplish more, think better, and decide more optimally. In its broadest application, it is a means for improving overall decision making and judgment ability, starting from the most basic building block of your own mind.

What Homes is really telling Watson when he contrasts seeing and observing is to never mistake mindlessness for mindfulness, a passive approach with an active involvement. We see automatically: a stream of sensory inputs that requires no effort on our part, save that of opening our eyes. And we see unthinkingly, absorbing countless elements from the world without necessarily processing what those elements might be. We may not even realize we've seen something that was right before our eyes. But when we observe, we are forced to pay attention. We have to move from passive absorption to active awareness. We have to engage. It's true for everything—not just sight, but each sense, each input, each thought.

All too often, when it comes to our own minds, we are surprisingly mindless. We sail on, blithely unaware of how much we are missing, of how little we grasp of our own thought process—and how much better we could be if only we'd taken the time to understand and to reflect. Like Watson, we plod along the same staircase tens, hundreds, thousands of times, multiple times a day, and we can't begin to recall the most mundane of details about them (I wouldn't be surprised if Holmes had asked about color instead of number of steps and had found Watson equally ignorant).

But it's not that we aren't capable of doing it; it's just that we don't choose to do it. Think back to your childhood. Chances are, if I asked you to tell me about the street where you grew up, you'd be able to recall any number of details. The colors of the houses. The quirks of the neighbors. The smells of the seasons. How different the street was at different times of day. Where you played. Where you walked. Where you were afraid of walking. I bet you could go on for hours.

As children, we are remarkably aware. We absorb and process information at a speed that we'll never again come close to achieving. New sights, new sounds, new smells, new people, new emotions, new experi-

ences: we are learning about our world and its possibilities. Everything is new, everything is exciting, everything engenders curiosity. And because of the inherent newness of our surroundings, we are exquisitely alert; we are absorbed; we take it all in. And what's more, we remember: because we are motivated and engaged (two qualities we'll return to repeatedly), we not only take the world in more fully than we are ever likely to do again, but we store it for the future. Who knows when it might come in handy?

But as we grow older, the blasé factor increases exponentially. Been there, done that, don't need to pay attention to this, and when in the world will I ever need to know or use that? Before we know it, we have shed that innate attentiveness, engagement, and curiosity for a host of passive, mindless habits. And even when we want to engage, we no longer have that childhood luxury. Gone are the days where our main job was to learn, to absorb, to interact; we now have other, more pressing (or so we think) responsibilities to attend to and demands on our minds to address. And as the demands on our attention increase—an all too real concern as the pressures of multitasking grow in the increasingly 24/7 digital age—so, too, does our *actual* attention decrease. As it does so, we become less and less able to know or notice our own thought habits, and more and more allow our minds to dictate our judgments and decisions, instead of the other way around. And while that's not inherently a bad thing—in fact, we'll be talking repeatedly about the need to automate certain processes that are at first difficult and cognitively costly—it is dangerously close to mindlessness. It's a fine line between efficiency and thoughtlessness—and one that we need to take care not to cross.

You've likely had the experience where you need to deviate from a stable routine only to find that you've somehow forgotten to do so. Let's say you need to stop by the drugstore on your way home. All day long, you remember your errand. You rehearse it; you even picture the extra turn you'll have to take to get there, just a quick step from your usual route. And yet somehow, you find yourself back at your front door, without having ever stopped off. You've forgotten to take that turn and you don't even remember passing it. It's the habit mindlessly taking over, the routine asserting itself against whatever part of your mind knew that it needed to do something else.

It happens all the time. You get so set in a specific pattern that you go through entire chunks of your day in a mindless daze (and if you are still thinking about work? worrying about an email? planning ahead for dinner? forget it). And that automatic forgetfulness, that ascendancy of routine and the ease with which a thought can be distracted, is just the smallest part—albeit a particularly noticeable one, because we have the luxury of realizing that we’ve forgotten to do something—of a much larger phenomenon. It happens much more regularly than we can point to—and more often than not, we aren’t even aware of our own mindlessness. How many thoughts float in and out of your head without your stopping to identify them? How many ideas and insights have escaped because you forgot to pay attention? How many decisions or judgments have you made without realizing how or why you made them, driven by some internal default settings of whose existence you’re only vaguely, if at all, aware? How many days have gone by where you suddenly wonder what exactly you did and how you got to where you are?

This book aims to help. It takes Holmes’s methodology to explore and explain the steps necessary for building up habits of thought that will allow you to engage mindfully with yourself and your world as a matter of course. So that you, too, can offhandedly mention that number of steps to dazzle a less-with-it companion.

So, light that fire, curl up on that couch, and prepare once more to join Sherlock Holmes and Dr. John H. Watson on their adventures through the crime-filled streets of London—and into the deepest crevices of the human mind.



CHAPTER ONE

The Scientific Method of the Mind

Something sinister was happening to the farm animals of Great Wyrley. Sheep, cows, horses—one by one, they were falling dead in the middle of the night. The cause of death: a long, shallow cut to the stomach that caused a slow and painful bleeding. Farmers were outraged; the community, shocked. Who would want to cause such pain to defenseless creatures?

The police thought they had their answer: George Edalji, the half-Indian son of the local vicar. In 1903, twenty-seven-year-old Edalji was sentenced to seven years of hard labor for one of the sixteen mutilations, that of a pony whose body had been found in a pit near the vicar's residence. Little did it matter that the vicar swore his son was asleep at the time of the crime. Or that the killings continued after George's imprisonment. Or, indeed, that the evidence was largely based on anonymous letters that George was said to have written—in which he implicated himself as the killer. The police, led by Staffordshire chief constable captain George Anson, were certain they had their man.

Three years later, Edalji was released. Two petitions protesting his innocence—one, signed by ten thousand people, the other, from a group of three hundred lawyers—had been sent to the Home Office, citing a lack of evidence in the case. And yet, the story was far from over. Edalji may have been free in person, but in name, he was still guilty. Prior to his arrest he had been a solicitor. Now he could not be readmitted to his practice.

In 1906, George Edalji caught a lucky break: Arthur Conan Doyle, the famed creator of Sherlock Holmes, had become interested in the case. That winter, Conan Doyle agreed to meet Edalji at the Grand Hotel, at Charing Cross. And there, across the lobby, any lingering doubts Sir



Arthur may have had about the young man's innocence were dispelled. As he later wrote:

He had come to my hotel by appointment, but I had been delayed, and he was passing the time by reading the paper. I recognized my man by his dark face, so I stood and observed him. He held the paper close to his eyes and rather sideways, proving not only a high degree of myopia, but marked astigmatism. The idea of such a man scouring fields at night and assaulting cattle while avoiding the watching police was ludicrous. . . . There, in a single physical defect, lay the moral certainty of his innocence.

But though Conan Doyle himself was convinced, he knew it would take more to capture the attention of the Home Office. And so, he traveled to Great Wyrley to gather evidence in the case. He interviewed locals. He investigated the scenes of the crimes, the evidence, the circumstances. He met with the increasingly hostile Captain Anson. He visited George's old school. He reviewed old records of anonymous letters and pranks against the family. He traced the handwriting expert who had proclaimed that Edalji's hand matched that of the anonymous missives. And then he put his findings together for the Home Office.

The bloody razors? Nothing but old rust—and, in any case, incapable of making the type of wounds that had been suffered by the animals. The dirt on Edalji's clothes? Not the same as the dirt in the field where the pony was discovered. The handwriting expert? He had previously made mistaken identifications, which had led to false convictions. And, of course, there was the question of the eyesight: could someone with such astigmatism and severe myopia really navigate nocturnal fields in order to maim animals?

In the spring of 1907, Edalji was finally cleared of the charge of animal slaughter. It was less than the complete victory for which Conan Doyle had hoped—George was not entitled to any compensation for his arrest and jail time—but it was something. Edalji was readmitted to his legal practice. The Committee of Inquiry found, as summarized by Conan Doyle, that “the police commenced and carried on their investigations, not for the purpose of finding out who was the guilty party, but

for the purpose of finding evidence against Edalji, who they were already sure was the guilty man.” And in August of that year, England saw the creation of its first court of appeals, to deal with future miscarriages of justice in a more systematic fashion. The Edalji case was widely considered one of the main impetuses behind its creation.

Conan Doyle’s friends were impressed. None, however, hit the nail on the head quite so much as the novelist George Meredith. “I shall not mention the name which must have become wearisome to your ears,” Meredith told Conan Doyle, “but the creator of the marvellous Amateur Detective has shown what he can do in the life of breath.” Sherlock Holmes might have been fiction, but his rigorous approach to thought was very real indeed. If properly applied, his methods could leap off the page and result in tangible, positive changes—and they could, too, go far beyond the world of crime.

Say the name Sherlock Holmes, and doubtless, any number of images will come to mind. The pipe. The deerstalker. The cloak. The violin. The hawklike profile. Perhaps William Gillette or Basil Rathbone or Jeremy Brett or any number of the luminaries who have, over the years, taken up Holmes’s mantle, including the current portrayals by Benedict Cumberbatch and Robert Downey, Jr. Whatever the pictures your mind brings up, I would venture to guess that the word *psychologist* isn’t one of them. And yet, perhaps it’s time that it was.

Holmes was a detective second to none, it is true. But his insights into the human mind rival his greatest feats of criminal justice. What Sherlock Holmes offers isn’t just a way of solving crime. It is an entire way of thinking, a mindset that can be applied to countless enterprises far removed from the foggy streets of the London underworld. It is an approach born out of the scientific method that transcends science and crime both and can serve as a model for thinking, a way of being, even, just as powerful in our time as it was in Conan Doyle’s. And that, I would argue, is the secret to Holmes’s enduring, overwhelming, and ubiquitous appeal.

When Conan Doyle created Sherlock Holmes, he didn’t think much of his hero. It’s doubtful that he set out intentionally to create a model for

thought, for decision making, for how to structure, lay out, and solve problems in our minds. And yet that is precisely what he did. He created, in effect, the perfect spokesperson for the revolution in science and thought that had been unfolding in the preceding decades and would continue into the dawn of the new century. In 1887, Holmes became a new kind of detective, an unprecedented thinker who deployed his mind in unprecedented ways. Today, Holmes serves an ideal model for how we can think better than we do as a matter of course.

In many ways, Sherlock Holmes was a visionary. His explanations, his methodology, his entire approach to thought presaged developments in psychology and neuroscience that occurred over a hundred years after his birth—and over eighty years after his creator’s death. But somehow, too, his way of thought seems almost inevitable, a clear product of its time and place in history. If the scientific method was coming into its prime in all manner of thinkings and doings—from evolution to radiography, general relativity to the discovery of germs and anesthesia, behaviorism to psychoanalysis—then why ever not in the principles of thought itself?

In Arthur Conan Doyle’s own estimation, Sherlock Holmes was meant from the onset to be an embodiment of the scientific, an ideal that we could aspire to, if never emulate altogether (after all, what are ideals for if not to be just a little bit out of reach?). Holmes’s very name speaks at once of an intent beyond a simple detective of the old-fashioned sort: it is very likely that Conan Doyle chose it as a deliberate tribute to one of his childhood idols, the philosopher-doctor Oliver Wendell Holmes, Sr., a figure known as much for his writing as for his contributions to medical practice. The detective’s character, in turn, was modeled after another mentor, Dr. Joseph Bell, a surgeon known for his powers of close observation. It was said that Dr. Bell could tell from a single glance that a patient was a recently discharged noncommissioned officer in a Highland regiment, who had just returned from service in Barbados, and that he tested routinely his students’ own powers of perception with methods that included self-experimentation with various noxious substances. To students of Holmes, that may all sound rather familiar. As Conan Doyle wrote to Bell, “Round the centre of deduction and inference and observa-

tion which I have heard you inculcate, I have tried to build up a man who pushed the thing as far as it would go—further occasionally. . . .” It is here, in observation and inference and deduction, that we come to the heart of what it is exactly that makes Holmes who he is, distinct from every other detective who appeared before, or indeed, after: the detective who elevated the art of detection to a precise science.

We first learn of the quintessential Sherlock Holmes approach in *A Study in Scarlet*, the detective’s first appearance in the public eye. To Holmes, we soon discover, each case is not just a case as it would appear to the officials of Scotland Yard—a crime, some facts, some persons of interest, all coming together to bring a criminal to justice—but is something both more and less. More, in that it takes on a larger, more general significance, as an object of broad speculation and inquiry, a scientific conundrum, if you will. It has contours that inevitably were seen before in earlier problems and will certainly repeat again, broader principles that can apply to other moments that may not even seem at first glance related. Less, in that it is stripped of any accompanying emotion and conjecture—all elements that are deemed extraneous to clarity of thought—and made as objective as a nonscientific reality could ever be. The result: the crime as an object of strict scientific inquiry, to be approached by the principles of the scientific method. Its servant: the human mind.

What Is the Scientific Method of Thought?

When we think of the scientific method, we tend to think of an experimenter in his laboratory, probably holding a test tube and wearing a white coat, who follows a series of steps that runs something like this: make some observations about a phenomenon; create a hypothesis to explain those observations; design an experiment to test the hypothesis; run the experiment; see if the results match your expectations; rework your hypothesis if you must; lather, rinse, and repeat. Simple seeming enough. But how to go beyond that? Can we train our minds to work like that automatically, all the time?

Holmes recommends we start with the basics. As he says in our first meeting with him, “Before turning to those moral and mental aspects of

the matter which present the greatest difficulties, let the enquirer begin by mastering more elementary problems.” The scientific method begins with the most mundane seeming of things: observation. Before you even begin to ask the questions that will define the investigation of a crime, a scientific experiment, or a decision as apparently simple as whether or not to invite a certain friend to dinner, you must first explore the essential groundwork. It’s not for nothing that Holmes calls the foundations of his inquiry “elementary.” For, that is precisely what they are, the very basis of how something works and what makes it what it is.

And that is something that not even every scientist acknowledges outright, so ingrained is it in his way of thinking. When a physicist dreams up a new experiment or a biologist decides to test the properties of a newly isolated compound, he doesn’t always realize that his specific question, his approach, his hypothesis, his very view of what he is doing would be impossible without the elemental knowledge at his disposal, that he has built up over the years. Indeed, he may have a hard time telling you from where exactly he got the idea for a study—and why he first thought it would make sense.

After World War II, physicist Richard Feynman was asked to serve on the State Curriculum Commission, to choose high school science textbooks for California. To his consternation, the texts appeared to leave students more confused than enlightened. Each book he examined was worse than the one prior. Finally, he came upon a promising beginning: a series of pictures, of a windup toy, an automobile, and a boy on a bicycle. Under each was a question: “What makes it go?” At last, he thought, something that was going to explain the basic science, starting with the fundamentals of mechanics (the toy), chemistry (the car), and biology (the boy). Alas, his elation was short lived. Where he thought to finally see explanation, real understanding, he found instead four words: “Energy makes it go.” But what was *that*? Why did it make it go? How did it make it go? These questions weren’t ever acknowledged, never mind answered. As Feynman put it, “That doesn’t *mean* anything. . . . It’s just a *word!*” Instead, he argued, “What they should have done is to look at the windup toy, see that there are springs inside, learn about springs, learn about wheels, and never mind ‘energy.’ Later on, when the children know

something about how the toy actually works, they can discuss the more general principles of energy.”

Feynman is one of the few who rarely took his knowledge base for granted, who always remembered the building blocks, the elements that lay underneath each question and each principle. And that is precisely what Holmes means when he tells us that we must begin with the basics, with such mundane problems that they might seem beneath our notice. How can you hypothesize, how can you make testable theories if you don't first know what and how to observe, if you don't first understand the fundamental nature of the problem at hand, down to its most basic elements? (The simplicity is deceptive, as you will learn in the next two chapters.)

The scientific method begins with a broad base of knowledge, an understanding of the facts and contours of the problem you are trying to tackle. In the case of Holmes in *A Study in Scarlet*, it's the mystery behind a murder in an abandoned house on Lauriston Gardens. In your case, it may be a decision whether or not to change careers. Whatever the specific issue, you must define and formulate it in your mind as specifically as possible—and then you must fill it in with past experience and present observation. (As Holmes admonishes Lestrade and Gregson when the two detectives fail to note a similarity between the murder being investigated and an earlier case, “There is nothing new under the sun. It has all been done before.”)

Only then can you move to the hypothesis-generation point. This is the moment where the detective engages his imagination, generating possible lines of inquiry into the course of events, and not just sticking to the most obvious possibility—in *A Study in Scarlet*, for instance, *rache* need not be *Rachel* cut short, but could also signify the German for *revenge*—or where you might brainstorm possible scenarios that may arise from pursuing a new job direction. But you don't just start hypothesizing at random: all the potential scenarios and explanations come from that initial base of knowledge and observation.

Only then do you test. What does your hypothesis imply? At this point, Holmes will investigate all lines of inquiry, eliminating them one by one until the one that remains, however improbable, must be the truth. And you will run through career change scenarios and try to play

out the implications to their logical, full conclusion. That, too, is manageable, as you will later learn.

But even then, you're not done. Times change. Circumstances change. That original knowledge base must always be updated. As our environment changes, we must never forget to revise and retest out hypotheses. The revolutionary can, if we're not careful, become the irrelevant. The thoughtful can become unthinking through our failure to keep engaging, challenging, pushing.

That, in a nutshell, is the scientific method: understand and frame the problem; observe; hypothesize (or imagine); test and deduce; and repeat. To follow Sherlock Holmes is to learn to apply that same approach not just to external clues, but to your every thought—and then turn it around and apply it to the every thought of every other person who may be involved, step by painstaking step.

When Holmes first lays out the theoretical principles behind his approach, he boils it down to one main idea: “How much an observant man might learn by an accurate and systematic examination of all that came his way.” And that “all” includes each and every thought; in Holmes's world, there is no such thing as a thought that is taken at face value. As he notes, “From a drop of water, a logician could infer the possibility of an Atlantic or a Niagara without having seen or heard of one or the other.” In other words, given our existing knowledge base, we can use observation to deduce meaning from an otherwise meaningless fact. For what kind of scientist is that who lacks the ability to imagine and hypothesize the new, the unknown, the as-of-yet untestable?

This is the scientific method at its most basic. Holmes goes a step further. He applies the same principle to human beings: a Holmesian disciple will, “on meeting a fellow-mortal, learn at a glance to distinguish the history of the man and the trade or profession to which he belongs. Puerile as such an exercise may seem, it sharpens the faculties of observation, and teaches one where to look and what to look for.” Each observation, each exercise, each simple inference drawn from a simple fact will strengthen your ability to engage in ever-more-complex machinations. It will lay the groundwork for new habits of thinking that will make such observation second nature.

That is precisely what Holmes has taught himself—and can now teach us—to do. For, at its most basic, isn't that the detective's appeal? Not only can he solve the hardest of crimes, but he does so with an approach that seems, well, elementary when you get right down to it. This approach is based in science, in specific steps, in habits of thought that can be learned, cultivated, and applied.

That all sounds good in theory. But how do you even begin? It does seem like an awfully big hassle to always think scientifically, to always have to pay attention and break things down and observe and hypothesize and deduce and everything in between. Well, it both is and isn't. On the one hand, most of us have a long way to go. As we'll see, our minds aren't meant to think like Holmes by default. But on the other hand, new thought habits can be learned and applied. Our brains are remarkably adept at learning new ways of thinking—and our neural connections are remarkably flexible, even into old age. By following Holmes's thinking in the following pages, we will learn how to apply his methodology to our everyday lives, to be present and mindful and to treat each choice, each problem, each situation with the care it deserves. At first it will seem unnatural. But with time and practice it will come to be as second nature for us as it is for him.

Pitfalls of the Untrained Brain

One of the things that characterizes Holmes's thinking—and the scientific ideal—is a natural skepticism and inquisitiveness toward the world. Nothing is taken at face value. Everything is scrutinized and considered, and only then accepted (or not, as the case may be). Unfortunately, our minds are, in their default state, averse to such an approach. In order to think like Sherlock Holmes, we first need to overcome a sort of natural resistance that pervades the way we see the world.

Most psychologists now agree that our minds operate on a so-called two-system basis. One system is fast, intuitive, reactionary—a kind of constant fight-or-flight vigilance of the mind. It doesn't require much conscious thought or effort and functions as a sort of status quo autopilot. The other is slower, more deliberative, more thorough, more logical—but also

much more cognitively costly. It likes to sit things out as long as it can and doesn't step in unless it thinks it absolutely necessary.

Because of the mental cost of that cool, reflective system, we spend most of our thinking time in the hot, reflexive system, basically ensuring that our natural observer state takes on the color of that system: automatic, intuitive (and not always rightly so), reactionary, quick to judge. As a matter of course, we go. Only when something really catches our attention or forces us to stop or otherwise jolts us do we begin to know, turning on the more thoughtful, reflective, cool sibling.

I'm going to give the systems monikers of my own: the Watson system and the Holmes system. You can guess which is which. Think of the Watson system as our naive selves, operating by the lazy thought habits—the ones that come most naturally, the so-called path of least resistance—that we've spent our whole lives acquiring. And think of the Holmes system as our aspirational selves, the selves that we'll be once we're done learning how to apply his method of thinking to our everyday lives—and in so doing break the habits of our Watson system once and for all.

When we think as a matter of course, our minds are preset to accept whatever it is that comes to them. First we believe, and only then do we question. Put differently, it's like our brains initially see the world as a true/false exam where the default answer is always *true*. And while it takes no effort whatsoever to remain in *true* mode, a switch of answer to *false* requires vigilance, time, and energy.

Psychologist Daniel Gilbert describes it this way: our brains *must* believe something in order to process it, if only for a split second. Imagine I tell you to think of pink elephants. You obviously know that pink elephants don't actually exist. But when you read the phrase, you just for a moment had to picture a pink elephant in your head. In order to realize that it couldn't exist, you had to believe for a second that it *did* exist. We understand and believe in the same instant. Benedict de Spinoza was the first to conceive of this necessity of acceptance for comprehension, and, writing a hundred years before Gilbert, William James explained the principle as "All propositions, whether attributive or existential, are believed through the very fact of being conceived." Only after the concep-

tion do we effortfully engage in disbelieving something—and, as Gilbert points out, that part of the process can be far from automatic.

In the case of the pink elephants the disconfirming process is simple. It takes next to no effort or time—although it still does take your brain more effort to process than it would if I said gray elephant, since counterfactual information requires that additional step of verification and disconfirmation that true information does not. But that's not always true: not everything is as glaring as a pink elephant. The more complicated a concept or idea, or the less obviously true or false (*There are no poisonous snakes in Maine*. True or false? Go! But even that can be factually verified. How about: *The death penalty is not as harsh a punishment as life imprisonment*. What now?), the more effort is required. And it doesn't take much for the process to be disrupted or to not occur altogether. If we decide that the statement sounds plausible enough as is (*sure; no poisonous snakes in Maine; why not?*), we are more likely than not to just let it go. Likewise, if we are busy, stressed, distracted, or otherwise depleted mentally, we may keep something marked as true without ever having taken the time to verify it—when faced with multiple demands, our mental capacity is simply too limited to be able to handle everything at once, and the verification process is one of the first things to go. When that happens, we are left with uncorrected beliefs, things that we will later recall as true when they are, in fact, false. (Are there poisonous snakes in Maine? Yes, as a matter of fact there are. But get asked in a year, and who knows if you will remember that or the opposite—especially if you were tired or distracted when reading this paragraph.)

What's more, not everything is as black and white—or as pink and white, as the case may be—as the elephant. And not everything that our intuition *says* is black and white is so in reality. It's awfully easy to get tripped up. In fact, not only do we believe everything we hear, at least initially, but even when we have been told explicitly that a statement is false *before we hear it*, we are likely to treat it as true. For instance, in something known as the correspondence bias (a concept we'll revisit in greater detail), we assume that what a person says is what that person actually believes—and we hold on to that assumption even if we've been told explicitly that it

isn't so; we're even likely to judge the speaker in its light. Think back to the previous paragraph; do you think that what I wrote about the death penalty is my actual belief? You have no basis on which to answer that question—I haven't given you my opinion—and yet, chances are you've already answered it by taking my statement *as* my opinion. More disturbing still, even if we hear something denied—for example, *Joe has no links to the Mafia*—we may end up misremembering the statement as lacking the negator and end up believing that Joe *does* have Mafia links—and even if we don't, we are much more likely to form a negative opinion of Joe. We're even apt to recommend a longer prison sentence for him if we play the role of jury. Our tendency to confirm and to believe just a little too easily and often has very real consequences both for ourselves and for others.

Holmes's trick is to treat every thought, every experience, and every perception the way he would a pink elephant. In other words, begin with a healthy dose of skepticism instead of the credulity that is your mind's natural state of being. Don't just assume anything is the way it is. Think of everything as being as absurd as an animal that can't possibly exist in nature. It's a difficult proposition, especially to take on all at once—after all, it's the same thing as asking your brain to go from its natural resting state to a mode of constant physical activity, expending important energy even where it would normally yawn, say okay, and move on to the next thing—but not an impossible one, especially if you've got Sherlock Holmes on your side. For he, perhaps better than anyone else, can serve as a trusty companion, an ever-present model for how to accomplish what may look at first glance like a herculean task.

By observing Holmes in action, we will become better at observing our own minds. “How the deuce did he know that I had come from Afghanistan?” Watson asks Stamford, the man who has introduced him to Holmes for the first time.

Stamford smiles enigmatically in response. “That's just his little peculiarity,” he tells Watson. “A good many people have wanted to know how he finds things out.”

That answer only piques Watson's curiosity further. It's a curiosity that can only be satisfied over the course of long and detailed observation—which he promptly undertakes.

To Sherlock Holmes, the world has become by default a pink elephant world. It's a world where every single input is examined with the same care and healthy skepticism as the most absurd of animals. And by the end of this book, if you ask yourself the simple question, *What would Sherlock Holmes do and think in this situation?* you will find that your own world is on its way to being one, too. That thoughts that you never before realized existed are being stopped and questioned before being allowed to infiltrate your mind. That those same thoughts, properly filtered, can no longer slyly influence your behavior without your knowledge.

And just like a muscle that you never knew you had—one that suddenly begins to ache, then develop and bulk up as you begin to use it more and more in a new series of exercises—with practice your mind will see that the constant observation and never-ending scrutiny will become easier. (In fact, as you'll learn later in the book, it really is like a muscle.) It will become, as it is to Sherlock Holmes, second nature. You will begin to intuit, to deduce, to *think* as a matter of course, and you will find that you no longer have to give it much conscious effort.

Don't for a second think it's not doable. Holmes may be fictional, but Joseph Bell was very real. So, too, was Conan Doyle (and George Edalji wasn't the only beneficiary of his approach; Sir Arthur also worked to overturn the convictions of the falsely imprisoned Oscar Slater).

And maybe Sherlock Holmes so captures our minds for the very reason that he makes it seem possible, effortless even, to think in a way that would bring the average person to exhaustion. He makes the most rigorous scientific approach to thinking seem attainable. Not for nothing does Watson always exclaim, after Holmes gives him an explanation of his methods, that the thing couldn't have been any clearer. Unlike Watson, though, we can learn to see the clarity before the fact.

The Two Ms: Mindfulness and Motivation

It won't be easy. As Holmes reminds us, "Like all other arts, the Science of Deduction and Analysis is one which can only be acquired by long and patient study nor is life long enough to allow any mortal to attain the

highest possible perfection in it.” But it’s also more than mere fancy. In essence, it comes down to one simple formula: to move from a System Watson– to a System Holmes–governed thinking takes mindfulness plus motivation. (That, and a lot of practice.) Mindfulness, in the sense of constant presence of mind, the attentiveness and hereness that is so essential for real, active observation of the world. Motivation, in the sense of active engagement and desire.

When we do such decidedly unremarkable things as misplacing our keys or losing our glasses only to find them on our head, System Watson is to blame: we go on a sort of autopilot and don’t note our actions as we make them. It’s why we often forget what we were doing if we’re interrupted, why we stand in the middle of the kitchen wondering why we’ve entered it. System Holmes offers the type of retracing of steps that requires attentive recall, so that we break the autopilot and instead remember just where and why we did what we did. We aren’t motivated or mindful all the time, and mostly it doesn’t matter. We do things mindlessly to conserve our resources for something more important than the location of our keys.

But in order to break from that autopiloted mode, we have to be motivated to think in a mindful, present fashion, to exert effort on what goes through our heads instead of going with the flow. To think like Sherlock Holmes, we must *want*, actively, to think like him. In fact, motivation is so essential that researchers have often lamented the difficulty of getting accurate performance comparisons on cognitive tasks for older and younger participants. Why? The older adults are often far more motivated to perform well. They try harder. They engage more. They are more serious, more present, more involved. To them, the performance matters a great deal. It says something about their mental capabilities—and they are out to prove that they haven’t lost the touch as they’ve aged. Not so younger adults. There is no comparable imperative. How, then, can you accurately compare the two groups? It’s a question that continues to plague research into aging and cognitive function.

But that’s not the only domain where it matters. Motivated subjects *always* outperform. Students who are motivated perform better on something as seemingly immutable as the IQ test—on average, as much as .064 standard deviations better, in fact. Not only that, but motivation predicts

higher academic performance, fewer criminal convictions, and better employment outcomes. Children who have a so-called “rage to master”—a term coined by Ellen Winner to describe the intrinsic motivation to master a specific domain—are more likely to be successful in any number of endeavors, from art to science. If we are motivated to learn a language, we are more likely to succeed in our quest. Indeed, when we learn anything new, we learn better if we are motivated learners. Even our memory knows if we’re motivated or not: we remember better if we were motivated at the time the memory was formed. It’s called motivated encoding.

And then, of course, there is that final piece of the puzzle: practice, practice, practice. You have to supplement your mindful motivation with brutal training, thousands of hours of it. There is no way around it. Think of the phenomenon of expert knowledge: experts in all fields, from master chess players to master detectives, have superior memory in their field of choice. Holmes’s knowledge of crime is ever at his fingertips. A chess player often holds hundreds of games, with all of their moves, in his head, ready for swift access. Psychologist K. Anders Ericsson argues that experts even see the world differently within their area of expertise: they see things that are invisible to a novice; they are able to discern patterns at a glance that are anything but obvious to an untrained eye; they see details as part of a whole and know at once what is crucial and what is incidental.

Even Holmes could not have begun life with System Holmes at the wheel. You can be sure that in his fictional world he was born, just as we are, with Watson at the controls. He just hasn’t let himself stay that way. He took System Watson and taught it to operate by the rules of System Holmes, imposing reflective thought where there should rightly be reflexive reaction.

For the most part, System Watson is the habitual one. But if we are conscious of its power, we can ensure that it is not in control nearly as often as it otherwise would be. As Holmes often notes, he has made it a habit to engage his Holmes system, every moment of every day. In so doing, he has slowly trained his quick-to-judge inner Watson to perform as his public outer Holmes. Through sheer force of habit and will, he has taught his instant judgments to follow the train of thought of a far more reflective approach. And because this foundation is in place, it takes a matter of