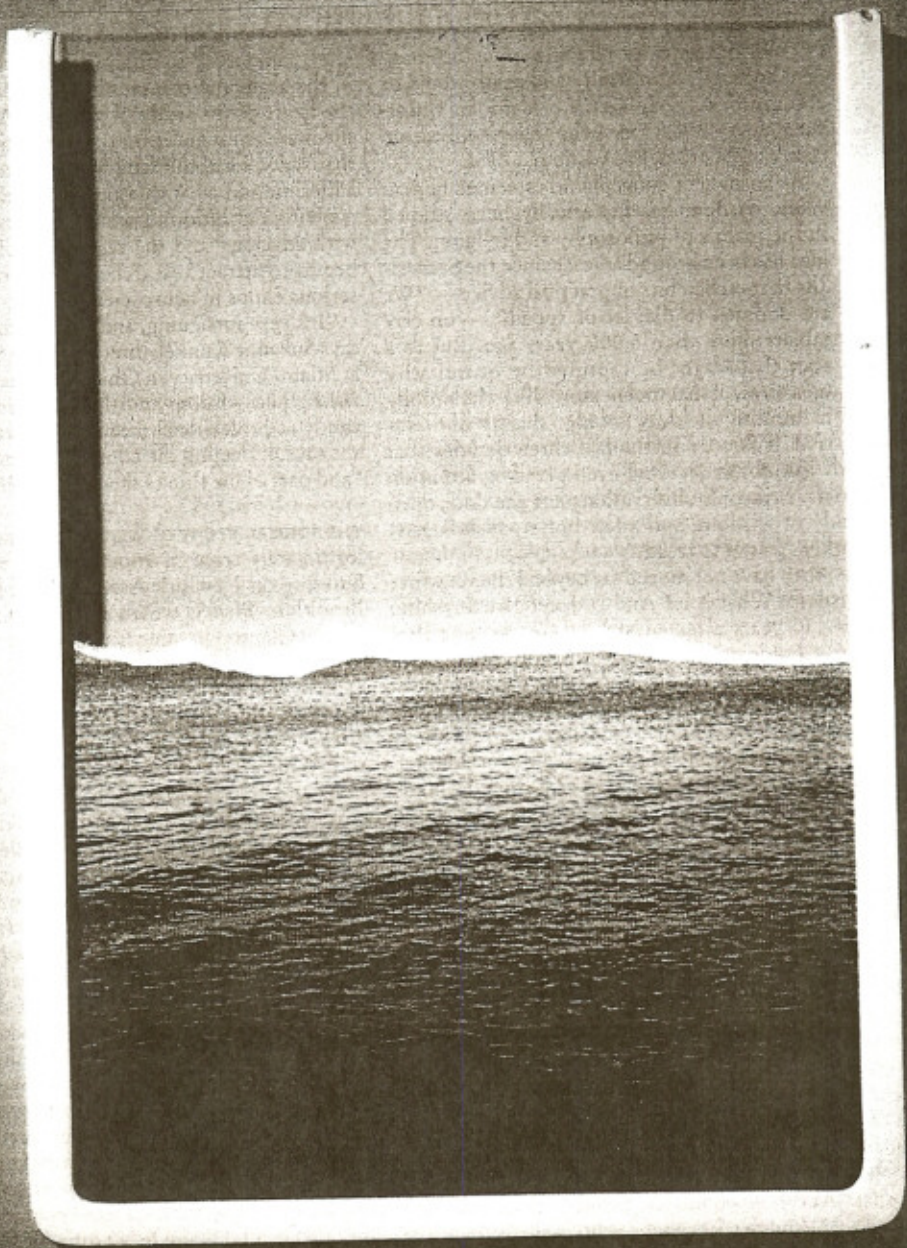


THE OLDER-AND-WISER HYPOTHESIS

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FIRST PLACE.

BY STEPHEN S. HALL

PHOTOGRAPH BY HORACIO SALINAS



**I**N 1950, THE PSYCHOANALYST Erik H. Erikson, in a famous treatise on the phases of life development, identified wisdom as a likely, but not inevitable, byproduct of growing older. Wisdom arose, he suggested, during the eighth and final stage of psychosocial development, which he described as “ego integrity versus despair.” If an individual had achieved enough “ego integrity” over the course of a lifetime, then the imminent approach of infirmity and death would be accompanied by the virtue of wisdom. Unfortunately for researchers who followed, Erikson didn’t bother to define wisdom.

As an ancient concept and esteemed human value, wisdom has historically been studied in the realms of philosophy and religion. The idea has been around at least since the Sumerians first etched bits of practical advice — “We are doomed to die; let us spend” — on clay tablets more than 5,000 years ago. But as a trait that might be captured by quantitative measures, it has been more like the woolly mammoth of ideas — big, shaggy and elusive. It is only in the last three decades that wisdom has received even glancing attention

from social scientists. Erikson’s observations left the door open for the formal study of wisdom, and a few brave psychologists rushed in where others feared to tread.

In some respects, they have not moved far beyond the very first question about wisdom: What is it? And it won’t give anything away to reveal that 30 years after embarking on the empirical study of wisdom, psychologists still don’t agree on an answer. But it is also true that the journey in many ways may be as enlightening as the destination.

From the outset, it’s easier to define what wisdom isn’t. First of all, it isn’t necessarily or intrinsically a product of old age, although reaching an advanced age increases the odds of acquiring the kinds of life experiences and emotional maturity that cultivate wisdom, which is why aspects of wisdom are increasingly attracting the attention of gerontological psychologists. Second, if you think you’re wise, you’re probably not. As Gandhi (who topped the leader board a few years ago in a survey in which college students were asked to name wise people) put it, “It is unwise to be too sure of one’s own wisdom.” Indeed, a general thread running through modern wisdom research is that wise people tend to be humble and “other-centered” as opposed to self-centered.

“Wisdom is really hard to study — really hard,” says Robert J. Sternberg, a former president of the American Psychological Association who edited “Wisdom: Its Nature, Origins and Development,” one of the first academic books on the subject, in 1990, and also edited, with Jennifer Jordan, “A Handbook of Wisdom” in 2005. “People tend to pooh-pooh wisdom because, well, you know, what’s that? And how could you possibly define it? Isn’t it culturally relative?” And yet Sternberg, who is the dean of the School of Arts and Sciences at Tufts University, says he believes the cultivation of wisdom — even though the concept is “big, important and messy” — is essential to the future of society.

Certain qualities associated with wisdom recur in the academic literature: a clear-eyed view of human nature and the human predicament; emotional resiliency and the ability to cope in the

face of adversity; an openness to other possibilities; forgiveness; humility; and a knack for learning from lifetime experiences. And yet as psychologists have noted, there is a yin-yang to the idea that makes it difficult to pin down. Wisdom is founded upon knowledge, but part of the physics of wisdom is shaped by uncertainty. Action is important, but so is judicious inaction. Emotion is central to wisdom, yet detachment is essential.

If you think all those attributes sound fuzzy, vague and absolutely refractory to quantification, you’ve got a lot of company in the academic community. But there is a delicious paradox at the heart of the study of wisdom. As difficult as it is to define, the mere contemplation of a definition is an irresistible exercise that says a lot about who we aspire to become over the course of a lifetime and what we value as a society. And little pieces of that evolving definition of wisdom — especially the ability to cope with adversity and the regulation of emotion with age — have begun to attract researchers with brain-scanning machines and serious chops in neuroscience.

“It’s very intriguing, and it’s becoming a big issue in our field,” says Suzanne Kunkel, director of the Scripps Gerontology Center at Miami University in Ohio. She noted that the number of formal talks about wisdom and the aging process has increased significantly at professional meetings. “Part of me is a little skeptical,” she says, reflecting the compelling ambivalence the subject elicits, “and part of me thinks there’s something there.”

**THE FORMAL STUDY OF WISDOM** as a modern academic pursuit can legitimately trace its roots back to the 1950s, to an apartment building on Newkirk Avenue, just off Coney Island Avenue in Brooklyn. That is where a keenly observant young girl named Vivian Clayton became fascinated by special qualities she attributed to two prominent elders in her life: her father, a furrier named Simon Clayton, and her maternal grandmother. There was something that distinguished them from everyone else she knew. Despite limited education, they possessed an uncanny ability to remain calm in the midst of crises, made good decisions and conveyed an almost palpable sense of emotional contentment, often in the face of considerable adversity or uncertainty. Long before she went to college, Clayton found herself contemplating the nature of wisdom.

“My father was 41 when I was born,” she said recently. “By far, he was the oldest parent among all my friends, almost the age of my friends’ grandparents. He had emigrated from England but had lived through World War II there and experienced the blitz and had to care for his dying mother, who was so sick that she refused to go down into the shelters during air raids in London. She lived in the East End, where the docks were, and they were always getting bombed. So he would sit with her while the bombs were falling, and when it was over, she would say, ‘Now we can have a cup of tea!’ He was a very humble man, and very aware of his limitations, but he always seemed to be able to weigh things and then make decisions that were right for the family. He knew what to respond to quickly, and what you had to reflect on.” Clayton’s maternal grandmother, Beatrice Domb, was the other central figure in her early life. “My mother saw my grandmother as a simple person,” Clayton says. “But her simplicity I saw as a sign of deep contentment in her own life. She, who had less than a high-school education, was the matriarch of this very large family.”

During her childhood and adolescence, Clayton obsessed over the differences between her mother and father, her grandmother and grandfather. She recalls pondering these differences as a teenager, dipping her toes in Mahwah Creek during family outings in Suffern, northwest of the city; as an undergraduate studying psychology at Buffalo University; and more formally, as a graduate student in the early 1970s at the University of Southern California,



Americans born in 1960 can expect to live nearly to **70**. Those born in 1900 could expect to live a little past **47**.

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working with one of the country's leading gerontological psychologists, James E. Birren. Clayton is generally recognized as the first psychologist to ask, in even faintly scientific terms, "What does wisdom mean, and how does age affect it?"

Clayton's study of wisdom began with a bias, but one that counterbalanced a pre-existing bias that pervaded the biomedical literature on aging in the '60s and '70s. Half a century ago, although only 5 percent of the elderly lived in nursing homes, almost all the gerontological research focused on this frail and struggling population. Not surprisingly, these researchers found plenty of negative things about being old. Memory, especially working memory, began to fade. The speed with which the brain processed information slowed down. Older people were more likely to be cognitively impaired.

One of the leading voices pushing for a more balanced view of the aging process was Birren. In what might be viewed as a battle between modern psychology and cultural attitudes toward the elderly, Birren was one of the leaders of an effort to investigate positive aspects of aging. At the time Clayton was at U.S.C., Birren's graduate students were exploring the relationship of aging to topics like love, creativity and wisdom — topics so big and unwieldy that they almost defied study.

Clayton went off to consult the "literature" on wisdom, which almost mirrored the central canon of Western civilization. She rummaged through the Hebrew Bible for clues to wise behavior, analyzed the stories of Job and King Solomon, parsed the meaning of ancient proverbs. "What emerged from that analysis," she says, "was that wisdom meant a lot of different things. But it was always associated with knowledge, frequently applied to human social situations, involved judgment and reflection and was almost always embedded in a component of compassion." The essential importance of balance was embodied in the Hebrew word for wisdom, *chochmah*, which ancient peoples understood to evoke the combination of both heart and mind in reaching a decision. At that point, Birren advised Clayton to "become more scientific" and treat wisdom as a psychological construct that could be defined well enough to be measured and studied ("operationalized," in psychological lingo).

Between 1976, when she finished her dissertation, and 1982, Clayton published several groundbreaking papers that are now generally acknowledged as the first to suggest that researchers could study wisdom empirically. She identified three general aspects of human activity that were central to wisdom — the acquisition of knowledge (cognitive) and the analysis of that information (reflec-

tive) filtered through the emotions (affective). Then she assembled a battery of existing psychological tests to measure it.

Clayton laid several important markers on the field at its inception. She realized that "neither were the old always wise, nor the young lacking in wisdom." She also argued that while intelligence represented a nonsocial and impersonal domain of knowledge that might diminish in value over the course of a lifetime, wisdom represented a social, interpersonal form of knowledge about human nature that resisted erosion and might increase with age. Clayton's early work was "a big deal," Sternberg says. "It was a breakthrough to say wisdom is something you could study." Jacqui Smith, who has conducted wisdom research since the 1980s, says it "was seminal work that really triggered subsequent studies."

As Clayton began to describe her research at psychological meetings in the late '70s, the work on wisdom created considerable buzz. One of the people who grasped its significance immediately was Paul B. Baltes, a legendary psychologist then at Pennsylvania State University. Baltes helped pioneer life-span developmental theory, which argues that in order to understand, say, a 60-year-old person, you need to take into account the individual's biology, psychology and sociological context at various stages of life, as well as the cultural and historical era in which he or she lived.

Baltes closely monitored the initial wisdom studies, Clayton recalls, and regularly peppered her with questions about her progress. "I went to all these meetings," she says, "and we would have lunch or dinner at every meeting. He was always asking, where was I with this wisdom stuff?"

The answer would soon be: nowhere. In 1982, Clayton published her last paper on wisdom. By then, she had applied for, but failed to receive, a grant from the National Institute on Aging to pursue the wisdom studies, had quit her position as assistant professor at Columbia University Teachers College and left academia for good. Part of the reason was that she recognized her own limitations in studying a very diffuse topic. "I was lost in the Milky Way of wisdom," she admits, "and each star seemed as bright as the next. Ultimately that's why I didn't continue with it." The universe shifted to Berlin, and the working definition of wisdom acquired a German accent.

THE BERLIN WISDOM PARADIGM, as it came to be called, was built in part on research using hypothetical vignettes to discern wise and unwise responses to life dilemmas. "A 15-year-old



Among all Americans 45-64 in 2004, **10.5** deaths per 100,000 people were due to guns, compared with **17.6** deaths in 1970. Among African-Americans of those ages, gun-related deaths fell to **18.3** per 100,000 people, from **71.1**.

girl wants to get married right away," one vignette suggested. "What should one/she consider and do?"

A wise person, according to the Berlin group, would say something like: "Well, on the surface, this seems like an easy problem. On average, marriage for 15-year-old girls is not a good thing. But there are situations where the average case does not fit. Perhaps in this instance, special life circumstances are involved, such as the girl has a terminal illness. Or the girl has just lost her parents. And also this girl may live in another culture or historical period. Perhaps she was raised with a value system different from ours. In addition, one has to think about adequate ways of talking with the girl and to consider her emotional state."

That reply may seem tentative and relativistic, but it reflects many aspects of wisdom as defined by the Berlin Wisdom Project, which began in 1984 under the leadership of Baltes, who along with Birren had championed the search for late-life potential. Born in 1939 in Germany, Baltes had established a reputation as a leading quantitative psychologist by the time he returned to Germany in 1980 to become director of the Max Planck Institute for Human Development in Berlin. There, Baltes and many collaborators — including Jacqui Smith (now at the University of Michigan), Ursula M. Staudinger and Ute Kunzmann — embarked on an ambitious, large-scale program to, as they put it, "take wisdom into the laboratory."

Boiled down to its essence, the "Berlin Paradigm" defined wisdom as "an expert knowledge system concerning the fundamental pragmatics of life." Heavily influenced by life-span psychology, the Berlin version of wisdom emphasized several complementary qualities: expert knowledge of both the "facts" of human nature and the "how" of dealing with decisions and dilemmas; an appreciation of one's historical, cultural and biological circumstances during the arc of a life span; an understanding of the "relativism" of values and priorities; and an acknowledgment, at the level of both thought and action, of uncertainty. "We picked up from the philosophical literature that wisdom is like a peak performance," Smith says. "It's the highest level of potential or achievement that a human mind might be able to achieve." And so the Berlin group focused more on expertise and performance than on personality traits, because such an approach lent itself to more rigorous measurement than the typical self-report tests of psychological research.

"Wisdom in action," as the Berlin group put it, might manifest itself as good judgment, shrewd advice, psychological insight, emotional regulation and empathetic understanding; it could be found in familial interactions, in formal writing and in the relationship between a student and mentor or a doctor and patient. Yet by its very nature, the researchers conceded, wisdom was a utopian con-

cept that was virtually unattainable. Baltes and Staudinger pointed out in one paper that "wisdom is a collectively anchored product and that individuals by themselves are only 'weak' carriers of wisdom." They generally did not see wisdom as the function of personality. As Smith puts it: "We went in the other direction and tried to define what a product might be. Not the person as such, but rather some sort of performance that we could assess." In evaluating the wisdom of Gandhi, for example, they focused on his speeches and writings.

One instrument the Baltes group developed to measure wisdom was posing open-ended, hypothetical questions like the one about the 15-year-old girl who wanted to marry. (In their view, a reply garnering a low wisdom-related score would be an inflexible, authoritative response like: "No, no way, marrying at age 15 would be utterly wrong. One has to tell the girl that marriage is not possible.... No, this is just a crazy idea.") These vignettes located wisdom firmly in the universe of problem-solving around significant life events — from issues like choosing a career versus child-rearing to facing decisions about early retirement to dealing with a diagnosis of cancer.

The Germans were among the first to reach what is now a widespread conclusion: There's not a lot of wisdom around. Of the 700 people assessed, "we never found a single person who gained top scores across the board," Smith wrote in an e-mail message. They also punctured one conceit about growing old when they found no evidence, in four different studies, that wisdom, as they defined it, necessarily increases with age. Rather, they identified a "plateau" of wisdom-related performance through much of middle and old age; a separate study by the group has indicated that wisdom begins, on average, to diminish around age 75, probably hand in hand with cognitive decline. Nonetheless, the Baltes group suggested in one paper that there might be an optimal age and that "the 'world record' in wisdom may be held by someone in his or her 60s."

The Berlin Wisdom Project made a huge impact on the handful of people interested in wisdom research; by one account, academic "wisdom" publications numbered only two or three a year before 1984 but had grown to several dozen a year by 2000. But the German research, though much admired, did not overcome many of the mainstream reservations in academia. Jacqui Smith, who was collaborating with Baltes on one of his final wisdom papers when he died of cancer last fall at age 67, says wisdom studies remain on the fringe of academic respectability.

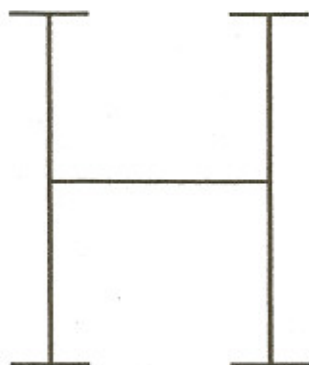
Even some wisdom researchers found the Berlin wisdom studies to be abstract and difficult to understand, and although emotion was always part of the formula, it struck some people as secondary to the emphasis on expert knowledge. "It's great work, and



This year, **67%** of 50-year-olds are married, compared with **83%** in 1967; **11%** have never been married, compared with **5%** in 1967.

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they've looked at it more closely than anybody else," says Laura L. Carstensen, a psychologist who directs the Center on Longevity at Stanford University. "But one of the critiques people have had is that they left emotion out of it. I don't think you can have wisdom without having emotional regulation be a part of it."



**OW MIGHT EMOTION** be important to wisdom? Consider C., a 67-year-old mother of seven children who lives in Gainesville, Fla. Her life has not been without heartache or emotional tumult. She grew up poor, and she has been drawn into custody battles and financial imbroglios with in-laws. More significant, one of her children was born with cerebral palsy; rather than place the child in a home, as some urged her to do, she insisted on caring for and raising him

at home with the rest of the family. "I would put my healthy kids in a home first," she told doctors at the time, "instead of putting a baby in there that can't talk for himself." Despite years of challenge (the son eventually died at age 12), C. managed to maintain a kind of emotional equilibrium. "I don't sit around and dwell on bad things," she said. "I don't have time for it, really. There's so many good things you can do."

C., who appears as a pseudonym in the psychological literature, is arguably one of the few certifiably wise people in the world—"certified" in the sense that she scored well above average in a "Three-Dimensional Wisdom Scale" developed by Monika Ardel, a German-born sociologist at the University of Florida in Gainesville.

In 1990, as a graduate student at the University of North Carolina, Ardel wanted to identify factors that contributed to a sense of life satisfaction and well-being in old age and began to focus on the acquisition of wisdom. She discovered Vivian Clayton's early research, which made emotion a central part of wisdom, and she began to build upon Clayton's framework. By 1997, Ardel had joined the faculty at the University of Florida, and she received a grant from the National Institutes of Health and the National Institute on Aging to develop a psychological test to assess wisdom. She was interested in investigating measures of wisdom and looking at a trait that often goes by the name "resilience"—how some older people are able to deal with adversity and bounce back emotionally while others cannot. Indeed, as she has noted, "successfully coping with crises and hardships in life might not only be a hallmark of wise individuals but also one of the pathways to wisdom."

Thus, beginning in December 1997, Ardel began to recruit 180 senior citizens at churches and community groups in north-central Florida to participate in what she called a "Personality and Aging Well Study." The participants did not know that one purpose of the study was to road-test a series of questions designed to assess general wisdom. In Ardel's working definition, wisdom integrated three separate but interconnected ways of dealing with the world: cognitive, reflective and emotional. Hence, a "three-dimensional" wisdom scale, which, according to the habit of psychological measures, is designated "3D-WS." The cognitive aspect, for example, included the ability to understand human nature, perceive a situation clearly and make decisions despite ambiguity and uncertainty. The reflective sphere dealt with a person's ability to examine an event from multiple perspectives—to step outside oneself and understand another point of view. And the emotional aspect primarily involved feeling compassion toward others as well as an abil-

ity to remain positive in the face of adversity. In the initial phase, participants responded to 132 questions that probed for these qualities. Later, Ardel settled on 39 questions that, in her judgment, captured the elusive concept of wisdom.

There is, of course, something utterly quixotic about assessing human wisdom on the basis of a self-report test in which subjects agree or disagree with statements like "People are either good or bad" and "I always try to look at all sides of a problem." Yet the Three-Dimensional Wisdom Scale, Ardel argues, distinguished "how relatively wise older people cope with life crises in comparison to older people relatively low on wisdom." And when Ardel went back and intensively interviewed some of the subjects (including C.), a seasoned, pragmatic, everyday version of wisdom—wisdom with a small "w," you might say—emerged in their life stories.

J., who was also described in the literature, is an 86-year-old African-American man who is also no stranger to adversity. He went off to fight in World War II and, after experiencing the horrors of battle, suffered severe depression upon his return to the United States. He acquired an advanced degree and became a successful school administrator, although his marriage had fallen apart. He was devastated when his mother died. Yet he managed to step outside his immediate troubles to assess the situation with a detachment and graceful calm that helped him cope during times of adversity. "I've had as much bad things to happen as good things, but I've never allowed any outside force to take possession of my being," he explained. "That means, whenever I had a problem, I went to something wholesome to solve it." One of the "wholesome" things that helped, he said, was bowling.

The popular image of the Wise Man usually does not include a guy in a bowling shirt, but several qualities have emerged again and again in older people like J. who score high on Ardel's wisdom scale. They learn from previous negative experiences. They are able to step outside themselves and assess a troubling situation with calm reflection. They recast a crisis as a problem to be addressed, a puzzle to be solved. They take action in situations they can control and accept the inability to do so when matters are outside their control.

All these sound like noble attributes, but the litany of qualities is so squishy that the definition of wisdom begins to resemble a multicar pileup of platitudes. One person's positive attitude might be another person's form of self-delusion; perceiving one's limitations might be another name for passivity or indecision or lack of persistence. The common-sense language of wisdom often teeters between proverb and cliché. In fact, the Berlin group mounted an extensive study of proverbs as a way of thinking about wisdom, and Ardel cites the well-known serenity prayer as an example of a proverb that emphasizes the discernment implicit in wisdom. (This is the saying that goes, "God grant me the serenity to accept the things I cannot change; the courage to change the things I can; and the wisdom to know the difference.")

But as I read the undeniably self-satisfied profiles in wisdom published by Ardel, they reminded me that wisdom unfolds on many stages and very much depends on the *dramatis personae*. We tend to think of wisdom as a Cecil B. De Mille production in human enlightenment, with Biblical sets and King Solomon (or some similarly commanding figure) talking down to us from a position of social and moral authority. But in our daily negotiation with the improvident turns of an imperfect world, we probably need a more personal form of wisdom in dealing with in-laws or coping with financial stresses. Perhaps the most important yin-yang of wisdom may be the different shapes it takes in the public and private domains. The public face of wisdom has to do with leadership, judgment and a responsibility to the collective future, offering a kind of moral inspiration to do the greatest good for the greatest



Of people 45-64, **30%** of blacks, **24%** of whites, and **21%** of Hispanics smoke.



This year, 31% of 50-year-olds have completed four years or more of higher education, compared with 8% in 1967; 9% had not completed high school, compared with 51% in 1967.

number of people; this is the face that emerges when people are asked in surveys to name people they consider to be wise (the nominees invariably include people like Martin Luther King Jr., Nelson Mandela, Mother Teresa and again Gandhi). The private face of wisdom may be Vivian Clayton's father, my parents, your Uncle Myron. By comparison, the example of their wisdom is invisible to all but the inner circle of kin and acquaintances that benefit each day, in myriad specific ways, from the exercise of wisdom.

If nothing else, the 3D-WS studies suggest that a kind of wisdom can arise in ordinary people from unexpected backgrounds. With Ardel's help, I had an opportunity to speak with some of the people who ranked high on her wisdom scale: C., it turns out, grew up on a tobacco farm in Kentucky, never finished high school and harbored no greater ambition than to have children. "We're not mountaineers," she told me, "but we are hillbillies."

Ardelt is now testing her wisdom scale on a different population. In collaboration with George E. Vaillant, a Harvard Medical School psychiatrist affiliated with Brigham and Women's Hospital in Boston, she is assessing a group of Harvard University graduates who have been faithfully filling out psychological surveys every two years since they began college in the late 1930s. "I have identified people I consider wise and people I consider relatively low in wisdom," says Ardel, who is still analyzing the data. People who rated high in wisdom, she adds, were "very generous," both financially and emotionally; among those who rated low in wisdom, "there was this occupation with the self."



ARDELT ACKNOWLEDGES THAT no one really knows what wisdom is. "I like my definition," she says. "The Baltes people like their definition, and Sternberg likes his. There's no agreement on what wisdom is, and that's the fuzzy part. We're not there yet."

The "fuzziness" of wisdom studies scares many people away from the subject; as James Birren and Cheryl Svensson noted recently, the 13 chapters of Sternberg's 1990 collection "Wisdom"

offer 13 different approaches, and many self-respecting psychologists and neuroscientists fairly flee from the suggestion that they are investigating the biological basis of wisdom. Yet many of the emotional and cognitive traits that rank high on current research agendas — resilience, positivity, expert knowledge systems, cognitive processing and especially the regulation of emotion — closely overlap with qualities that have been consistently identified by Clayton, Baltes, Ardel and other social scientists as crucial to wisdom.

One of the most interesting areas of neuroscience research involves looking at the way people regulate their emotions and how that regulation can change over the course of a lifetime. Laura Carstensen of Stanford University has produced a substantial body of research over the past two decades showing that the ability to focus on emotional control is tightly linked to a person's sense of time and that older people in general seem to have a better feel for keeping their emotions in-balance. This has emerged in part from a long-running research project known informally at Stanford as the "beeper study."

In 1994, Carstensen and her colleagues provided nearly 200 Northern California residents, young and old, with electronic pagers; since then, in several waves of data collection, the subjects have been beeped at random times, up to five times a day over the course of a week, and asked to describe the emotions they are

feeling at that exact moment. For Jan Post, who lives north of San Francisco, several of these beeps arrived when she was, as she put it, "doing what husbands and wives are supposed to do." Daniel Zucker's pager pulsed on occasion when he was in meetings at work or driving on the highway. Whatever they were doing, the subjects paused to fill out a questionnaire reporting the intensity of 19 emotions ranging from anger to happiness to boredom. As part of the ongoing study, participants are now coming into the Stanford lab for intense psychological testing, which often includes a session in brain-scanning machines.

What the Stanford researchers have found — in the laboratory and out in the world — is that despite the well-documented cognitive declines associated with advancing age, older people seem to have figured out how to manage their emotions in a profoundly important way. Compared with younger people, they experience negative emotions less frequently, exercise better control over their emotions and rely on a complex and nuanced emotional thermostat that allows them to bounce back quickly from adverse moments. Indeed, they typically strive for emotional balance, which in turn seems to affect the ways their brains process information from their environment.

On a recent spring day in Palo Alto, Calif., for example, the Stanford researchers put 67-year-old N., a very nice, good-natured subject of the beeper study, through a battery of cognitive and emotional assessments. She repeatedly filled out questionnaires asking her to gauge the intensity of her emotions; took a vocabulary test; endured a wearying series of tasks designed to assess the quality of her memory; and before the two-day gantlet of testing was done, would also undergo functional magnetic resonance imaging (f.M.R.I.) of her brain while she performed a monetary-reward task and viewed pictures laden with positive and negative emotional content. Every once in a while, she was asked to chew on a piece of cotton until it was saturated with saliva (a test for the stress hormone cortisol).

These laboratory sessions are not without their frustrating moments, and the low point for N. occurred in the middle of a Tuesday afternoon, when she was asked to perform two different tasks: public speaking and a maddening mathematical task that involved a formula for counting backward as fast as she could. Every time N. made a mistake, and she made quite a few, a humorless examiner would say, "Error," and ask her to start again. She became so flustered that she'd pretzeled her body into an amper-sand and kept repeating, "Gosh, I can't even think...." Later she confided, "I was almost in tears right after doing those numbers." But by the time N. completed the final task of the day, which asked her to rate her emotions on a scale of one (for low) to seven (for high), she appeared to have rebounded quite nicely.

"Happiness is a seven," she said with a triumphant laugh, checking the last box on the questionnaire. "I'm getting out of here!"

That, in a sense, is the take-home message of the "beeper study," too. The results suggest that older people on average are more even-keeled and resilient emotionally. "Younger people tend to be either positive or negative at any given point in their daily life," Carstensen says, "but older people are more likely to experience mixed emotions, happiness and a touch of sadness at the same time. Having mixed emotions helps to regulate emotional states better than extremes of emotion. There's a lot of loss associated with aging, and humans are the only species that recognizes that time eventually runs out. That influences the motivation to savor the day-to-day experiences you have, it allows you to be more positive. Appreciating the fragility of life helps you savor it." Fredda Blanchard-Fields of the Georgia Institute of Technology has produced a series of studies showing that the emotional equilibrium of older people allows them to negotiate solutions to interpersonal problems better than younger people. "She wouldn't call it research

on wisdom," Carstensen says of Blanchard-Fields, "but I would."

Carstensen and her colleagues believe that this motivation to focus less on the negative is probably unconscious and shaped by one's sense of time. "According to our theory, this isn't a quality of aging per se, but of time horizons," she says. "When your time perspective shortens, as it does when you come closer to the ends of things, you tend to focus on emotionally meaningful goals. When the time horizon is long, you focus on knowledge acquisition." As time horizons shorten, she added, "things become much clearer, because people are letting their feelings navigate what they do, who they spend time with, what are the choices they're making in life, and it's about *right now*."

Carstensen calls this "socioemotional selectivity theory" and says that in the shortened time perspective of old age, people are motivated to focus on the positive in a way that registers as a difference in cognitive processing in the brain. "I'm not a 'wisdom person,'" she said in a recent conversation in her office. But she readily agreed that many elements of emotional regulation seen in older adults are "absolutely" consistent with qualities that have long been identified by the wisdom researchers.

This is all of a piece with life-span development theory (Carstensen got her Ph.D. in a program founded by Paul Baltes), which has as a central precept the idea that the decisions one makes at each stage of life involve trade-offs. As Carstensen puts it, "There's always a cost, always a tension, between selecting any goal." She and her colleague Corinna E. Löckenhoff have speculated that there may even be good evolutionary reasons for this division between knowledge acquisition and emotional fulfillment. Acquiring knowledge (and paying close attention to threat and danger) increases the likelihood that young people will survive to reproductive age; emphasizing emotional connection and kinship at an older age may increase the survival ability of one's children and grandchildren (and their genes) in the future. "If you invest increasingly in those people related to you," Carstensen says, "then you are investing in your own genes' survival."

This "positivity" effect may even have long-term health consequences. Although the findings haven't been peer-reviewed or published, Carstensen said preliminary results from the small sample in the ongoing "beeper" experiment indicate that people who didn't regulate their emotions well as adults and were relatively more negative at the start of the study "were more likely to be dead" 10 years later, independent of their health status at the beginning of the experiment.

This intriguing correlation between positivity and longevity has been seen elsewhere. In 2002, Becca Levy, a psychologist at Yale University, collaborated with researchers for the Ohio Longitu-

dinal Study, who have been following aging in a cohort of people since 1975, and they made a very surprising finding: older people with a more positive attitude toward old age lived seven and a half years longer. "It's a pretty robust effect," says Suzanne Kunkel, the gerontologist who heads the Ohio study. "People with a positive perception of aging, of themselves as an aging person, seem to have a longevity advantage." But there may also be downsides to positivity; and Carstensen's lab is investigating that possibility. Older people who are inclined to tune out the negative and focus on the positive, she says, might be more vulnerable to confidence scams and make bad, overly trusting decisions.

Richard J. Davidson, a neuroscientist at the University of Wisconsin, has been looking at patterns of brain activity associated with emotional regulation in a small group of older people who have participated in the Wisconsin Longitudinal Study. In a paper published last year, the Wisconsin team reported that older adults (the average age was 64) who regulated their emotions well showed a distinctly different pattern of brain activity than those who didn't. These people apparently used their prefrontal cortex, the part of the brain that exerts "executive control" over certain brain functions, to tamp down activity in the amygdala, a small region deep in the brain that processes emotional content, especially fear and anxiety. In people who are poor regulators of emotion, activity in the amygdala is higher, and daily measurements of the stress hormone cortisol follow a pattern that has been associated with poor health outcomes.

"Those people who are good at regulating negative emotion, inferred by their ability to voluntarily use cognitive strategies to reappraise a stimulus, show reductions in activation in the amygdala," says Davidson, who added that such regulation probably results from "something that has been at least implicitly trained over the years." It is difficult (not to say dangerous) to generalize from such a small, focused study, but the implication is that people who learn, or somehow train themselves, to modulate their emotions are better able to manage stress and bounce back from adversity. Although they can register the negative, they have somehow learned not to get bogged down in it. Whether this learning is a form of "wisdom" accumulated over a lifetime of experience, as wisdom researchers see it, or can be acquired through training exercises like meditation, as Davidson's previous research has shown, the recent message from neuroscience laboratories is that the optimal regulation of emotion can be seen in the brain.

Similarly, several years ago, Carstensen; Mara Mather of the University of California at Santa Cruz; John Gabrieli, a neuroscientist now at the Massachusetts Institute of Technology; and several colleagues performed f.M.R.I. studies of young and old people



92% of Americans 40 or older say their relationship with their partner is emotionally satisfying, compared with 81% in France and 79% in both Egypt and Israel.

## WISE COUNSEL

HOW RESEARCHERS ELICIT THE ADVICE PEOPLE GIVE TO JUDGE THEIR WISDOM.

Since 1994, researchers affiliated with the Berlin Wisdom Project at the Max Planck Institute for Human Development in Berlin have tried to develop psychological tests to measure wisdom. In one common test, more than 700 subjects have been asked to respond to hypothetical situations concerning pivotal life events like divorce and

job loss, as well as life assessments; the replies were then analyzed according to the criteria of the Berlin Wisdom Paradigm and rated on such qualities as knowledge about human nature, acknowledgment of uncertainty and an appreciation of relativistic attitudes. Here are some examples of the situations and questions presented.

**Michael**, a 28-year-old mechanic with two preschool-aged children, has just learned that the factory in which he is working will close in three months. At present, there is no possibility for further employment in this area. His wife recently returned to her well-paying nursing career. Michael is considering

the following options: He can plan to move to another city to seek employment, or he can plan to take on full responsibility for childcare and household tasks. What should Michael do and consider in making his plans? What additional information is needed?

**Mary** was given a diagnosis of cancer. The doctors told her that she has one year to live. Mary is now thinking about what she should do. Among other options, she can try, as much as possible, to continue living the way she has been; or she can make a drastic change in her life. What should Mary do and consider in making her plans? What additional information is needed?

**A middle-aged woman** had once decided to concentrate on her family and not take up a profession. Her children are about to leave home. One day she meets an old friend whom she has not seen in a long time. This friend had decided to concentrate on her career rather than starting a family. She is well established in her profession. The meeting prompts the woman to review the life she has led so far. What might such a life review look like? Which aspects of her life might she recall? How might she explain her life course and the motives for her actions? How might she evaluate her life in retrospect?



IN HIS 1890  
BOOK 'THE PRINCIPLES  
OF PSYCHOLOGY,'  
WILLIAM JAMES OBSERVED, 'THE ART  
OF BEING WISE  
IS THE ART OF KNOWING WHAT  
TO OVERLOOK.'  
IN MODERN NEUROSCIENCE,  
JOHN GABRIELI SAYS,  
'YOU COULD SAY THAT IN OLDER  
PEOPLE THE AMYGDALA  
IS OVERLOOKING  
THE NEGATIVE.'

to see whether the ability to regulate emotions left a trace in the amygdala. The study indicated that the amygdala in young people becomes active when they view both positive and negative images; the amygdala in older people is active only when they view positive images. Put another way, young people tend to cling to the negative information, neurologically speaking, while older people seem better able to shrug it off and focus more on positive images. This neural selectivity, this focus on the positive, is virtually instantaneous, Gabrieli says, and yet probably reflects a kind of emotional knowledge or experience that guides cognitive focus; Carstensen says older people "disattend" negative information. This "disattention" also echoes some very old thoughts on wisdom. In his 1890 book "The Principles of Psychology," William James observed, "The art of being wise is the art of knowing what to overlook." In modern neuroscience parlance, Gabrieli says, "you could say that in older people the amygdala is overlooking the negative."

MUCH OF THE RESEARCH to date has reflected a predominantly Western notion of wisdom, but its definition can be further muddled by cultural vagaries. In one cross-cultural study, researchers found that Americans and Australians essentially equated being wise with being experienced and knowledgeable; being old and discreet were seen as less-than-desirable qualities. People in India and Japan, by contrast, linked wisdom to being discreet, aged and experienced.

Nevertheless, the notion of wisdom is sufficiently universal that it raises other questions: Where does it come from, and how does one acquire it? Surprisingly, a good deal of evidence, both anecdotal and empirical, suggests that the seeds of wisdom are planted earlier in life — certainly earlier than old age, often earlier than middle age and possibly even earlier than young adulthood. And there are strong hints that wisdom is associated with an earlier exposure to adversity or failure. That certainly seems to be the case with emotional regulation and is perfectly consistent with Carstensen's ideas about shifting time horizons. Karen Parker and her colleagues at Stanford have published several striking animal studies showing that a very early exposure to mild adversity (she calls it a "stress inoculation") seems to "enhance the development of brain systems that regulate emotional, neuroendocrine and cognitive control" — at least in nonhuman primates. Some researchers are also exploring the genetic basis of resilience.

The Berlin group reported that the roots of wisdom can be

traced, in some cases, to adolescence. Jacqui Smith points out that many of the people in the Berlin Aging Study survived two world wars and a global depression; the elderly people who scored high on Monika Ardel's wisdom scale also reported considerable hardship earlier in their lives.

This notion that wise people might have been "vaccinated" earlier in life by adversity reminded me of Vivian Clayton's father, sitting next to his frail mother in London while the German bombs rained down around them, celebrating their survival each time with a cup of tea. It also made me curious about Clayton, who disappeared from academia in 1981. I managed to track her down through a short item on the Internet, which described a psychologist of the same name who tended bees as a hobby in Northern California. It turned out to be the same Vivian Clayton, and she agreed to meet with me at her office in Orinda on a sunny March morning, a few hours before seeing her first patient of the day.

Now 56 — "and proud of it," she said — Clayton turned out to be a vivacious woman with a soothingly enthusiastic voice. After all the abstraction involved in thinking about wisdom, she had turned to a more pragmatic role as a geriatric neuropsychologist, helping families and lawyers determine mental capacity in older people experiencing cognitive declines; in fact, she helped write the California State Bar manual for making these determinations. She never contributed anything to the wisdom field after 1982, although Paul Baltes continued to send her papers from Berlin and Monika Ardel has occasionally sought her counsel. I asked her if she regretted not continuing in the field, and she said not at all. "I reached a fork in the road," she said. "Wisdom can be a very abstract concept, and as I got older, I gravitated to more practical approaches."

We talked about wisdom in contemporary culture, and gradually the conversation turned to bees. "You know, bees have been around for hundreds of million of years, at least, as living creatures," Clayton said. "And when you work a hive, and you're there with that hive alone, and you hear how *contented* the bees are, you just have the sense that they have the pulse of the universe encoded in their genes. And I really feel that the concept of wisdom is like that, too. Somehow, like the bees, we are programmed to understand when someone has been wise. But what wisdom is, and how one learns to be wise, is still somewhat of a mystery." ■

➤ ARE YOU WISE? Measure your wisdom by answering a questionnaire by Monika Ardel, a sociology professor at the University of Florida in Gainesville: [nytimes.com/magazine](http://nytimes.com/magazine).



This year, 79% of 50-year-old women are working or looking for a job, compared with 57% in 1967. Of those with jobs, 83% work full time, compared with 75% in 1967.