In 2017 DJCO meeting, Charlie Munger recommended Ed Thorp's autobiography *A Man For All Markets* to his cultists. Munger also told that Thorp was a very smart man and a mathematician with a high IQ. Thorp is an American mathematics professor, hedge fund manager, and blackjack player. To beat roulette, he and the father of information theory, Claude Shannon, invented the first wearable computer.

Thorp’s hedge fund, Princeton Newport Partners, compounded their limited partners wealth at 18.2 percent for eighteen years. He achieved this feat without taking much risk. His fund had no losing years or losing quarters. Over the last few days I have been reading Thorp's book and thoroughly enjoyed it.

Thorp is a lifelong learner who doesn’t really care about making more and more money. He enjoys using mathematics to solve certain interesting puzzles, which he found first in the world of gambling, then in the world of investing. He shared his findings with others as he sincerely believes that scientific research ought to be a public good.

Thorp wrote several golden nuggets on learning, thinking, health, and life. I thought that they were super useful for anyone pursuing the path of lifelong learning combined with healthy-and-happy living. Given below are some excerpts on these topics.

**Learn how to think**

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.

Qualities of a great thinker

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.

Visualizing and Reflecting

Pranks and experiments were part of learning science my way. As I came to understand the theory, I tested it by doing experiments, many of which were fun things I invented. I was learning to work things out for myself, not limited by prompting from teachers, parents, or the school curriculum. I relished the power of pure thought combined with the logic and predictability of science. I loved visualizing an idea, and then making it happen. I fell asleep at night mentally reviewing the material, a habit that proved, both then and later, remarkably effective for understanding and permanently remembering what I had learned.

Simple math to separate hype from reality

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 guesstimate of $400 trillion for the present market value of the world.

**Education builds software for your brain**

Education has made all the difference for me. Mathematics taught me to reason logically and to understand numbers, tables, charts, and calculations as second nature. Physics, chemistry, astronomy, and biology revealed wonders of the world, and showed me how to build models and theories to describe and to predict. This paid off for me in both gambling and investing.

Education builds software for your brain. When you’re born, think of yourself as a computer with a basic operating system and not much else. Learning is like adding programs, big and small, to this computer, from drawing a face to riding a bicycle to reading to mastering calculus. You will use these programs to make your way in the world. Much of what I’ve learned came from schools and teachers. Even more valuable, I learned at an early age to teach myself. This paid off later on because there weren’t any courses in how to beat blackjack, build a computer for roulette, or launch a market-neutral hedge fund.
I found that most people don’t understand the probability calculations needed to figure out gambling games or to solve problems in everyday life. We didn’t need that skill to survive as a species in the forests and jungles. When a lion roared, you instinctively climbed the nearest tree and thought later about what to do next. Today we often have the time to think, calculate, and plan ahead, and here’s where math can help us make decisions.

For instance, are seatbelts and air bags “worth it”? Suppose we upgrade a hundred million vehicles at a cost of $300 each, a total of $30 billion, and have five thousand fewer traffic deaths per year. If these vehicles with their added safety features are around for ten years, that’s fifty thousand lives saved at a cost of $30 billion, or $600,000 per life. Though many in the auto industry disagreed, we spent the money and saved the lives.

What about the pack-a-day smoker? Forty years of this will make his life on average seven years shorter. Each cigarette not only brings death twelve minutes closer, but adds health problems to spoil one’s remaining years. Then there are the costs to the rest of us, namely, higher medical costs in the final years, more sick days during the working years, and secondhand smoke damage. But these are averages. Some smokers do not die of smoking-related diseases, whereas others die at an early age. It’s like gambling at roulette. On average you lose 5 cents when you bet $1. But this is an average. Some gamblers are wiped out quickly and others may hold their own for quite a while.

**Health is wealth**

You may be stressed, lose sleep, have a poor diet, or skip exercise. If you are like me and want better health, you can invest time and money on medical care, diagnostic and preventive measures, and exercise and fitness. For decades I have spent six to eight hours a week running, hiking, walking, playing tennis, and working out in a gym. I think of each hour spent on fitness as one day less that I’ll spend in a hospital. Americans supposedly spend an average of forty or more hours a week watching television. Those who do have plenty of “junk time,” which they can use instead for an exercise or fitness program. Five hours a week for this can add five years of healthy life.
Life is like reading a novel

Life is like reading a novel or running a marathon. It’s not so much about reaching a goal but rather about the journey itself and the experiences along the way. As Benjamin Franklin famously said, “Time is the stuff life is made of,” and how you spend it makes all the difference. Best of all is the time I have spent with the people in my life that I care about — my wife, my family, my friends, and my associates. Whatever you do, enjoy your life and the people who share it with you, and leave something good of yourself for the generations to follow.