

Wisdom and the Second Half of Life

Books discussed:

[*The Wisdom Paradox: How Your Mind Can Grow Stronger as Your Brain Grows Older*](#). By Elkhonon Goldberg. New York: Gotham Books, 2005. viii + 336. \$26 (cloth), \$15 (paper)

[*The Mature Mind: The Positive Power of the Aging Brain*](#). By Gene Cohen. New York: Basic Books, 2005. xxiii + 232 pp. \$24.95 (cloth), \$15.95 (paper).

I've always been absent-minded. From the beginning of grammar school I received demerits on my report card for daydreaming. When my eldest child was twelve or so, he began to complain about what he called my "dimwit autopilot." The younger two children seized the label with great glee, and I've never lived it down. Nonetheless, I find myself worrying these days when I forget something, when I lose something, when I walk down to the basement and then wonder, "what was I after?" These days, when my mind wanders off, I worry: will it come back? Or am I losing it altogether? As an anxiously aging Boomer, then, I've been doing what I do best in any crisis: drinking tea and reading books.

I'm pleased to report that my neurotic concerns are in fact plainly neurotic: research in the last ten or fifteen years has dramatically challenged the commonplace popular view of the aging process and especially the aging brain. The implications for our lives are both complex and profound. The major new fact is this: quite contrary to what was thought even ten years ago, the brain continues to grow new cells and to develop new physical capacities across the entire life span. This neural growth has major functional consequences. As a result, the second half of life is or can be a period of profound personal and intellectual growth. It's not a long stretch of painfully increasing mental decrepitude.

In *The Wisdom Paradox: How Your Mind Can Grow Stronger as Your Brain Grows Older*, neurologist Elkhonon Goldberg of the New York University School of Medicine focuses primarily upon one question: how is it possible for professional expertise to continue undiminished far into the middle eighties and beyond? He explains in some detail the various mechanism that account for this persistence. Goldberg's wit, his intellectual integrity, and his intriguing answer to this question make *The Wisdom Paradox* a perfect birthday gift for friends who both love the work they do and identify keenly with their ability to do it well.

For some of us, understanding these mechanism is quite valuable. I doubt that I'd have been able to credit his conclusions otherwise. And Goldberg explains technical matters with the polished grace of a cultured, highly literate humanist. Anyone who is thinker enough to be concerned about the question he raises will have no trouble following his adept explanations of how the brain works and how it ages.

Goldberg begins with a blunt account of the affects of aging on the brain. The right lobe, for instance, atrophies about two percent per decade. As

a result, certain mental operations function more slowly, distractions and knee-jerk responses become harder to resist, concentration becomes more difficult, and people become less flexible both personally and mentally. Episodic memory—memory for specific events—deteriorates. We become more absent-minded, more forgetful. Sustained intellectual work becomes more tiring, and fatigue becomes more costly.

And yet, professional expertise can continue—and furthermore it can continue to develop. This baffles and intrigues him, in part because he is himself an anxiously-aging Boomer. His explanation focuses primarily upon the brain's habits of lateralization, especially in the neocortex—the outermost layer of cells where most of what we call "thinking" happens.

In general, Goldberg explains, the right lobe or half of the brain is relatively specialized for coping with novelty. Hence it is particularly active in the young, for whom more of life is genuinely new. The left lobe, on the other hand, is relatively specialized for remembering patterns and paradigms; it is something like the repository of been-there-done-that expertise. As a result, the left lobe becomes increasingly active over time, even as the right lobe slows down and atrophies a little. As the left lobe slowly becomes more active, the structures relating right and left sides start to grow to accommodate increased "traffic" in neural signaling. This change begins at about age forty, and its consequences are monumental.

Professional expertise is relatively immune to the affects of aging, Goldberg explains, because wisdom of any sort is largely a matter of pattern-recognition and the ability to recognize and deploy paradigms. Such expertise is not dependent upon any single memory of any given event, and so it is not liable to the declines in episodic memory. I may forget the concluding couplet of a given sonnet, for instance, but I won't forget what "sonnet" means—or how to go about parsing one. As Goldberg explains, "the machinery of pattern recognition can withstand the effects of aging on the brain to a remarkable degree; . . . the protection afforded by this machinery to the aging mind can be nothing short of profound. . . . [It] can withstand even the effects of age-related dementias to a considerable degree and for a long time" (pp. 71-72).

Secondly, the brain compensates for age-related slowing by becoming more efficient. The more often one uses a skill, for instance, the lower the metabolic demands on the neural tissue involved. This compensates for such age-related problems lessened blood-flow, for instance, or a decreased speed and agility with problems requiring raw computational power. Furthermore, the efficiency of signal transmission—the quality of the fatty insulation over nerve fibers—continues to improve across the entire life span.

Third, the left lobe grows as it becomes more active: there's an increase both in the number of neurons and in the density of linkage among neurons. Goldberg contends that the left lobe's durability, efficiency, and new growth explains how people can continue functioning at a very high level in very complex fields well into their eighties—and despite increasing absentmindedness. "Up to a point," he argues, "wisdom and its kin qualities,

competence and expertise, may be impermeable to neuroerosion” (p. 22). That's the "wisdom paradox" of his title.

Furthermore, this relative left-shift in neural function creates new mental capacities. In Goldberg's account, the primary new capacities are two. (Gene Cohen, discussed below, delineates a larger array.) According to Goldberg, the first is a far greater ease in problem solving. Solutions and decisions that once had to be worked out laboriously, as if calculated by hand, now simply appear. He dubs this the brain's new "pop up" function.

As a seventy-something friend of mine commented the other day—amazement brightening her hazel eyes—"I used to analyze everything to death. Now I look at a situation, and I just know what I want to do." I was reminded of contentious meetings in parishes where the older folks were saying "just do *this*" while the thirty-somethings were painstakingly compiling evidence, weighing arguments, and duly considering every possible option. That's the difference between right-lobe dominance and left-lobe dominance. The young rely more on computation because they have less experience.

The shift from one strategy to the other, Goldberg argues, is what we mean by "attaining wisdom." No wonder, he argues, that major political leadership is rarely offered to people younger than forty years old—that's the age at which this left-shift starts to happen. Furthermore, such leadership is most commonly afforded to those at least sixty years old.

Goldberg also explains that this left shift has significant implications for mood stability, ethical sensitivity, and creativity. It has long been known that our moods and emotional states are largely governed by an array of deep-brain structures called the "limbic system." Dominating the limbic system are two small almond-shaped bits of brain tissue, the amygdalae—one in the left lobe, one on the right. The right amygdala is relatively specialized for negative feelings, and it atrophies slightly along with everything else on the right. The left amygdala is relatively specialized for positive feelings—and like the rest of the left lobe it grows, gaining cells over time.

Habitual grumps will no doubt remain dour as they age: old age by itself doesn't work revolutionary changes in one's essential temperament. But anyone's temperament is a competing balance of tendencies, and the balance itself shifts over time. As a result, as the years pass people come to enjoy increasingly stable moods and in particular increasingly stable positive moods because the right and left amygdalae have ceased their life-long battle for dominance. The happier left-lobe amygdala more often succeeds in its tendency to see the glass as half full. And even the grumpy may mellow a bit, exactly as commonplace storytelling recounts. (Cohen, who is a psychiatrist, makes much of how this change makes possible a resolution of life-long emotional conflicts and problems.)

For an array of quite complex anatomical reasons, the same processes enhance moral sensitivity. We can more easily combine moral norms (which are a variety of expertise or wisdom) with warm empathic concern for

others. We become more compassionate as we age, Goldberg explains, because we become relatively less prone to the angry, fearful, violent reactions triggered by the right amygdala in the young.

Finally, because our brains become far more bilateral in their activation over time, we become more creative. High creatives have been bilateral all along, of course, even while young. But bilateralism without a strong left dominance can mean dramatic mood swings as the two amygdalae contend for control. That's why creatives are so famously prone to depression and to bipolar syndromes. Furthermore, without the tempering wisdom that comes only with age, young high creatives can display (famously display) remarkably poor practical judgment. High creativity in the second half of life carries none of these liabilities—and furthermore it has a lifetime of experience upon which to draw.

Just as mean-spirited grumps won't become saints as they age, so also, Goldberg contends, lazy-minded people won't suddenly blossom with expertise, insight, and creative achievement. But for those of us who have always enjoyed active intellectual lives, the good news here is good indeed—and furthermore a worthy challenge to continue developing one's skills and outgrowing one's current interests.

Gene Cohen's *The Mature Mind: The Positive Power of the Aging Brain* travels much this same territory, albeit in much less technical detail than Goldberg offers. His book is probably the better choice for two sorts of readers: first, those who don't need grapple first-hand with understanding the physical mechanisms involved and, secondly, those who are not keenly identified with their own professional expertise. Cohen focuses less on explicating neural mechanisms and more on what the gradual development of these neurological changes actually means, decade by decade, for the subjective experience of an individual.

Let me be clear, however, that the relative absence of physiological detail in Cohen's accounts do not reflect any lesser level of professional expertise: his credentials include both an MD and a Ph.D. and a long career at the highest levels of research. In 1975 he was invited to direct the nation's first federal research program on mental health and aging, and he has been a major figure in the field ever since. I emphasize the depth of his authority because, like Goldberg, what he has to say is at times so astounding that skepticism is quite appropriate. I wouldn't trust any of this if it came simply from a journalist. But both of these men are scholars and researchers at eminent institutions.

Like Goldberg, Cohen emphasizes the relative left-dominance of the fully mature mind. But we spend decades, from roughly age 40 to age 80 or 85, achieving that full maturity. Through all these decades, the mind is growing and changing—and so consciousness is growing and changing too. That's Cohen's largest point: these are decades of personal growth and change.

For instance, enroute to left-dominance, older people have an increased capacity to activate both sides of the mind simultaneously. (The young can't

activate bilaterally in this way: this ability does not begin to emerge until one's forties.) Because language areas are mostly in the left brain, Cohen explains, the growth in the structures interrelating right and left brain allows us an unprecedented access to verbal fluency—to eloquence—despite word-recall trouble now and then.

And that's not all. Language may be mostly on the left, but our sense of ourselves is largely located on the right. (For an explanation of this, see Bruce Bower, "Self-Serve Brains: Personal Identity Veers to the Right Hemisphere," *Science News*, February 11, 2006. It's available at sciencenews.org.) Over time, then, and with increased bilateral activation, consciousness becomes more articulate. We find it dramatically easier to recognize and to explain—even to ourselves—what we see, what we need, and what we should do as a result of this insight. As Cohen recounts, this development explains how "long-standing psychological issues—anger, social anxiety, feelings of inferiority, low self-esteem, can change, and furthermore age can catalyze the change" (p. 40).

No wonder, then, that as people age they become increasingly interested in writing their memoirs or the stories of their families: life simply makes more sense to them, and they are driven to articulate the meaning that life now has. Such autobiographical writing is known to have a remarkably favorable impact both on immune-system functioning and on mood. It is also a means whereby culture is transmitted not only broadly but also at the most fundamental levels of local memory: family identity and community identity—including parish identity. The "ethical wills" project (see ethicalwills.com) offers an array of resources for helping people to articulate the moral dimensions of their own stories; so does the "This I Believe" project of National Public Radio. The implications for ministry to the aging are extraordinarily rich and, as far as I know, largely unexplored: the neuroscience and gerontology are simply too new. Cohen and Goldberg are both writing about cutting-edge work.

Cohen goes on to explain that this deeper, more articulate self-awareness also spins out into a greater appreciation of the complexity of life, a greater courage in expressing ourselves freely, and a new willingness (particularly evident after age 60, he suggests) to try new things. The familiar question "if not now, when?" neatly captures the sense of increasing personal liberation that is characteristic of the second half of life.

Like Goldberg, Cohen argues fiercely for the increased intellectual acuity and problem-solving abilities of older people, especially those who are still in reasonably good health. Because that's so wildly at odds with the usual stereotypes, I want again to take some time to sort through the details of his argument. Cohen argues that bilateral activation—the consequence of a growing left-shift in hemispheric dominance—allows for a better integration of creative and linear analytical abilities. It also allows for a finer integration of thinking with feeling, or rational analysis with gut-level intuition. The result, Cohen argues, is more sophisticated problem-solving ability.

The young, he explains, are best at what's called formal thinking or "fluid intelligence." They are adept at well-defined problems that can be solved by following clear rules (mathematics, for instance). They excel in fields where there are wrong answers and right answers and some clear way to distinguish the two. Such thinking demands raw mental agility: speed, concentration, and a sharp memory for details.

With age, these abilities decline. With age, however, we become far more adept at post-formal thinking or "crystalline intelligence." We begin to cope far more skillfully with problems that are complicated, poorly defined, and many-faceted, with problems for which there is no simple right or wrong answer and no unequivocal method of reaching a solution. We learn to cope with paradox. We become more aware of the power of context, the nature of subjectivity, and the law of unintended consequences. No wonder, then, that suicide bombers are young and major political leaders tend to be at least sixty years old: with time we become far more adept at coping with real-world problems. (Post-formal thinking is of course central to the sophisticated professional expertise that interests Goldberg: some people are deploying "post-formal" thinking throughout their careers.)

Cohen's deepest concern, however, is explicating the ways in which age enhances our creativity. Increasing mood stability combined with enhanced self-awareness drives an engagement with the arts, he contends--and perhaps then the liturgy as well. Cohen argues at length that that the arts provide exactly the kinds of exercise that the mature mind most needs to achieve its fullest range of powers while maintaining the highest possible level of ordinary memory function and processing speed. As the young need sports to exercise and thus to develop their young muscles, he argues, those in the second half of life need the arts to exercise and thus to develop their newly complex, more richly integrated brains.

Cohen's earlier book, *The Creative Age: Awakening Human Potential in the Second Half of Life* (Quill/ HarperCollins, 2001) focuses on this question exclusively, as he explores the potential for creativity in all areas of life—not just in literature and the fine arts. Cohen is clearly a raconteur at heart: *The Creative Age* is a delightful, leisurely mix of patient profiles and sidebar accounts of the formal creative achievements of people in the last quarter of life. Those who are more persuaded by stories than by physiology should begin with *The Creative Age*. Although I very much needed to know that the science made sense, I found these innumerable stories both deeply moving and keenly encouraging. *The Mature Mind*, by contrast, reads more like a collection of brisk and self-contained ninety minute lectures on different aspects of psychological development in the second half of life.

Both Cohen and Goldberg left me pondering again Jung's claim that religion and spirituality belong to the second half of life as naturally as child-bearing and child-rearing belong to its first half. We would not live so long after children are grown, Jung claims, were there not something important for us yet to accomplish. From that perspective, all this left-dominant bilateral

activation can be understood as the physiological substrate—or consequence—of what tradition would call the growth of the wise soul.

It's a commonplace in midlife studies—even those innocent of neuroscience—that after a certain point "who we are" begins simply to feel very different, to feel less constrained, to feel more confident and yet more richly concerned with ultimate concerns. Over time, we enjoy greater peace of mind, enhanced aesthetic responsiveness, and ever-richer awareness of our own spiritual journeys and abiding moral responsibilities.

I've heard this commonplace dismissed as mere denial. I'm sure you have too: the Boomers just won't admit that we are going to get old. But it's not mere denial, I've discovered. Our familiar, negative view of aging reflects the ways in which until quite recently old age was inseparable from chronic health problems that took an independent toll upon mental functioning. Even a head cold will do that! As a culture we are only beginning to see what healthy aging makes possible—and health-care providers like Cohen and Goldberg are situated to see such things before the rest of us. Their knowledge of aging is not anecdotal, and they contend in the strongest possible terms that age can be a time of enduring expertise matched with spiritual and personal growth.

The implications of this work are immense. The Boomer cohort—31 percent of Americans—are now streaming into the second half of life with historically unprecedented good health and life expectancies stretching into our nineties. Our attitudes toward aging will increasingly matter regardless of how old we are: in twenty years, every community will have the concentration of the elderly now found only in places like Florida. Church leaders who adapt shrewdly to the new realities of aging are much more likely to reap the benefits of active, thoughtful, contributing elders in their congregations, because so much of this evidence points so obviously to a renewed engagement with the deepest resources of genuine religious spirituality. There's more than one DMin thesis here begging to be written.

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