A Man for All Markets
A L S O  B Y  E D W A R D  O .  T H O R P

*Beat the Dealer*

*Beat the Market*

*Elementary Probability*

*The Mathematics of Gambling*
A MAN
— for —
ALL MARKETS

Beating the Odds,
from Las Vegas to Wall Street

Edward O. Thorp
To Vivian and to our children and their families: Raun, Brian, and Ava;

Karen, Rich, Claire, Christopher, and Edward;

Jeff, Lisa, Kylie, and Thomas.
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Join me in my odyssey through the worlds of science, gambling, and the securities markets. You will see how I overcame risks and reaped rewards in Las Vegas, Wall Street, and life. On the way, you will meet interesting people from blackjack card counters to investment experts, from movie stars to Nobel Prize winners. And you’ll learn about options and other derivatives, hedge funds, and why a simple investment approach beats most investors in the long run, including experts.

I began life in the Great Depression of the 1930s. Along with millions of others, my family was struggling to get by from one day to the next. Though we didn’t have helpful connections and I went to public schools, I found a resource that made all the difference: I learned how to think.

Some people think in words, some use numbers, and still others work with visual images. I do all of these, but I also think using models. A model is a simplified version of reality, like a street map that shows you how to travel from one part of a city to another or the vision of a gas as a swarm of tiny elastic balls ceaselessly bouncing against one another.

I learned that simple devices such as gears, levers, and pulleys follow basic rules. You could discover the rules by experimenting and, if you
got them right, could then use the rules to predict what would happen in new situations.

Most amazing to me was the magic of a crystal set—an early primitive radio made with wire, a mineral crystal, and headphones. Suddenly, I heard voices coming from hundreds or thousands of miles away, carried through the air by some mysterious process. The notion that things I couldn’t even see followed rules I could discover just by thinking—and that I could use what I discovered to change the world—inspired me from an early age.

Because of circumstances, I was largely self-taught and that led me to think differently. First, rather than subscribing to widely accepted views—such as you can’t beat the casinos—I checked for myself. Second, since I tested theories by inventing new experiments, I formed the habit of taking the result of pure thought—such as a formula for valuing warrants—and using it profitably. Third, when I set a worthwhile goal for myself, I made a realistic plan and persisted until I succeeded. Fourth, I strove to be consistently rational, not just in a specialized area of science, but in dealing with all aspects of the world. I also learned the value of withholding judgement until I could make a decision based on evidence.

I hope my story will show you a unique perspective and that A Man for All Markets will help you think differently about gambling, investments, risk, money management, wealth-building, and life.
Ed Thorp’s memoir reads like a thriller—mixing wearable computers that would have made James Bond proud, shady characters, great scientists, and poisoning attempts (in addition to the sabotage of Ed’s car so he would have an “accident” in the desert). The book reveals a thorough, rigorous, methodical person in search of life, knowledge, financial security, and, not least of all, fun. Thorp is also known to be a generous man, intellectually speaking, eager to share his discoveries with random strangers (in print but also in person)—something you hope to find in scientists but usually don’t. Yet he is humble—he might qualify as the only humble trader on planet Earth—so, unless the reader can reinter-pret what’s between the lines, he or she won’t notice that Thorp’s contribu-tions are vastly more momentous than he reveals. Why?

Because of their simplicity. Their sheer simplicity.

For it is the straightforward character of his contributions and ins-sights that made them both invisible in academia and useful for practi-tioners. My purpose here is not to explain or summarize the book; Thorp—not surprisingly—writes in a direct, clear, and engaging way. I am here, as a trader and a practitioner of mathematical finance, to show
its importance and put it in context for my community of real-world scientist-traders and risk-takers in general.

That context is as follows. Ed Thorp is the first modern mathematician who successfully used quantitative methods for risk taking—and most certainly the first mathematician who met financial success doing it. Since then there has been a cohort of such “quants”, such as the whiz kids in applied mathematics at SUNY Stony Brook—but Thorp is their dean.

His main and most colorful predecessor, Girolamo (sometimes Geronimo) Cardano, a sixteenth-century polymath and mathematician who—sort of—wrote the first version of Beat the Dealer, was a compulsive gambler. To put it mildly, he was unsuccessful at it—not least because addicts are bad risk-takers; to be convinced, just take a look at the magnificence of Monte Carlo, Las Vegas, and Biarritz, places financed by their compulsion. Cardano’s book Liber de ludo aleae (“Book on Games of Chance”) was instrumental in the later development of probability, but, unlike Thorp’s book, was less of an inspiration for gamblers and more for mathematicians. Another mathematician, a French Protestant refugee in London, Abraham de Moivre, a frequenter of gambling joints and the author of The doctrine of chances: or, a method for calculating the probabilities of events in play (1718) could hardly make both ends meet. One can easily count another half a dozen mathematician-gamblers, including greats like Fermat and Huygens—who were either indifferent to the bottom line or not particularly good at mastering it. Before Ed Thorp, mathematicians of gambling had their love of chance largely unrequited.

Thorp’s method is as follows: He cuts to the chase in identifying a clear edge (that is something that in the long run puts the odds in his favor). The edge has to be obvious and uncomplicated. For instance, calculating the momentum of a roulette wheel, which he did with the first wearable computer (and with no less a coconspirator than the great Claude Shannon, father of information theory), he estimated a typical edge of roughly 40 percent per bet. But that part is easy, very easy. It is capturing the edge, converting it into dollars in the bank, restaurant meals, interesting cruises, and Christmas gifts to friends and family—
that’s the hard part. It is the dosage of your betting—not too little, not too much—that matters in the end. For that, Ed did great work on his own, before the theoretical refinement that came from a third member of the Information Trio: John Kelly, originator of the famous Kelly Criterion, a formula for placing bets that we discuss today because Ed Thorp made it operational.

A bit more about simplicity before we discuss dosing. For an academic judged by his colleagues, rather than the bank manager of his local branch (or his tax accountant), a mountain giving birth to a mouse, after huge labor, is not a very good thing. They prefer the mouse to give birth to a mountain; it is the perception of sophistication that matters. The more complicated, the better; the simple doesn’t get you citations, $H$-values, or some such metric *du jour* that brings the respect of the university administrators, as they can understand that stuff but not the substance of the real work. The only academics who escape the burden of complication-for-complication’s sake are the great mathematicians and physicists (and, from what I hear, even for them it’s becoming harder and harder in today’s funding and ranking environment).

Ed was initially an academic, but he favored learning by doing, with his skin in the game. When you reincarnate as practitioner, *you want the mountain to give birth to the simplest possible strategy*, and one that has the smallest number of side effects, the minimum possible hidden complications. Ed’s genius is demonstrated in the way he came up with very simple rules in blackjack. Instead of engaging in complicated combinatorics and memory-challenging card counting (something that requires one to be a savant), he crystallizes all his sophisticated research into simple rules: Go to a blackjack table. Keep a tally. Start with zero. Add one for some strong cards, minus ones for weak ones, and nothing for others. It is mentally easy to just bet incrementally up and down—bet larger when the number is high, smaller when it is low—and such a strategy is immediately applicable by anyone with the ability to tie his shoes or find a casino on a map. Even while using wearable computers at the roulette table, the detection of edge was simple, so simple that one can get it while standing on a balance ball in the gym; the fanciness resides in the implementation and the wiring.
As a side plot, Ed discovered what is known today as the Black-Scholes option formula, before Black and Scholes (and it is a sign of economics public relations that the formula doesn’t bear his name—I’ve called it Bachelier-Thorp). His derivation was too simple—nobody at the time realized it could be potent.

Now money management—something central for those who learn from being exposed to their own profits and losses. Having an “edge” and surviving are two different things: The first requires the second. As Warren Buffet said: “In order to succeed you must first survive.” You need to avoid ruin. At all costs.

And there is a dialectic between you and your P/L: You start betting small (a proportion of initial capital) and your risk control—the dosage—also controls your discovery of the edge. It is like trial and error, by which you revise both your risk appetite and your assessment of your odds one step at a time.

Academic finance, as has been recently shown by Ole Peters and Murray Gell-Mann, did not get the point that avoiding ruin, as a general principle, makes your gambling and investment strategy extremely different from the one that is proposed by the academic literature. As we saw, academics are paid by administrators via colleagues to make life complicated, not simpler. They invented something useless called utility theory (tens of thousands of papers are still waiting for a real reader). And they invented the idea that one could get to know the collective behavior of future prices in infinite detail—things like correlation, that could be identified today and would never change in the future. (More technically, to implement the portfolio construction suggested by modern financial theory, one needs to know the entire joint probability distribution of all assets for the entire future, plus the exact utility function for wealth at all future times. And without errors! [I have shown that estimation errors make the system explode.] We are lucky if we can know what we will eat for lunch tomorrow—how can we figure out the dynamics until the end of time?)

The Kelly-Thorp method requires no joint distribution or utility function. In practice, one needs the ratio of expected profit to worst-case
return—dynamically adjusted (that is, *one gamble at a time*) to avoid ruin. That’s all.

Thorp and Kelly’s ideas were rejected by economists—in spite of their practical appeal—because of economists’ love of general theories for all asset prices, dynamics of the world, etc. The famous patriarch of modern economics, Paul Samuelson, was supposedly on a vendetta against Thorp. Not a single one of the works of these economists will ultimately survive: Strategies that allow you to survive are not the same thing as the ability to impress colleagues.

So the world today is divided into two groups using distinct methods. The first method is that of the economists who tend to blow up routinely or get rich collecting fees for managing money, not from direct speculation. Consider that Long-Term Capital Management, which had the crème de la crème of financial economists, blew up spectacularly in 1998, losing a multiple of what they thought their worst-case scenario was.

The second method, that of the information theorists as pioneered by Ed, is practiced by traders and scientist-traders. Every surviving speculator uses explicitly or implicitly this second method (evidence: Ray Dalio, Paul Tudor Jones, Renaissance Technologies, even Goldman Sachs!). I said *every* because, as Peters and Gell-Mann have shown, those who don’t will eventually go bust.

And thanks to that second method, if you inherit, say, $82,000 from uncle Morrie, you know that a strategy exists that will allow you to double the inheritance without ever going through bankruptcy.

Some additional wisdom I personally learned from Thorp: Many successful speculators, after their first break in life, get involved in large-scale structures, with multiple offices, morning meetings, coffee, corporate intrigues, building more wealth while losing control of their lives. Not Ed. After the separation from his partners and the closing of his firm (for reasons that had nothing to do with him), he did not start a new megafund. He limited his involvement in managing other people’s money. (Most people reinte
reputation by raising monstrous amounts of outside money in order to
collect large fees.) But such restraint requires some intuition, some self-
knowledge. It is vastly less stressful to be independent—and one is never
independent when involved in a large structure with powerful clients. It
is hard enough to deal with the intricacies of probabilities, you need to
avoid the vagaries of exposure to human moods. True success is exiting
some rat race to modulate one’s activities for peace of mind. Thorp cer-
tainly learned a lesson: The most stressful job he ever had was running the
math department of the University of California, Irvine. You can detect
that the man is in control of his life. This explains why he looked younger
the second time I saw him, in 2016, than he did the first time, in 2005.

Ciao,
Nassim Nicholas Taleb
A MAN
— for —
ALL MARKETS
Chapter 1

LOVING TO LEARN

My first memory is of standing with my parents on an outdoor landing at the top of some worn and dirty wooden steps. It was a gloomy Chicago day in December 1934, when I was two years and four months old. Even wearing my only set of winter pants and a jacket with a hood, it was cold. Black and leafless, the trees stood out above the snow-covered ground. From inside the house a woman was telling my parents, “No, we don’t rent to people with children.” Their faces fell and they turned away. Had I done something wrong? Why was I a problem? This image from the depths of the Great Depression has stayed with me always.

I next recall being taken at age two and a half to our beloved family physician, Dr. Dailey. My alarmed parents explained that I had yet to speak a single word. What was wrong? The doctor smiled and asked me to point to the ball on his desk. I did so, and he asked me to pick up his pencil. After I had done this and a few more tasks he said, “Don’t worry, he’ll talk when he’s ready.” We left, my parents relieved and a little mystified.

After this, the campaign to get me to talk intensified. About the time
of my third birthday, my mother and two of her friends, Charlotte and Estelle, took me along with them to Chicago’s then famous Montgomery Ward department store. As we sat on a bench near an elevator, two women and a man got off. Charlotte, keen to tempt me into speech, asked, “Where are the people going?” I said clearly and distinctly, “The man is going to buy something and the two women are going to the bathroom to do pee-pee.” Charlotte and Estelle both blushed deeply at the mention of pee-pee. Far too young to have learned conventional embarrassment, I noticed this but didn’t understand why they reacted that way. I also was puzzled by the sensation I had caused with my sudden change from silence to talkativeness.

From then on I spoke largely in complete sentences, delighting my parents and their friends, who now plied me with questions and often received surprising answers. My father set out to see what I could learn.

Born in Iowa in 1898, my father, Oakley Glenn Thorp, was the second of three children, with his brother two years older and sister two years younger. When he was six his family broke up. His father took him and his brother to settle in the state of Washington. His mother and sister remained in Iowa. In 1915 my grandfather died from the flu, three years before the Great Flu Pandemic of 1918–19, which killed between twenty and forty million people worldwide. The two boys lived with an uncle until 1917. Then my father, at age eighteen, went to France to join World War I as part of the great American Expeditionary Force. He fought with the infantry in the trenches, rose from private to sergeant, and was awarded the Bronze Star, the Silver Star, and two Purple Hearts for heroism in places like Château-Thierry, Belleau Wood, and the Battles of the Marne. As a very small boy I remember sitting in his lap on a humid afternoon examining the shrapnel scars on his chest and the minor mutilation of some of his fingers.

Following his discharge from the army after the war, my father enrolled at Oklahoma A&M. He completed a year and a half before he had to leave for lack of funds, but his hunger and respect for education endured and he instilled them in me, along with his unspoken hope that I would achieve more. Sensing this and hoping it would bring us closer, I welcomed his efforts to teach me.
As soon as I began to talk, he introduced me to numbers. I found it easy to count first to a hundred, then to a thousand. Next I learned how to increase any number by adding one to get the next number, which meant I could count forever if I only knew the names of the numbers. I soon learned how to count to a million. Adults seemed to think this was a very big number so I sat down to do it one morning. I knew I could eventually get there but I had no idea how long it was going to take. To get started, I chose a Sears catalog the size of a big-city telephone book because it seemed to have the most things to count. The pages were filled with pictures of merchandise labeled with the letters \( A, B, C \ldots \), which I recall appeared as black letters in white circles. I started at the beginning of the catalog and counted all the circled letters, one for each item, page after page. After a few hours I fell asleep at something like 32,576. My mother reported that when I awoke I resumed with “32,577 . . .”

A trait that showed up at about this time was my tendency not to accept anything I was told until I had checked it for myself. This had consequences. When I was three, my mother told me not to touch the hot stove because it would burn me. I brought my finger close enough to feel the warmth, then pressed the stove with my hand. Burned. Never again.

Another time, I was warned that fresh eggs would crack if they were squeezed just a little bit. Wondering what “a little bit” meant, I squeezed an egg very slowly until it cracked, then practiced squeezing another, stopping just before it would crack, to see exactly how far I could go. From the beginning, I loved learning through experimentation and exploration how my world worked.

After teaching me counting, my father’s next project for me was reading. We started with See Spot, See Spot Run, and See Jane. I was puzzled and disoriented for a couple of days; then I saw that the groups of letters stood for the words we spoke. In the next few weeks I went through all of our simple beginner books and developed a small vocabulary. Now it got exciting. I saw printed words everywhere and realized that if I could figure out how to pronounce them I might recognize them and know what they meant. Phonics came naturally, and I learned to
sound out words so I could say them aloud. Next was the reverse process—hear a word and say the letters—spelling. By the time I turned five I was reading at the level of a ten-year-old, gobbling up everything I could find.

Our family dynamics also changed then, with the birth of my brother. My father, fortunate to be employed in the midst of the Great Depression, worked longer hours to support us. My mother was fully occupied by the new baby and was even more focused on him when, at six months of age, he caught pneumonia and nearly died. This left me much more on my own and I responded by exploring endless worlds, both real and imagined, to be found in the books my father gave me.

Over the next couple of years I read books including *Gulliver's Travels*, *Treasure Island*, and *Stanley and Livingstone in Africa*. When, after an eight-month arduous and dangerous search, Stanley found his quarry, the only European known to be in Central Africa, I thrilled to his incredible understatement, “Dr. Livingstone, I presume,” and I discussed the splendor of the Victoria Falls on the Zambezi River with my father, who assured me (correctly) that they far surpassed our own Niagara Falls.

*Gulliver's Travels* was a special favorite, with its tiny Lilliputians, giant Brobdingnagians, talking horses, and finally the mysterious Laputa, a flying island in the sky supported by magnetic forces. I enjoyed the vivid pictures it created in my mind and the fantastical notions that spurred me to imagine for myself further wonders that might be. But at the time Swift’s historical allusions and social satire mostly escaped me, despite explanations by my father.

From Malory’s story of King Arthur and the Knights of the Round Table, I learned about heroes and villains, romance, justice, and retribution. I admired the heroes who, through extraordinary abilities and resourcefulness, achieved great things. Introverted and thoughtful, I may have been inspired to mirror this in the future by using my mind to overcome intellectual obstacles, instead of my body to defeat human opponents. The books helped establish lifelong values of fair play, a level playing field for everyone, and treating others as I myself wish to be treated.
The words and adventures were largely in my head; I didn’t really have anyone to discuss them with, except sometimes my tired father after work or on weekends. This led to an occasional unique pronunciation. For instance, for a couple of years I thought misled (miss-LED) was pronounced MYE-assled, and for years afterward when I saw the word in print I would hesitate for a beat as I mentally corrected my pronunciation.

When I was reading or just thinking, my concentration was so complete that I lost all awareness of my surroundings. My mother would call me, with no response. Thinking I was willfully ignoring her, the shout would became a yell, then she would bring her flushed face right up to me. Only when she appeared in my visual field did I snap back into the here and now and respond. She had a hard time deciding whether her son was stubborn and badly behaved or was really as unaware as he claimed.

Though we were poor, my parents valued books and managed to buy me one occasionally. My father made challenging choices. As a result, between the ages of five and seven I carried around adult-looking books and strangers wondered if I actually knew what was in them. One man put me to an unexpected and potentially embarrassing test.

It happened because my parents became friends with the Kesters, who lived on a farm in Crete, Illinois, about forty-five miles from our home. They invited us out for two weeks every summer, starting in 1937 when I was turning five. These special days were what I most looked forward to each year. For a city boy from the outskirts of Chicago, it was sheer joy to watch “water spiders” scoot over the surface of a slowly meandering creek, to play hide-and-seek in the fields of tall corn, to catch butterflies and display them arrayed and mounted on boards, and to wander through the fields and among the cottonwood trees and orchards. The Kesters’ oldest boy, strapping twentysomething Marvin, would carry me around on his shoulders. My mother, along with the women of the household, Marvin’s pretty sister Edna Mae, their mother, and their aunt May, would preserve massive quantities of fruits and vegetables. In our basement back home my father built racks for the rubber-sealed mason jars of corn, peaches, and apricots that we brought back.
Then there were the rows of fruit jellies, jams, and preserves in glasses sealed with a layer of paraffin on top. This cornucopia would last us well into the next year.

My father helped Marvin and his father, Old Man Kester, with the work of the farm, and sometimes I tagged along. One sunny forenoon during the second summer of our two weeks in Crete, my father took me to pick up supplies at a local store. I was just turning six, tall and thin with a mop of curly brown hair, lightly tanned, pants too short, the bare ankles ending in a pair of tennis shoes with frayed laces. I was carrying *A Child’s History of England* by Charles Dickens.

A stranger chatting with my father took the volume I was holding, written at the tenth-grade level, thumbed through it, then told my father, “That kid can’t read this book.” My father replied proudly, “He’s already read it. Ask him a question and you’ll see.”

With a smirk the man said, “Okay, kid, name all the kings and queens of England in order and tell me the years that they reigned.” My father’s face fell but to me this seemed to be just another routine request to look into my head to see if the information was there.

I did and then recited, “Alfred the Great, began 871, ended 901, Edward the Elder, began 901, ended 925,” and so on. As I finished the list of fifty or so rulers with “Victoria, began in 1837 and it doesn’t say when she ended,” the man’s smirk had long vanished. Silently he handed me back the book. My father’s eyes were shining.

My father was a sad and lonely man who didn’t express his feelings and who rarely touched us, but I loved him. I felt that this stranger was using me to put him down and I realized that I had stopped it. Whenever I remember my dad’s happiness at this, it echoes in me with a force that still seems undiminished.

My unusual retention of information was pronounced until I was about nine or ten, when it faded into a memory that is very good for what I’m interested in and, with exceptions, not especially remarkable for much else. I still remember facts from this time such as my phone number (Lackawanna 1123) and address (3627 North Oriole; 7600 W, 3600 N) in Chicago and Chicago’s seven-digit population (3,376,438),
cited in the old green 1930 Rand McNally Atlas and Gazetteer that’s still on my bookshelf.

Between the ages of three and five I learned to add, subtract, multiply, and divide numbers of any size. I also learned the US version of the prefixes million, billion, trillion, and so on, up to decillion. I found that I could add columns of figures quickly by either seeing them or hearing them. One day when I was five or six I was in the neighborhood grocery store with my mother and overheard the owner calling out the prices as he totaled up the customer’s bill on his adding machine. When he announced the answer, I said no, and gave him my number. He laughed good-naturedly, added the numbers again, and found I was right. To my delight he rewarded me with an ice-cream cone. After that I dropped by when I could and checked his totals. On the rare occasions when we disagreed, I was usually correct and would get another cone.

My father taught me to compute the square root of a number. I learned to do it with pencil and paper as well as to work out the answer in my head. Then I learned to do cube roots.

Before the advent of writing and books, human knowledge was memorized and transmitted down the generations by storytellers; but when this skill wasn’t necessary it declined. Similarly, in our time with the ubiquity of computers and hand calculators, the ability to carry out mental calculations has largely disappeared. Yet a person who knows just grammar school arithmetic can learn to do mental calculations comfortably and habitually.

This skill, especially to make rapid approximate calculations, remains valuable, particularly for assessing the quantitative statements that one continually encounters. For instance, listening to the business news on the way to my office one morning, I heard the reporter say, “The Dow Jones Industrial Average [DJIA] is down 9 points to 11,075 on fears of a further interest rate rise to quell an overheated economy.” I mentally estimated a typical (one standard deviation) DJIA change from the previous close, by an hour after the open, at about 0.6 percent or about sixty-six points. The probability of the reported move of “at least” nine points, or less than a seventh of this, was about 90 percent, so the market action
was, contrary to the report, very quiet and hardly indicative of any fearful response to the news. There was nothing to worry about. Simple math allowed me to separate hype from reality.

Another time, a well-known and respected mutual fund manager reported that Warren Buffett, since he took over Berkshire Hathaway, had compounded money after taxes at 23 to 24 percent annually. Then he said, “Those kind of numbers will not be achieved in the next ten years—he’d own the world.” A quick mental estimate of what $1 grows to in ten years compounded at 24 percent gave me a little over $8. (A calculator gives $8.59.) Since, at the time, Berkshire had a market cap of about $100 billion, this rate of growth would bring the company to a market value of roughly $859 billion. This falls far short of my guessimate of $400 trillion for the present market value of the world. The notion of a market value for the whole world reminds me of a sign I saw on an office door in the Physics Department of the University of California, Irvine. It read earth people, this is god. you have thirty days to leave. i have a buyer for the property.

Just after I turned five I started kindergarten at Dever Grammar School in northwest Chicago. I was immediately puzzled by why everything we were asked to do was so easy. One day our teacher gave us all blank paper and told us to draw a copy of an outline of a horse from a picture she had given us. I put little dots on the picture and used a ruler to measure the distance from one to the next. Then I reproduced the dots on my piece of paper, using the ruler to make the distance between them the same as they were on the picture and with my eye estimating the proper angles. Next, I connected up the new dots smoothly, matching the curves as well as I could. The result was a close copy of the original sketch.

My father had shown me this method and also how to use it to draw magnified or reduced versions of a figure. For example, to draw at double scale, just double the distance between the dots on the original drawing, keeping angles the same when placing the new dots. To triple the scale, triple the distance between dots, and so on. I called the other kids over, showed them what I had done and how to do it, and they set to
work. We all handed in copies using my method instead of the freehand sketches the teacher expected, and she wasn’t happy.

A few days later the teacher had to leave the room for a few minutes. We were told to entertain ourselves with some giant (to us) one-foot-sized hollow wooden blocks. I thought it would be fun to build a great wall so I organized the other kids and we quickly assembled a large terraced mass of blocks. Unfortunately my project totally blocked the rear door—and that was the one the teacher chose when she attempted to reenter the classroom.

The last straw came a few days later. I sat on one of the school’s tiny chairs meant for five-year-olds and discovered that one of the two vertical back struts was broken. A sharp splintered shard stuck up from the seat where it had separated from the rest of the strut, so the whole back was now fragilely supported only by the one remaining upright. The hazard was obvious, and something needed to be done. I found a small saw and quietly cut off both struts flush with the chair’s seat, neatly converting it into a perfect little stool. At this, the teacher sent me to the principal’s office and my parents were called in for a serious conference.

The principal interviewed me and immediately recommended that I be moved up to first grade. After a few days in my new class, it was clear that the work there also was much too easy. What to do? Another parent–teacher conference. The principal suggested skipping me again into second grade. But I had barely been old enough to qualify for kindergarten: I was a year and a half younger on average than my first-grade classmates. My parents felt that skipping another grade would leave me at an extreme social, emotional, and physical disadvantage. Looking back on twelve years of pre-college schooling, where I was among the smallest and always the youngest in my class, I think they were right.

As we were barely managing on my father’s Depression-era wages, an academically advanced private school was never an option. We were fortunate that he had found work as a security guard at the Harris Trust and Savings Bank. His battlefield medals from World War I may have helped.

The Depression permeated every facet of our lives. Living on my fa-
ether’s $25-a-week salary, we never wasted food, and we wore our clothes until they fell apart. I treasured objects such as the Smith Corona typewriter my father had won in a writing contest and the military binoculars he used in World War I. Eventually both became part of my tiny collection of possessions and followed me for the next thirty years. For the rest of my life I would meet Depression-era survivors who retained a compulsive, often irrational frugality and an economically inefficient tendency to hoard.

Money was scarce and no one scorned pennies. Seeing the perspiring WPA workers in the streets (created by presidential order in 1935, “Works Progress Administration” was the largest of FDR’s New Deal programs to provide useful work for the unemployed), I borrowed a nickel and bought a packet of Kool-Aid, from which I made six glasses that I sold to them for a penny each. I continued to do this and found that it took a lot of work to earn a few cents. But the next winter, when my father gave me a nickel to shovel the snow from our sidewalk, I hit a bonanza. I offered the same deal to our neighbors and, after an exhausting day of snow removal, returned home soaked in sweat and bearing the huge sum of a couple of dollars, almost half of what my father was paid per day. Soon lots of the kids were out following my lead and the bonanza ended—an early lesson in how competition can drive down profits.

The Christmas I was eight, my father gave me a chess set. A friend of his made the board by gluing squares of light and dark wood on a piece of felt, so I could fold the board in half or even roll it up. The pieces were the classic Staunton-style, the kind I have ever after preferred, with ebony-black chessmen opposing a pine-colored white force. After I had learned the basics from my father, our neighbor across the back alley, “Smitty” Smittle, decided to entertain himself by playing against me. I was often at his house to use his pool table, having recently been granted the privilege. Smitty won our first two chess games easily, but then it got tougher. A few games later, I won. Smitty never won again, and after increasingly one-sided routs, he abruptly refused to play me. That evening my father told me I was no longer welcome at Smitty’s pool table.

“But why?” I asked.
“Because he’s afraid you’ll tear the felt with the cue.”

“But that makes no sense. I’ve been playing there for a while and he can see how careful I’ve been.”

“I know, but that’s what he wants.”

I was disappointed and indignant at this treatment. In my world of books, ability, hard work, and resourcefulness were rewarded. Smitty should have been pleased that I was doing well, and if he wanted to do better, he should practice and study, rather than penalize me.

Before another Christmas, this miniature war on the chessboard would be followed by the United States’ entry into the already raging World War II.

My last prewar spring of 1941 I got the measles. As it was widely believed that bright light could ruin my eyes, I was confined in a shaded room. To keep me from straining my eyes, books were removed. Not allowed to read, and bored, I discovered an atlas that had been mistakenly left in the room. For the next two weeks I studied the maps, read the write-ups on all the individual countries, and gave myself an education in geography and a facility with maps that would serve me well for a lifetime. Then I used the atlas to follow the battles around the world. I became interested in the military strategy of the antagonists. How were they deploying their forces? Why? What were they thinking? From daily radio and newspaper reports of the fighting, I used a pencil to shade in on the maps, step by step, the frightening, ever-expanding area under Axis control. I did this throughout the war, using an eraser when the Allies reclaimed territory.

That summer while we wondered whether the United States would, as we expected, enter the war, my mother’s brother Edward came to visit. Chief engineer on a ship in the merchant marine, he was classically tall, dark, and handsome with his uniform, his mustache, and a slight Spanish accent giving him the persona and appearance of a Latin Clark Gable. My parents and teacher thought I spent too much time in my head (I’m afraid I still do), and that it would be healthy for me to learn to do things with my hands. After initial resistance on my part, I was lured with Uncle Ed’s help into the world of model airplanes, and we spent several wonderful weeks making our own air force.
The boxed kits came with lots of fragile balsa-wood sticks and some sheets with other plane parts to be carefully cut from outlines. We taped the large sheet of plans onto a piece of cardboard and glued balsa-wood pieces together after laying them on the plan and holding them in place with pins. When we had completed the wings, the fuselage top, bottom, and sides, and the tail sections, we assembled them into a completed skeleton and covered it by gluing on tissue paper. I remember the pervasive acetone smell from drying glue, like that of some brands of nail polish remover. My first propeller-driven planes, powered by rubber band motors, didn’t fly well. They were too heavy because I had used excessive amounts of glue to be sure everything would hold together. When I learned to use glue more judiciously, I had some satisfying flights. The skills from model building and using tools were a valuable prequel to the science experiments that would occupy me during the next few years, and my introduction to planes helped me follow the details of the great air battles of World War II. I was sorry to see Uncle Ed go and worried about what would happen to him if war came.

Later in that pre–Pearl Harbor summer of 1941 my parents bought their first car, a new Ford sedan, for $800. We drove “America’s mother route,” historic Highway 66, from Chicago to California, where we visited friends from the Philippines who had settled in the picturesque art colony of Laguna Beach. Each year they had mailed us a little box of candy oranges, which my brother and I eagerly awaited. Now we saw groves of real orange trees.

Then the great world war that was consuming Europe and Asia struck the United States. Late on the morning of Sunday, December 7, 1941, we were listening to music on the radio and decorating our Christmas tree when an authoritative voice broke in: “We interrupt this program to bring you a special announcement. The Japanese have just bombed Pearl Harbor.” A frisson ran through me. Suddenly the world had changed in a momentous way for all of us.

“The president will address the nation shortly. Stay tuned.”

The next morning (California time), Franklin Delano Roosevelt addressed the nation asking Congress to declare war, uttering the phrase that electrified me, and the millions of others listening, “a date
which will live in infamy . . .” When we had recess at school the next
day, I was astonished to see the other children playing and laughing as
usual. They seemed wholly unaware of what was to come. As I had
been following the war closely, I stood alone off to one side, silent and
grave.

Our immediate concern was for my mother’s family in the Philippine
Islands. My mother’s father had left Germany and gone to work as an
accountant for the Rockefellers in the Philippines. There he met and
married my grandmother. They, along with six of my mother’s siblings
and their children, were trapped in Manila when the Japanese invaded
the islands just ten hours after the attack on Pearl Harbor. We heard
nothing further from them. As the eldest of five sisters and three broth-
ers, all fluent in both English and Spanish, my mother was a life-of-the-
party extrovert. She was a head-turner, too, as evidenced by a picture I
found decades later of her aged forty, with a black one-piece bathing suit
showing off her dark hair and five-foot-two, 108-pound movie-star fig-
ure against the background of the Pacific Ocean. Her parents, along
with the other siblings and their families, except for Uncle Ed, were
living in Manila, the capital. We would not learn their varied fates for
more than three years, until after the islands were liberated near the end
of the war in the Pacific. Meanwhile, my nine-year-old eyes followed in
detail the Battle of Bataan, reports of the horrors of the Bataan Death
March, and the heroic resistance by the island fortress of Corregidor in
Manila Bay.

For this I had my own father as a living guide. He had been stationed
on Corregidor as a member of the Philippine constabulary, which the
United States created, and he accurately foretold that Corregidor would
fall only when the troops, weapons, ammunition, and food were ex-
hausted. It became a twentieth-century version of the Alamo. After
leaving Oklahoma A&M in order to support himself, my father went
back to the Pacific Northwest, where he worked as a lumberman and
became a member of the International Workers of the World, or IWW.
Fleeing the fierce persecution of that union, he went to Manila, where
his military credentials led him to join the constabulary. While there he
met and married my mother. Fortunately they moved to Chicago in