Where the Absented-Minded Mind Goes:

Neuroscience and the Writing Process

I'm absent-minded. I admit it. I lose things. I forget things. I fail to control the clutter of daily life. This can't be incipient Alzheimer's, because I've always been this way. All through grade school I had black check marks on my report cards: Fails to Keep Track of Details. Does Not Start Work on Time. *Daydreamer,* the nuns said. My son called it *Dimwit Autopilot*. That was the day we left for the dentist's office but I drove him to the high school instead. *Dimwit Autopilot.* I've never lived it down.

I've always wondered about this. When I lose my focus on mundane reality, what <u>am</u> I paying attention to? When I'm absent-minded, where has my mind gone? Is this a character flaw? Or is it something else? When my mind takes off on its own, should I let it go? Or should I yank on the leash to get it back by my side?

At the bank yesterday, for instance. The young banker had ferociously thick eyebrows and a wonderfully complicated Slavic name. He held himself stiffly, in that distinctively formal European posture. But when I smiled and offered some mundane pleasantry, he relaxed. He grinned and looked me right in the eye, his faint Russian accent overlaid with the vowels and the cadences of Chicago. His demeanor was as frankly Midwestern as my own.

Then I handed him a check to deposit. In a blink his shoulders stiffened again. His accent abruptly deepened. He morphed before my eyes from a sweet local kid into the hyper-responsible son of a Russian immigrant, an earnest young banker with Albert Einstein eyebrows.

How can anyone fail to relish moments like this? There was a whole story, right there, in the changing posture of a young man's shoulders. But the receipt? What did I do with the receipt he handed me? I'm not sure. I don't remember. It wasn't in my wallet where it belonged. Furthermore, in trying to remember his marvelous name, I forgot to ask for some cash back.

Life is like this. Or writers' lives are like this. We get distracted. Absent-minded. And the non-writers we live with often fail to understand how we can go to the bank to get some cash and come home empty-handed.

What is going on when I pull an absent-minded stunt like this? It's an important question, and not simply because other people make sarcastic remarks about my fog-bound brains. I'm going to argue that what the world calls "absent-mindedness" is our ability to open the door into the quality of attention and concentration that creativity demands. Perhaps we can learn to manage this skill more successfully if we understand something about recent research into the mind/ body relationship.

Let me begin my account with what the West has always believed about human consciousness. These are the beliefs and the attitudes that all of us inherit, no matter what. Western tradition has always assumed a profound split between mind and body. Bodies observe and report sensory data. Minds analyze that data, organizing it into concepts, and then arranging the concepts according to the formal rules of logic. It's a division of labor: bodies don't think, and thinking is profoundly disembodied. Thinking is profoundly abstract. In fact, the better you are at thinking, or the more sophisticated and acute your thinking, the more sharply disembodied it is. Supposedly.

This mind-body split goes all the way back to the ancient Greeks, and perhaps beyond them to the ancient Persians. Between 1600 and 1800 the split was refurbished with complicated new vocabulary. But aside from this elaborate new jargon, it was yet another version of the familiar Western dualism of mind and body.

Part of the mind-body split is an inherited sense that critical thinking and emotions are also profoundly opposed to one another. As ordinary citizens in a Western culture, we assume--or at least we were taught--that emotions do not contribute to the process of critical thinking. There is no intellectual content to that churning in the pit of your stomach, or that creepy goose-bump feeling on the back of your neck, or that sudden tension in your shoulders. None of that matters. Mainline Western tradition disregards our visceral reactions, which is to say all of our hunches and our intuitions as well. They are irrelevant to critical thinking, and critical thinking is

what matters.

In fact, emotions are worse than irrelevant. They are a dangerous distraction. They are a distraction because cool, disembodied, analytical reason is what makes us human. Analytical reason is how we arrive at truth, and how we rise above the dumb brutality of animals. "Feminine intuition" gets a nod now and then, patronizingly, but only as an uncanny exception that proves the rule. And the rule is this: emotional reactions and gut feelings are irrelevant unless we can back them up with rational analysis and hard data. We can't, or we shouldn't, make decisions colored by our emotional responses. We need to stop, get control of ourselves, and think clearly. And "clearly" here means cerebrally, intellectually, abstractly. Set emotions aside and be "rational."

How often have you heard that? That's the ongoing cultural power of Western philosophical tradition. What one scholar calls "the spiritual grammar of the West" is shaped by this assumption that thinking is more important or more reliable than feeling, and that mind is more important or more reliable than the body's visceral reactions[1] As I have argued at length elsewhere, this grammar permeates Western thought at innumerable levels.[2] It's particularly visible in the assumption that men are more important or more reliable than women because men are--or are socialized to be--less vulnerable to their own emotional responses. By the same line of reasoning, scientists and engineers are intellectually more serious than writers and artists, because scientists and engineers deal in "hard" facts and "dispassionate" logic. Writers and artists are "soft," subjective, undisciplined, emotive--a suspect lot altogether.

This classic Western philosophic account of human consciousness has been upended in the last few decades by stunning new work in the neurosciences and in cognitive linguistics. The implications of this new work are staggering. And yet, and yet, its portrait of human experience feels intimately familiar. It feels right to me. Reading this research, I feel as if I have finally found a mirror in which I can see the face of my own inner experience and my own creative processes as a writer--absent-mindedness and all.

This new work argues that Western philosophic tradition has the facts upside down. Mind does not control body as software controls a computer. On the contrary, consciousness is much more like an imperfect or limited lens through which the body

sees itself and tries thereby to manage its affairs with greater flexibility, creativity, and nuance. Consciousness is a glimpse--and never more than a glimpse--of how the body is navigating the complex realities of time and space and social context. The mind is the product of the body, the achievement of the body, not some remote manager.

"Mind" as defined by the philosophers has been shrewdly compared to a person riding an elephant, a person blithely unaware of the elephant's power and its autonomy.[3] But in fact, a person who chooses to be consciously attuned to the elephant--a mind intelligently attuned to body--will navigate reality far far more skillfully. The implications of this philosophic reversal are quite complex, and of course so is the research that underlies this new portrait of how the mind works. All I can do here is sketch a few of the most intriguing little facts I've come across. I think there are monumental implications in this work for how writers understand our own creative processes, which is to say how we cope with the perhaps very strange elephants we have been given to ride.

As I have struggled to find my way through this neuroscience, I have found it helps to be able to picture the physical relationships among the brain systems. So let's begin with a very simple lesson in neuroanatomy. Please make a loose fist with your left hand: put your fingertips flat against the heel of your hand. Let your thumb rest lightly against your first finger. Now rotate your hand palm up so that you can see your fingernails. This is a model of your head.[4]

Picture your eyes on the fingernails on your middle two fingers. If you are right handed, then your primary language centers are the crook of your smallest finger. Now unfold your fingers just a little and cup your hand, as if you were trying to hold a tablespoon of salt. Right in there, deep inside the brain, is a set of structures called the limbic system. It's straight back from the bridge of your nose, roughly centered just a bit in back of an imaginary line drawn connecting the very tops your two ears.

The limbic system is very densely hot-wired out into the body. Look at the crease in your palm around the bottom of your thumb. Picture that as thousands of neurons from the limbic system structures sending branches curling down your wrist. Some of these branches, called dendrites, can be two feet long. They run down through the spinal cord

to endpoints in the midsection: the stomach, the intestines, even the kidneys. Atop the kidneys sit the adrenal glands. On a signal from the limbic system, the adrenal glands flood the body with adrenaline. That release can be triggered with astounding speed, because the wiring is so very direct. It's so direct in part because it's so very ancient in evolutionary terms. Adrenaline is useful stuff when you are running to hide from a pterodactyl. When your heart starts pounding and your shoulders tense, when your sweaty hands clench and goosebumps ripple your arms, the limbic system deep in your brain has sent an electric current coursing down through your neck to these little glands atop your kidneys.

Because the brain is so very directly wired into the midsection, there's something literally accurate about our expression "gut feelings." Emotions register first in the gut and only subsequently, through a second pathway, in the muscles that control facial expression or the muscles that hunch the shoulders. Think of it this way: we don't get angry and then tense up. We tense up in certain ways, and if the tension is great enough and of a particular kind then it emerges in consciousness as what we call anger. Only after the body responds in certain ways does consciousness take notice. The time-lag maybe only milliseconds, but as the brain measures time that's a significant delay. The body reacts to reality measurably faster than the mind does. And the brain structures that modulate the body's visceral and muscular reactions are called the limbic system.

The limbic system--deep down there in the palm of your hand--has two big responsibilities. First, as I said, it regulates emotions like anger. It "decides," so to speak, what we should get angry about. Or fearful about, or excited about. It does so by consulting our prior experience. It draws on our prior experience to keep us alive by motivating us toward nice things like ripe blueberries and away from dangerous things like hungry bears who arrived in the blueberry patch before we did. Our survival may depend upon correctly modulating the fear of bears against the desire for blueberries. Such modulation is the work of the limbic system.

The limbic system can manage all this because it is also wired deep into the brain areas that map every body part and that track the minute-to-minute status of every organ

system. Picture those brain areas as located in the palm of your hand, and on the sides, and up towards your knuckles. The limbic system continuously monitors this enormous data stream, alert for opportunities and for threats--for threats like the rank greasy-wool smell of bear. Bears smell as if they have been rolling in rancid grease from a fast-food place. If you have ever smelled a bear up close--up far too close for comfort--I assure you that you will never, ever, forget the smell of bear Such indelible memories are also the work of the limbic system.

In fact, you can blame your limbic system the next time you wake up at 3 a. m. upset all over again about some bad news or some stupid mistake. We remember bad moments far more clearly than good moments or happy moments because avoiding danger has much greater survival value than happily remembering life's good times.[5] *Don't forget the smell of bear,* my body warned me, over and over again for months. I was now sleeping--or trying to sleep--safe and snug in a skyscraper in downtown Chicago. I was not in a sleeping bag in a tent in Jackson Hole, Wyoming. The only "bears" in Chicago are football players. The only random midnight noises were human neighbors coming home drunk. But that failed to reassure my limbic system, which was well-honed by thousands of years of evolution. My limbic system remained brightly on guard against another bear snooping around the spot where I was sleeping. It kept reminding me of how stupid I was to overlook the bear trap set up just down the road from our camp site.

Of course, the limbic system has more to do than wake us up at 3 a.m. to feel stupid and anxious. Have you ever noticed how a really good looking person in a crowd can catch your eye? Or someone very oddly dressed, or someone behaving strangely? That too is the limbic system at work. While driving, have you ever swerved without at first knowing why? That's also the limbic system at work: maybe you were just tooling along listening to NPR, but your limbic system was keeping a very close eye on whether the truck next to you was staying in his lane. Last fall I nearly jumped out of my skin when a maple leaf fell toward me at exactly the wrong angle. It completely blocked the sun just for a fraction of a second, and I "read" the shadow as something huge coming right at me. I yelped and jumped three feet sideways. Then I stood there, heart pounding, feeling completely silly. "Better safe than sorry," my limbic system muttered. It was just doing its job: modulating my emotions. Scaring me half to death, but keeping me alive.

In more subtle ways, in quicker ways that we don't notice quite so easily, the limbic system also monitors threats and opportunities that may be entirely outside our awareness. For instance, I once had a new colleague ask me for a small professional favor. His request was entirely appropriate, and I was pleased to do as he asked.

Except that when he approached me, my body went on high alert. I had trouble concentrating on what he was saying because my inward eye kept seeing images of tigers and mountain lions and other predatory cats. My face flushed. I could feel my pupils dilate, my shoulders tense up.

But why? There was no rational reason at all. He was exquisitely polite, even deferential. He was young, and he was handsome. We were not standing in some dim and dangerous stairwell. We were in a clean well-lighted place, right there between the photocopier and the mailboxes. I should have enjoyed this encounter. When he went his way I stood there, my heart pounding with fear, feeling utterly baffled.

But my body was right. Eventually I learned what a treacherous character this guy could be. My limbic system seems to have recognized that fact immediately. My mental image of predatory cats was as close as my limbic system--my inner poet--could come to naming the danger I faced. My limbic system knew more than I consciously knew because it has access to a far richer and more subtle array of memories than my conscious mind can access--and furthermore its reactions are spectacularly faster than anything consciousness can manage. I was reacting to my new young colleague exactly as I would to a truck veering into my lane, and for much the same reason. I needed to avoid this guy.

We have all had experiences like this. We have all had moments when we walked into a party or a meeting and suddenly felt very uncomfortable--for no reason we could explain. We can't explain because our visceral reactions are too subtle to be fully available to consciousness. All that consciousness can tell us is that we are picking up "bad vibes." That's not much information to go on, but I think we have all learned the hard way not to ignore such reactions.

Antonio Damasio, an eminent neurologist, repeatedly insists that emotions provide us with vitally important information about the world around us, and especially about events

in the world that are important for our well-being and survival.[6] Emotions constitute a sixth sense, literally a sixth sense, a source of information that is just as vital to survival as the other five senses. Damasio describes an intriguing patient who suffered major damage to the the neural pathways necessary for becoming conscious of emotions. This man was profoundly handicapped even though his intelligence remained perfectly intact. He was a real-life version of Mr. Data, and yet his story was tragic: he was incapable of using his high intelligence to manage his own life in safe, productive, reasonable ways.[7] But for any of us, for all of us, the fact remains that we are not always conscious of the emotions that so potently govern or direct our critical thinking. We are unaware of the input from this sixth sensory modality because emotions will remain unconscious if they have failed to reach the physiological threshold necessary to activate conscious awareness. Just as an item can be in our visual field yet go unnoticed by the conscious mind, so also our emotions can be invisible to us.

What this means, of course, is that embodied, visceral reactions can influence behavior *without our consciously realizing what is going on*. We can act or react without consciously understanding our own motives. We can do something, or fail to do something, without fully understanding why. And yet the reasons why, the roots of our motives, are deep in our personal history. Every storyteller knows this fact. It's called "backstory."

But in neurological terms, perhaps we should call it *body memory.* Body memory includes both our uniquely individual personal experience and all the direct and indirect pressures exerted by our upbringing in a particular family, in a particular social context, in a particular culture. Body memory holds all of that. Body memory holds our entire backstory, although as I've said, much of what body memory holds is inaccessible to ordinary consciousness. But when body memory dictates how we react to a situation, we are not acting randomly or irrationally. We are acting unconsciously.

In fiction as in real life, unconscious responses can be exceedingly wise, as I experienced that day with my colleague. But unconscious reactions can also be blindly prejudiced. The unconscious can generalize falsely; it can retain cultural biases that were never true and are now actively disadvantageous. The fallibility of the limbic

system helps to explain why consciousness would have evolved in the first place: an organism that can at times deliberately adjudicate among conflicting experiences or conflicting sources of information is much more capable of nuanced decisions and innovative behavior.

The key to real intelligence, then, is not dismissing visceral reactions in the classic Western way, but rather attending to them carefully, cautiously. What we can access of body memory is a vitally important but never infallible source of information about the situation we face. Western rationalism has claimed infallibility for itself in various philosophical ways at various times. It's important here not to simply reverse the mind-body dualism by claiming that bodies know everything. If bodies were that good at navigating life, we would never have evolved minds. There would have been no need for them.

What makes someone a writer, I suspect, or an artist of any kind, may be something about how the conscious mind relates to the body and to body-memory. Maybe what makes a writer or an artist is some particular skill at hearing what the body says when it speaks very softly, when it speaks to consciousness only in its own densely embodied, imagistic way--through a mind-eye picture of a tiger superimposed upon a colleague asking about a book, or a suspicious, elderly Russian immigrant mirrored in the shoulders of a 20-something bank clerk. That's the key implication of all this for working writers. Maybe what's weird about us is the energy and the coherence of our inner lives, and furthermore how we skillfully we can direct consciousness inward, toward everything that the limbic system is monitoring and analyzing.[8]

As we endeavor to remember a scene, or to create a scene, we need to listen to the subtle, visceral messages of body memory. Chances are good that body memory will direct the mind's eye to specific details that have an emotional coherence or thematic unity far richer than anything we can create consciously or deliberately. We have to trust that fact. We have to realize that we are not going to be in conscious control of this coherence as it emerges in our work. Consciousness just isn't large enough to manage that task.

But our brains were poets long before they were philosophers. We need to trust the

thematic coherence directing the mind's eye. We need to trust the ways in which what we are trying to write can begin to re-organize itself as we sit at the keyboard. We can edit later. We will edit later. But first we have to capture the immediate flow of the embodied soul. And that means paying attention to the free associations that flow in and through the conscious mind. This is a lot of what we do together in my writing workshops when we do our impromptu exercises. I have been flabbergasted by the formalist literary integrity of what a talented writer can come up with when she finds both the confidence and the intense focus required to "write what comes" as it comes, freely, without editorial interference from the rational mind.

If we are to write this way, we have to maintain a certain habitual level of relaxed body-centered self-awareness. We can't be chronically deafened by the chatter of our own superficial self-consciousness with all of its plans and outlines and three-by-five cards pinned up on storyboards. I'm a huge believer in outlines, because I had a classic education in the high-rationalist philosophic tradition. But decades of experience as a writer has taught me to ditch my outlines in a heartbeat when the work takes off in a new direction "all by itself." When that happens, I need to go with the flow. Excessive dedication to my elegant outlines can be the literary version of what the Buddhists call "monkey-mind." It's a mistake, I have learned, to limit my resources to what is known by monkey-mind, riding its elephant and imagining that it is in charge.

Instead we have to be the elephant, the elephant who sees everything and who never forgets. We have to realize that we already are the elephant, and we always have been. Mind is part of body because the brain is part of the body. No one can explain how mind or consciousness arises, because the human brain is the most complex entity in the known universe. But we can at least do this: we can use our minds to step outside the imagined antagonism between mind and body that is written so deeply within Western culture. We can reclaim the actual complexity of how mind and body interact, and we can endeavor to attune our minds to what our bodies are signaling.

I think we have to be centered in this way if we are going to notice our own nuanced gut-level reactions to what appears before our mind's eye as we are writing. If we can't be self-aware in these ways, we won't have the wide array of very subtle details that we

need to depict the complexity of human experience.

There's another major implication here for our work as writers. Sometimes we begin writing not with a scene, not with an action, but simply with a feeling. Not a plot, not a character, just an elusive, inchoate feeling. A barely conscious response. This is how or where poems start, at least for me. And I've learned to stay wordlessly focused on this reaction for a while. When I do so, memory speaks with some highly detailed physical sensation--a sound, a taste, a visual image, maybe a snippet of narrative. I've learned to wait for these. To watch for these. They are the incarnations of my elusive reaction. These incarnations can sometimes be put into words far more easily, far more directly than the original emotion itself. And then I'm on our way. A poem has begun.

John Ciardi said one time that a poem begins with a line or two that falls into consciousness out of nowhere. The poet's task, he explains, is write a third line that matches the first two, and then a fourth line after that, and so on.[9] When lines fall from the sky like this, when an emotion crystallizes into words apparently all by itself, then I find it enormously helpful to sit silently with the visceral responses that the given lines evoke in me. I try to focus on that visceral reaction until it starts to "move" toward articulate consciousness and I begin to feel the peculiar, familiar pressure of words just out of reach.

Even then I wait for the third line to come to me like a shy cat peering around the end of the sofa. I don't call "here kitty, kitty" or try to grab its collar. I just sit quietly. A writer is not always writing when she is writing.[10] Sometimes she is waiting for a cat to jump into her lap.

The limbic system has a second large category of duties that is built upon its biologically ancient role of modulating our emotions so as to keep us alive. The limbic system is also the reference librarian responsible for organizing and retrieving anything we need to remember.[11] It works just as hard assembling whatever we might need to remember about the subplots in *Bleak House* as it does in monitoring the appropriate distance between the car we are driving and the truck in the next lane over. Conscious memory, richly intellectual memory, uses the same neurological mechanisms that created

survival-based somatic memory.

Of course, memory is hugely complicated biologically. Many different brain areas and neural functions get in on the act: it's not just the limbic system. Physiologically speaking, a given memory--your first day in kindergarten--is simply a specific pattern of particular branches of particular neurons connecting with the branches of other neurons at certain specific places. Bear in mind, so to speak, that the brain has one hundred billion brain cells, and each brain cell connects to other brain cells in as many as ten thousand different places. The pattern of these connections changes roughly 120 thousand times *each minute*. So even if your first day of kindergarten lasted only four hours, that's almost 29 billion different patterns of neurons firing. Memory is a re-created instance of these rapidly changing neural networks--along with some sort of tag reading *this is a memory, this is only a memory. This is not a real event. If this were a real event you would be five years old.*

But that's it. That's what memory is. Memories are not stored somewhere in the brain like books on a shelf. Every time, any time you remember anything, the appropriate set of patterns is reactivated--which is to say it can be changed slightly, or changed a lot, or missing some of its 29 billion parts.

If nothing else, memories are always changed to some extent by whatever brought them back to life on this particular day. That's how talk therapy works. With help, with emotional support, we can change how we interpret the events of our own history. The glass that was half empty can becomes a glass half full. Our moments of bewildered inaction can become moments of self-possessed resilience. Conscious memory is an amazing capacity.[12]

But what is the initial mechanism that reactivates a memory? If memory is a database of patterns, what are its "keyword search terms"? If memory is a library, what is its Dewey Decimal System? The answer to that question astounds me. Memories are retrieved, biologically speaking, by the brain's record of bodily states associated with the original experience we are trying to remember.[13] That's why strong emotional and visceral reactions render an event or a fact more memorable. Our most powerful memories are always highly charged emotionally.

That makes sense, doesn't it? Doesn't that match your ordinary experience? Think of how much more easily you learned from teachers who made their material entertaining. Think of how fragrance can retrieve extraordinarily powerful and detailed memories. But remember: triggering and modulating our emotional and visceral reactions is the domain of the limbic system. That's why or how the limbic system operates as our own personal reference librarian.

Here's another nifty and potentially useful fact. It seems to me that what the neuroscientists are giving us here is a key--perhaps the key--to managing smooth transitions: let your gut be your guide. Sensual continuity counts, no matter how minor. Emotional continuity works, no matter how low key. Watch for it as you read. It seems to be everywhere, probably because this is how our minds naturally operate. But the process of revising often traps writers into very unnatural predicaments. Needing to rewrite a transition is surely one of the most irking.

We have reviewed here the two primary biological functions of the limbic system: modulating emotions so as to keep us alive, and maintaining the database whereby memory functions. But for writers, there's a third thing to appreciate about the limbic system: it is very weakly wired into the language centers, which for right-handed people are mostly behind the left temple. Because the limbic system has very little access to language, most people can have trouble naming what they feel. And if--or because--we can't name what we feel, we have a primary or biologically-based trouble becoming fully conscious of our feelings. Because of how our brains are wired, it is biologically difficult to think about our feelings analytically. We can feel our feelings, of course; but for most people these feelings are deeply inarticulate. The ability to express feelings directly, in words, may be evidence that one has a slightly strange brain. However it happens, however it is to be explained biologically, it's a considerable gift. It's also a talent that writers cultivate quite intensely.

By contrast, consider how easily we can talk about color. That off-white is slightly brown, this one grey. Another is slightly peach; another is slightly blue. Any paint store has rows of folders displaying paint chips of at least a dozen slightly different off-whites.

Gorgeous wall displays offer hundreds and hundreds of paint chips of slightly different shades of innumerable colors. We have plenty of words for colors, and with very little training we can learn to say what we see.

I've carried a scrap of dark red carpet from store to store for months, looking for a pair of decorative pillows. I'm increasingly annoyed that the world offers so very many wrong shades of red. But I'm increasingly intrigued by how easily I can discern subtle differences. Surely our emotions exist in complex arrays that are just as subtle as the many shades of red fabric from which sofa pillows are made. Anger shades off into resentment on one side, into jealousy on another, into fear on yet another. The ghost of an abusive alcoholic great-grandfather adds the glint of sexual tension into the mix.

But our common language for naming feelings not nearly as vivid as our common language for color. I can say to you plainly that the dark red I'm trying to match has a slight grey-brown undertone. It's the red that looks great with khaki. It's not blue enough to be burgundy, and not yellow enough to be orange. Most people will be able to picture roughly what I'm describing. Some will understand exactly. But our shared vocabulary for emotional nuance is both far more limited *and apparently less objective.* And the reason why, scientists say, is that the limbic system has relatively weak connections into the language centers.

Except, as I have said, for writers. Perhaps we have larger, better connected language areas just as professional violinists have larger auditory centers than ordinary folks. That's how the brain works, after all. The more time and energy we spend writing, the more of our neurons get recruited into language-related tasks. We also grow more new brain cells, and more densely interconnected brain cells, in any area of the brain we use both regularly and intensively.

But there's a catch. As writers we may clearly perceive the difference between a quiet jealousy tinged with regret and a hostile jealousy tinged with insecurity. That may be as clear to us as more-or-less green in an off-white is clear to a painter. But the fact remains that emotions are first and foremost bodily responses. Emotions are twists in the gut; emotions are tears, they are chills, they are tension in the back of the neck. Emotions are not abstract. And emotions are not elicited in our readers by abstractions.

To elicit or to convey the precise emotion we have in mind, to get a reader to respond exactly as we want, we must offer something real for them to respond to--something visceral, something sensuous, some physical detail of the type that philosophers disregard. Surely this explains the classic editorial advice, "be specific."

Don't tell me that the first day of kindergarten was overwhelming. Tell me that the teacher was much taller than your Mom. Tell me how the hallways had green linoleum that shined like glass and lockers that looked like small grey coffins set hip to hip. Tell me about how you didn't know there were this many children in the whole world, or this many crayons either, and then you were afraid to say your name out loud when the teacher asked. Tell me how the red glitter stuck to the Elmer's Glue on your fingers, and then the glitter got onto the dinosaur cookies the teacher handed out. And then she laughed when you cried about red glitter on your pterodactyl. It looked like blood, like the blood when cousin Joey was hit by a car. But everybody laughed when you cried, and then you hated all of them.

That is, let your body speak to my body. Let your detailed sensory awareness evoke my sensory awareness. That's the way that your feelings can speak to or elicit my feelings: through what we have in common. And what we have in common is not an experience of kindergarten, but a human body and a human brain that are designed in all the same basic ways. That's why--or how--the well-chosen specific detail can have such universal resonance. The details surrounding a character like Shakespeare's Macbeth can resonate eerily to my own highly detailed visceral experiences of ambition and temptation, insecurity and greed, desperation and regret. My visceral experiences don't need to be conscious to fuel my powerful response to the play. Literature achieves the universal *through* the specific and *in* the specific, not by abstracting away from specifics toward generalities. Writers have been telling one another this for centuries. And now the neuroscientists are documenting why we have been so right for so very long.

It seems to me that this new neuroscience in effect explains something about the importance of literature and the arts generally: only through the arts can we engage coherently with our passionate, embodied, emotional lives. Great writing brings us face to face with the elusive, almost un-nameable complexity of human lives, human

motives, human needs, hopes, conflicts, and fears. That is why writers have always been among the culturally most important students of human consciousness. We offer sensuous specifics and evocative details, not the long-winded abstract theories of academic philosophy.

The work of a writer is to make the soul visible, to make the soul incarnate, to make it available to reflection in ways that neither philosophy nor neuropsychology can match. We do so by paying attention to our own experience of life. Something intriguing happens in the world around us, and it reactivates other intriguing stuff in the world within us. We start to resonate, which is like watching the kaleidoscopic show of neurons holding reunions with neurons they have not talked to in years. Deep, obscure visceral responses stir once again, slowly edging their way toward consciousness, eager to tell a story. To be a writer is to travel along the dark, difficult, subterranean interface between what we know that we know, and that vaster landscape which we can only dimly glimpse.

All of this takes time. It takes energy. We have to wait. We have to wait attentively, aware of the delicacy of what is going on. We wait until the emotions, whatever they are, start to find their ways into the visual images and the metaphors that body uses when it speaks to consciousness: a physics teacher with thin blue lips and a long narrow nose; a pair of calico cats chasing one another up the stairs of a chemistry lecture hall; a shoelace that snapped during the march on Washington in 1969. Such details speak to us, they speak without words, and we devote remarkable energy to listening and to tracing our own clear, strong, utterly silent response. No wonder writers are so often absent-minded: we are busy attending to what many people never notice at all.

It's an uncanny process. But it's also commonplace, at least for writers. And if, amidst all of this, I forget that I wanted cash back from the check I handed to the young banker, well, maybe that's the price I sometimes have to pay. I'm willing to pay it. I'm a writer. Like any writer, like every writer, I find myself called to weave the words that give to airy nothingness a local habitation and a name. Writers are not, in the end, absent-minded.

We are body-minded. We are richly embodied minds completely present to the wealth of each passing moment.

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[1] James C. Edwards, *The Plain Sense of Things: The Fate of Religion in an Age of Normal Nihilism* (University Park, PA: The Pennsylvania State University Press, 1997), p. 7.

[2] Catherine M. Wallace, *Selling Ourselves Short: Why We Struggle to Earn a Living and Have a Life* (Grand Rapids MI: Brazos Press, 2003)

[3] Comparing the conscious mind to a man riding an elephant comes from Jonathan Haidt, *The Happiness Hypothesis: Finding Modern Truth in Ancient Wisdom* (New York: Basic Books, 2006), p. 4.

[4] This way of modeling neuroanatomy comes from Daniel J. Siegel, *The Developing MInd: Toward a Neurobiology of Interpersonal Experience* (New York: The Guildford Press, 1999), p. 11-13. I have simplified his model even further. This is a very good book with which to begin one's exploration of neuroscience. Other useful and relatively accessible sources not elsewhere referenced here include Elkhonon Goldberg, *The Executive Brain: Frontal Lobes and the Civilized Mind* (Oxford: Oxford University Press, 2001) and Esther M. Sternberg, *The Balance Within: The Science Connecting Health and Emotions* (New York: W. H. Freeman and Co., 2000),

[5] For why (and how) we remembering painful events preferentially to happy events, see Daniel Schacter, *The Seven Sins of Memory: How the Mind Forgets and Remembers* (Boston and New York: Houghton Mifflin Company, 2001), chapter 7.

[6] Antonio Damasio, like other neurologists, systematically distinguishes between feelings and emotions: emotions are embodied visceral reactions that may or may not be conscious; feelings are mental states that by definition are conscious. Feelings are reactions to which we give names like fear or hope or anger. The distinction between feelings and emotions is crucial to detailed discussions of neural pathways and physiological threshold conditions and so forth. But as Damasio himself admits, it's an awkward and often confusing distinction: *emotion* and *feeling* are nearly synonymous in ordinary parlance. I have followed the technical usage only where I can do so gracefully, relying far more upon context to specify whether the response I'm discussing is conscious or unconscious. For a full account of the issue, see Antonio Damasio, *The Feeling of What Happens*: *Body and Emotion in the Making of Consciousness* (New York: Harcourt, 1999).

[7] Antonio Damasio recounts this case study in *Descartes' Error: Emotion, Reason, and the Human Brain* (1994, rpt. New York: HarperCollins, 2000), chapter 3.

[8] On the neuroscience of this inward attending, see Daniel J. Siegel, *The Mindful Brain: Reflection and Attunement in the Cultivation of Well-Being* (New York: W. W. Norton, 2007) and Marco Iacoboni, *Mirroring People: The New Science of How We Connect with Others* (New York: Farrar, Straus and Giroux, 2008). Both books are fairly technical.

[9] John Ciardi, *How Does a Poem Mean?* (New York: Houghton-Mifflin, 1959).

[10] The line "A writer not always writing when he is writing" is the caption of a cartoon by Brian Savage. My clipping appears to have come from *The New Yorker*, but I have been unable to find it again at cartoonbank.com or in published sources of New Yorker cartoons through 2004.

[11] The way in which emotions function as "search terms" for critical thinking is explained in some detail by Stanley Greenspan, *The Growth of the Mind and the Endangered Origins of Intelligence* (Reading, MA: Addison-Wesley Publishing Co, Inc., 1997), in particular pp. 21-31

[12] On memory, and in addition to Greenspan, cited in note 11, see also Daniel Schacter, *The Seven Sins of Memory,* cited above, note 5; on the power of what we know that we don't realize we know, one might also consult Guy Claxton, *Hare Brain, Tortoise Mind*: *Why Intelligence Increases When You Think Less* (Hopewell NY: The Ecco Press, 1997). For interesting work on how the act of remembering can change memories in very powerful ways, see Louise DeSalvo, *Writing as a Way of Healing* (New York: HarperSanFrancisco, 1999), Norman B. Anderson, *Emotional Longevity: What Really Determines How Long You Live* (New York: Viking, 2003), chapters 4 and 5, and J. W. Pennebaker. *Opening Up: The Healing Power of Confiding in Others* (New York: Morrow, 1990).

[13] See Stanley Greenspan, note 11.