



"A sparkling book that illuminates and inspires."

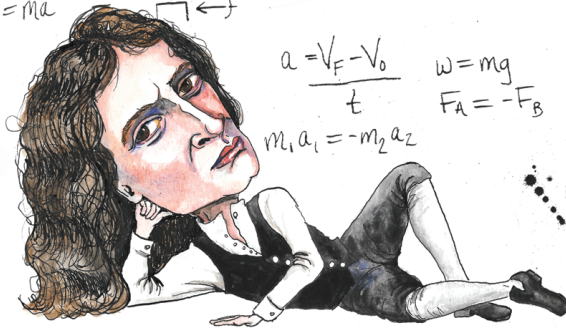
—Jon Meacham



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$$w = mg$$

$$F_A = -F_B$$

$$m_1 a_1 = -m_2 a_2$$



**How Genius Ignites,  
From Child Prodigies  
to Late Bloomers**

# Spark



**Claudia Kalb**

New York Times best-selling author of *Andy Warhol Was a Hoarder*



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Prodigies to Late Bloomers**

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To my grandparents,  
Bella, Max, Sue, and Sam,  
and to those who came before them.  
And to the prodigies, midlifers,  
and late bloomers in all of us.

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# Introduction

**W**hen I was child, I spent a lot of time wondering when I would know what I wanted to be. I've loved to write for as long as I can remember, and I spent many afternoons skimming through the pages of my parents' *New Yorker* magazines before I could make sense of the stories. Words fluttered through my mind like confetti at a ticker-tape parade.

Still, my path to becoming a writer was circuitous, and I have long been fascinated by the journeys of others. What role do our personality traits play in the livelihoods we pursue? Are we born with talent or lured by passion? How do we discover the spark that fuels our souls? And how do we know when we've found it?

These questions, which have stoked the minds of philosophers and psychologists for centuries, inspired me to explore the trajectories of 13 iconic figures who left colossal footprints in a variety of fields—from art and music to medicine, business, and politics. In my research, I became especially intrigued by the time line of discovery, which shapes the arc of this narrative. What propels some individuals to reach extraordinary creative heights in the earliest years of life while others uncover their destiny decades later?

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The chapters in this book, best read sequentially, are organized not by birth order, but by the age at which genius ignites. Child prodigies Pablo Picasso, Shirley Temple, and Yo-Yo Ma, whose talents earned them acclaim in early childhood, launch the book, followed by Bill Gates, Isaac Newton, and entrepreneur Sara Blakely, whose moments of inspiration span the ages between 13 and 27. Julia Child, Maya Angelou, and Alexander Fleming constitute what I call midlifers—people whose momentous experiences transpired in their 30s and 40s. The chapters close with late bloomers Eleanor Roosevelt, Peter Mark Roget of *Roget's Thesaurus* fame, and the painter Anna Mary Robertson Moses, also known as Grandma Moses, all of whom initiated their most enduring work in the final decades of their lives.

I studied these individuals through a journalistic lens, conducting interviews and reporting on-site where possible, and bolstered my knowledge by delving into letters, memoirs, and biographies. At Woolthorpe Manor, north of London, I stood in Isaac Newton's bedroom, with its limestone walls, and took in the view of his famed apple tree out the window. I went inside Alexander Fleming's lab, where he discovered penicillin, and took Eleanor Roosevelt's favorite walk through the woods at Val-Kill, her home in upstate New York. I listened to Yo-Yo Ma perform Bach's Cello Suites live at the Washington National Cathedral and at Tanglewood, and heard Sara Blakely speak to a group of entrepreneurs about her journey to founding Spanx, her multimillion-dollar clothing and shapewear company. Where possible, I talked to family members of the historical individuals profiled in these pages. I drew on a conversation I had with Ma for a magazine feature, and I interviewed Gates and Blakely.

From the cradles of civilization to the 21st century—Aristotle and Sappho to Jane Goodall, Alvin Ailey, and Isabel Allende—great minds have changed the way we understand ourselves and the world we inhabit. Their momentous achievements have fostered energetic

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debates about the inner workings of the brain and human behavior, and about how we judge ingenuity in art, music, literature, science, medicine, and technology. What are the origins of genius? What makes a genius? What *is* a genius?

This is inherently complicated terrain. Entire books, many of which informed my research, have attempted to explain human virtuosity. In these pages, I interpret the term with some degree of latitude. In certain cases, an individual's contributions are so immense and enduring that no other term seems sufficient. In others, the word acts more as an adjective describing a breakthrough or piece of creative work: The innovation itself is genius and the person who came up with it deserves ample recognition because of it.

Philosophers have long pondered the origins of genius. Plato described inspiration as a gift from the gods and likened the poet and prophet to an “empty vessel filled with divine infusion,” says historian Darrin McMahan, author of *Divine Fury: A History of Genius*. Aristotelian thinkers, by contrast, attributed brilliance at least in part to biology, theorizing that an overabundance of black bile—one of the four bodily humors proposed by Hippocrates—endowed eminent souls with superior powers. Phrenologists attempted to find genius in bumps on the head; craniometrists collected skulls, which they probed, measured, and weighed.

Child prodigies, whose talent appears early in life, raise an eternally debated question: Is genius born or made? In the 19th century, the polymath Francis Galton proposed that the trait was passed down through family bloodlines; he mapped the lineages of an array of European leaders in disparate fields—from Mozart and Haydn to Byron, Chaucer, Titus, and Napoleon—to make his case. In 1869, Galton published his findings in *Hereditary Genius*, a book that launched the “nature versus nurture” debate and also spurred the misbegotten field of eugenics.

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A century later, the focus shifted again—this time from pedigree to sweat equity. In a consequential 1993 study, psychologist Anders Ericsson and colleagues reported that the difference between elite and amateur musicians correlated strongly with how much time they spent in intensive study, or what Ericsson called “deliberate practice.” These findings spawned the popularized notion that 10,000 hours of serious practice can lead to expert performance—a formula that vastly oversimplified Ericsson’s research but was nonetheless seized upon by self-help gurus promising greatness in anyone determined enough to seek it. The reality almost certainly lies in between: Early ability engenders enthusiasm and drive, which leads to dedication and a desire to excel—a combination of nature and nurture.

No one has discovered a single source of genius, and such a thing will almost certainly never be found. But genius captivates us because of the vast potential it reveals. How can we, biological organisms comprised of 37 trillion cells, map a pathway to the moon, compose symphonies, solve mathematical quandaries, write poetry, and design new wireless technologies, one more mind-boggling than the next?

The subject of genius does not define the individuals in these pages. Instead, I use it as a framework to explore their lives through its core features: intelligence, creativity, perseverance, and luck. Although the 13 figures featured here differ in numerous ways—the eras in which they were born, the privileges and traumas they endured, the livelihoods they pursued—they share some combination of these characteristics, which have fostered their achievements and serve as common threads tying the first page to the last.



Intelligence has long been measured by a standardized IQ test, which evaluates a person’s ability to perform challenging cognitive tasks—

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mastering word puzzles or using logic to solve mathematical problems—to determine a score for “general intelligence.” But the brilliance exhibited by the individuals profiled here clearly reveals that intelligence flourishes in different realms and in different ways. Bill Gates showed a remarkable aptitude for math beginning in childhood, an ability to think in numbers that seemed to come naturally. Maya Angelou had a facility for crafting imagery through words. Julia Child knew how to connect to people; her husband, Paul, dubbed this ability “*la Juliafication des gens*—the Juliafication of people,” according to Child’s grandnephew Alex Prud’homme. “She could charm a polecat,” Paul marveled.

Pioneering achievements in any field would be impossible without creativity—an amalgamation of curiosity, openness to new experiences, imagination, and inventiveness. Yo-Yo Ma says his early childhood as an immigrant forged his quest to explore the world, inspiring his desire to connect people and culture through music. Isaac Newton had the vision to connect comets and falling apples to create a single law of universal gravitation. “He brought order out of chaos,” wrote physicist Paul R. Heyl. Pablo Picasso’s ability to see beyond the outlines of a human face upended conventional art. “With Picasso, the rules get exploded,” his grandson Bernard tells me. “He’s a kind of anarchist, but a creative one, not a destroyer.”

Every one of these individuals exhibited perseverance, the ability to withstand difficult circumstances and push through obstacles. Several lost parents early in life (Newton, Alexander Fleming, Eleanor Roosevelt, Peter Roget) or children of their own (Roosevelt’s third baby died; Anna Moses lost five of her 10 children). And in many cases, the trials of life inspired their work. Roosevelt overcame shyness and lack of confidence to become a public speaker and one of the great humanitarians of her generation. During the first half of her life, Angelou struggled to find meaningful work and later

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described those years as “a past of rejection, of slammed doors and blind alleys, of dead-end streets and culs-de-sac.” She lived with the traumas of racism and rape but was never defeated. Instead, she penned words of pain and glory.



The enigmatic circumstances of our lives—where we’re born, when we’re born, to whom we’re born—are defined by some measure of luck. Parents, teachers, and mentors play a pivotal role and come in myriad forms. Sara Blakely turns to a motivational speaker to help guide and buoy her. Roosevelt, orphaned at the age of nine, found comfort and counsel in an educator who nurtured her self-reliance and confidence. Gates’s parents supported him even when he decided to leave Harvard in his junior year to start Microsoft. “I knew it was safe to try new things,” he tells me, “because they were there for me.”

Timing and serendipity are often keys to success. Child discovered French cooking because her husband got a diplomatic job that landed them in Paris. Grandma Moses’ unlikely success as an octogenarian folk artist depended on a collector happening upon her paintings at a drugstore in Hoosick Falls, New York. Shirley Temple’s career as a child star coincided with America’s desire for an antidote to the Great Depression. Alexander Fleming’s discovery of penicillin might never have happened if he hadn’t left his lab dishes out on his worktable during a summer vacation.

In my research, I discovered numerous fallacies about how creative triumph comes to be. The notion of lone genius mythologizes the journey to achievement and has been replaced with an understanding that collaboration, in one form or another, is vital to the pursuit of new ideas. Newton’s revelations did not emerge solely from the depths

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of his own knowledge; he built on the foresight of scientists who came before him, including Copernicus, Galileo, and Descartes. Gates created Microsoft with Paul Allen and started his philanthropic foundation with his wife, Melinda. Angelou had an editor in Robert Loomis, who prodded her to write her first book and then encouraged and supported her through dozens more over their four-decade partnership. When he retired in 2011, she remarked, “I can’t imagine trusting a manuscript in the hands of anyone else.” Ma dedicates much of his musical performance to collaborations with other musicians; his 2020 album, *Not Our First Goat Rodeo*, unites him and his cello with instrumentalists who play fiddle, banjo, mandolin, guitar, and bass. They learn from one another.

There are misperceptions, too, about how talent plays out. The prodigies in these pages all exhibited an adeptness nurtured by parents, but they were also gripped by a fascination for their craft and worked hard to improve. Picasso never stopped experimenting, painting at all hours of the night. Ma was born to musical parents who recognized his ability, but he still had to sit at the cello and practice; his joy of playing kept him going. Temple had an endearing brightness and appeal that captivated her audience, but she knew what was required to excel. “The rules were simple,” she later wrote. “Hang on, keep tap shoes at the ready, and don’t spill milk in the car.”

Life trajectories do not follow a standard pattern. Most child prodigies do not grow up to be geniuses, no matter how flawlessly they master a skill; often, their solitary focus on a subject leaves them detached from peers and unable to navigate stresses as they age. Still, some prodigies do excel later in life, sometimes by choosing entirely new professions. After Shirley Temple retired from acting in early adulthood, she got married, raised three children, and kicked off a diplomatic career at the age of 41 that lasted more than two decades—the case of a prodigy and midlifer all in one.

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Many readers will be pleased to discover that, yes, there is still time. The middle decades of life, long reputed to be the crisis years, may serve as a reawakening—a period when inadequacy and self-doubt dissipate and confidence and happiness surge. For the midlifers in these pages, the accumulation of decades brought courage and wisdom. Julia Child capitalized on her middle-agedness to entice her fans. Alexander Fleming's years of scientific know-how prepared him to recognize the significance of his findings. "The 50s," Maya Angelou told Oprah Winfrey, "are everything you've been meaning to be."

For those who despair about aging and fear an inevitable slow-down, consider the experiences of Roosevelt, Roget, and Moses. The first lady spearheaded the passage of the Universal Declaration of Human Rights at the age of 64. Roget, trained as a doctor, launched his second career writing and revising his thesaurus in his 70s. Moses spent most of her early life working on a farm and raising children; she turned to painting as a grandmother seeking a sense of purpose. "I have been painting a long time," she told the *New York Times* in 1945, the year she turned 85. "I better try something else. Perhaps I shall start building houses."

In the years to come, we may well learn more about our life trajectories from a biological viewpoint. Neuroscientists are looking for clues into how the "aha moment" transpires at the cortical level and how traits like resilience surface. Investigations into how the brain ages are revealing evidence that our neurons are far more proliferative than previously thought, allowing for more learning and growth at later stages in life. These studies cannot change what gives us joy or who we want to be. But they may provide intriguing insights into what we are capable of doing.

My hope is that these profiles will not only illuminate the many junctures at which discovery can happen, but will also inspire those who are still searching for fulfillment. Some lives are linear while others



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zigzag; some embrace a childhood love, while others find fulfillment in retirement. Every figure in these pages proves to be wholly human, filled with his or her share of missed opportunities, defeats, insecurities, and bouts of unhappiness.

One thing we can learn from these individuals is that the traits we most admire in others do not always come easily and we may need to be intentional about choosing them for ourselves. To this end, Blakely tells me she sets out to be courageous. Ma and Angelou, who called herself “a contrived optimist,” make a determined point of being positive. “I have to really work very hard to find that flare of a kitchen match in a hurricane and claim it, shelter it, praise it,” Angelou once said. Genius need not be vaulted onto a pedestal.

As in my first book, *Andy Warhol Was a Hoarder: Inside the Minds of History's Great Personalities*, I came across unexpected links between individuals in these pages that I was not aware of when I began my research. Picasso and Newton were both so feeble at birth that they were feared dead. Temple and Angelou lived radically different but parallel lives: Both were born in April 1928 and died within three months of each other in 2014. Roosevelt visited Shirley Temple in Hollywood in 1938, and Temple picnicked on lamb chops, potato chips, and ice cream with the Roosevelts at Val-Kill, Eleanor's home in upstate New York, a few months later. Roosevelt and Grandma Moses met in Washington, D.C., in 1949, when both won achievement awards from the Women's National Press Club. Paul Child, Julia's husband, organized an exhibition of Moses' paintings in Paris in 1950. Angelou kept a copy of *Roget's Thesaurus* by her side when writing. Bill Gates and Yo-Yo Ma, born just weeks apart in October 1955, were both undergrads at Harvard in the early 1970s. These overlaps signal a connection I believe exists among all of us.

I completed this book in the spring and summer of 2020, as the coronavirus surged—a cataclysmic upheaval that will define the early

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21st century. The pandemic connected me to the past in a way I never expected when I began researching the historical figures I profile. I could not imagine the challenges that come with living through the onslaught of an unbridled virus prior to its emergence. For me, and I trust for readers as well, this experience makes the lives of several individuals in these pages ever more timely and relevant. Fleming witnessed the pernicious effects of the 1918 flu among soldiers and grappled with what caused it; his research helped inform his discovery of penicillin. Eleanor Roosevelt's husband, Franklin Delano Roosevelt, became sick with the 1918 flu while on a trip to Europe that summer—a turn of events that would change the course of the couple's relationship. And, most notably, Isaac Newton fled University of Cambridge in 1665 because of the spread of bubonic plague. His 17th-century quarantine in rural England—where his musings about calculus, gravity, and optics surged—suddenly became more tangible three and a half centuries later.

I felt, too, as if history were playing out before me as the three contemporary individuals in this book stepped up to offer their expertise as the world veered off-kilter: Blakely awarded five million dollars in loans to women struggling to run small businesses during the pandemic; Ma began streaming live performances to offer solace through music; and by midsummer, the Bill & Melinda Gates Foundation had pledged more than \$350 million to the global health response, including to find a vaccine.

These pages conclude with a tribute to Leonardo da Vinci, whom I wrote about in a *National Geographic* story published in May 2019, on the 500th anniversary of his death. My reporting took me from Vinci, the Tuscan village of Leonardo's birth, to Amboise, France, where he lived out the last months of his life. If there is an ultimate expression of genius, it is in the curiosity, wisdom, and knowledge that Leonardo left behind. The artist's observations and studies of the

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elements around him—shadow and light, plants and earth, water and sky, bird flight and human anatomy—provide us a road map to the life within and around us. Through Leonardo, we better understand our existence in the universe.

I am deeply hopeful that these pages will leave readers with a renewed intention to embrace their own genius and offer it compassionately to others. If we are wise navigators of our lives, perhaps we can entrust a legacy worthy of our children and grandchildren. As Eleanor Roosevelt wrote: “To leave the world richer—that is the ultimate success.”