

Mastery
Marginalia

ROBERT GREENE



What follows are supplementary Mastery quotes that complement and contextualize what you're reading in the book. It is similar in nature to the side material that has accompanied my previous books, and is only available in this document. As you will see, the material is best read in conjunction with the book. I hope you enjoy it and it helps you on your own way to achieving mastery.

ROBERT GREENE

Introduction

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It should also be noted that even today, humans have a *potential* for skills and symbolic thought that is probably never, in any of us, fully exploited. We *could* learn languages, aspects of mathematics, crafts, or sporting skills that we do not in fact learn. We are endowed with considerably more potential than we can use in a mere lifetime.

—MICHAEL C. CORBALLIS, *The Lopsided Ape: Evolution of the Generative Mind*

Stating the thing broadly, the human individual thus lives usually far within his limits; he possesses powers of various sorts which he habitually fails to use. He energizes below his maximum, and he behaves below his optimum. In elementary faculty, in co-ordination, in power of inhibition and control, in every conceivable way, his life is contracted like the field of vision of an hysteric subject—but with less excuse, for the poor hysteric is diseased, while in the rest of us it is only an inveterate habit—the habit of inferiority to our full self—that is bad.

Admit so much, then, and admit also that the charge of being inferior to their full self is far truer of some men than of others; then the practical question ensues: to what do the better men owe their escape? And, in the fluctuations which all men feel in their own degree of energizing, to what are the improvements due, when they occur?

In general terms the answer is plain: Either some unusual stimulus fills them with emotional excitement, or some unusual idea of necessity induces them to make an extra effort of will. Excitements, ideas, and efforts, in a word, are what carry us over the dam.

—WILLIAM JAMES, “ON VITAL RESERVES”

In this universe, there is a great treasure. If you possess it, then whether you are a boatman or a cartman, a servant or a maid, you are a person of great fortune and virtue and wisdom. If you don't possess it, then even if you are an

emperor, a daimyo, with high rank and great wealth, you are poor and ignorant, a person of low estate.

—ZEN MASTER HAKUIN, *Wild Ivy: The Spiritual Autobiography of Zen Master Hakuin*

Snell's mention of a man who walks like a lion betraying a kinship with the beast is not just poetical, but has a practical meaning. Trackers, in cultures dependent on hunting, learn to “get inside” the animal they are tracking, to reflect it as much as possible in their own being, what it must have been feeling and thinking as it left its track: this is how they succeed in finding it. Perhaps, when we empathise, we actually *become* the object of our empathy, and share its life....

We already know from the discovery of the existence of mirror neurones that when we imitate something that we can see, it is as if we are experiencing it. But it goes further than this. Mental representation, in the absence of direct visual or other stimulus—in other words, imagining—brings into play some of the same neurones that are involved in direct perception. It is clear from this that, even when we so much as imagine doing something, never mind actually imitate it, it is, at some level which is far from negligible, as if we are actually doing it ourselves. Imagining something, watching someone else do something, and doing it ourselves share important neural foundations.

—IAIN MCGILCHRIST, *The Master and his Emissary: The Divided Brain and the Making of the Western World*

At a very rudimentary level we are reminded of this reciprocity of “self” and “others” each time a newborn baby mimics an adult's behavior. Stick your tongue out at a newborn baby and the baby will stick its tongue out too, poignantly dissolving the boundary, the arbitrary barrier, between self and

others. To do this it must create an internal model of your action and then re-enact it in its own brain. An astonishing ability, given that it cannot even see its own tongue, and so must match the visual appearance of your tongue with the felt position of its own. We now know that this carried out by a specific group of neurons, in the frontal lobes, called the mirror neurons. I suspect that these neurons are at least partly involved in generating our sense of “embodied” self-awareness as well as our “empathy” for others....

In addition to their obvious role in empathy, “mind reading” and evolution of language...mirror neurons may have also played a vital role in the emergence of another important capacity of our minds—namely, learning through imitation—and therefore the transmission of culture. Polar bears had to go through millions of years of natural selection of genes to evolve a fur coat, but a human child can acquire the skill required to make a coat by simply watching his parent slaying a bear and skinning it. Once the mirror neuron system became sophisticated enough, this remarkable ability—imitation and mimesis—liberated humans from the constraints of a strictly gene-based evolution.... The result was a rapid horizontal spread and vertical transmission of cultural innovations of the kind that took place about 50,000 to 75,000 years ago leading to the so-called great leap forward—the relatively sudden dissemination of one-of-a-kind “accidental” cultural innovations like fire, sophisticated multi-component tools, personal adornments, rituals, art, shelter etc. Among the great apes, orangutans alone are reputed to display imitation of sophisticated skills...often watching the keeper and picking locks or even paddling across a river in a canoe. If our species becomes extinct, they may well inherit the earth.

—V.S. RAMACHANDRAN, *A Brief Tour of Human Consciousness*

Carl Friedrich Gauss, the great mathematician...[his] father was a bricklayer, his mother a peasant, and Gauss’s own son came nowhere close to matching his

father's mathematical skills.... Many of the top-notch creative geniuses appear to have no family pedigree whatsoever. Consider the cases of Newton, Shakespeare, Beethoven, and Michelangelo.

—DEAN KEITH SIMONTON, *Origins of Genius: Darwinian Perspectives on Creativity*

“Never tell anyone he has no talent. That you may not say. That you do not know. That is the one absolute prohibition laid down.”

—MARTHA GRAHAM, QUOTED IN *Martha: The Life and Work of Martha Graham, Agnes de Mille*

What makes the difference between an outstandingly creative person and a less creative one is not any special power, but greater knowledge (in the form of practiced expertise) and the motivation to acquire and use it. This motivation endures for long periods, perhaps shaping and inspiring a whole lifetime.

—MARGARET A. BODEN, *The Creative Mind: Myths and Mechanisms*

If children grew up according to early inclinations, we should have nothing but geniuses.

—JOHANN WOLFGANG VON GOETHE, *The Autobiography of Goethe, vol. 1*

But starting in the 1990s, this static view of the brain was steadily supplanted by a much more dynamic picture. The brain's so-called modules don't do their jobs in isolation; there is a great deal of back-and-forth interaction between them, far more than previously suspected. Changes in the operation of one module—say, from damage, or from maturation, or from learning and life experience—can lead to significant changes in the operations of many other modules to which it is connected. To a surprising extent, one module can even take over the functions of another. Far from being wired up according to rigid, prenatal genetic blueprints, the brain's wiring is highly malleable—and not just

in infants and young children, but throughout every adult lifetime.... We can now say with confidence that the brain is an extraordinarily plastic biological system that is in a state of dynamic equilibrium with the external world. Even its basic connections are being constantly updated in response to changing sensory demands. And if you take mirror neurons into account, then we can infer that your brain is also in synch with other brains—analogueous to a global Internet of Facebook pals constantly modifying and enriching each other.

—V.S. RAMACHANDRAN, *The Tell-Tale Brain: A Neuroscientist's Quest for What Makes Us Human*

Chapter I

Pp. 19 -46

**DISCOVER YOUR
CALLING:
THE LIFE'S TASK**



Although each organism is genetically constrained to develop certain features characteristic of the species, these genetic codes cannot dictate the exact destination of each developing neuron.... Millions of neurons grow and die during this time, travel great distances, and forge connections quite unpredictably. So even though the overall pattern of brain regions is similar from person to person, each individual is born with a structurally unique brain. This prenatal level of selection organizes the brain into “primary repertoires”—singular groups of neuronal connections that create the first marks of individuality at birth.

—JOHN J. RATEY, M.D., *A User’s Guide to the Brain: Perception, Attention, and the Four Theaters of the Brain*

An unfulfilled vocation drains the colour from a man’s entire existence.

—HONORÉ DE BALZAC, *La Maison Nucingen*

I respect a person who knows quite clearly what he wants and steadfastly proceeds in that direction, with a true sense of direction and purpose.... Believe me...the greatest part of misfortune, and what is considered evil in the world, comes about because people fail to recognize their true goals, or, if they do, to work steadily toward them. They are like those who have the sense that a tower should be built, but whose materials and efforts only suffice for a cottage. If you, my friend, whose highest aspiration was to come to terms with your...nature, had adapted yourself to your family, a fiancé...instead of making the great and bold sacrifices that you have, you would have been in continual conflict with yourself and never known a single moment of peace.

...Whether it be reason or feeling that makes us abandon one thing for another, or choose this over that, it is my belief that steadfastness and persistence are the qualities most to be respected in any human being.

—JOHANN WOLFGANG VON GOETHE, *Wilhelm Meister’s Apprenticeship*

What are geniuses like? What kinds of people are they? They are hugely diverse, but a few characteristics are shared by virtually all of them. The first is an intense curiosity and dedication to one's work....

Geniuses are usually sure about what they want to do, single minded, committed, and they have a firm sense of direction. They often work with a ferocity and intensity, even when impeded by doubts and frustrations. They also share a capacity for sustained diligence. Isaac Newton said that he discovered the law of universal gravitation by thinking about it continuously; Charles Darwin attributed much of his success to a capacity to reflect for years on an unexplained problem; Einstein asserted that curiosity, determination, and hard work were vital ingredients of his effectiveness, and the great English painter J.M. Turner, asked to reveal the secret of his success, gave the straight reply "the only secret I have got is damned hard work"....Perseverance is at least as crucial as intelligence. An interesting and perhaps surprising research finding is that, compared with assessments of young children's intelligence, indications of their capacity to delay gratification and avoid acting too impulsively are better predictors of future competence....

It is especially advantageous to be able to keep trying.

—MICHAEL J.A. HOWE, *Genius Explained*

Geniuses are the luckiest of mortals because what they must do is the same as what they most want to do.

—W.H. AUDEN

Often have I heard you say, as if speaking in sleep,
"He who works in marble, and finds the shape of his own soul in the stone,
is nobler than he who ploughs the soil.
And he who seizes the rainbow to lay it on a cloth in the likeness

of man, is more than he who makes the sandals for our feet."

But I say, not in sleep but in the overwakefulness of noontide,
that the wind speaks not more sweetly to the giant oaks than to
the least of all the blades of grass;

And he alone is great who turns the voice of the wind into a song
made sweeter by his own loving.

Work is love made visible.

And if you cannot work with love but only with distaste, it is
better that you should leave your work and sit at the gate of the
temple and take alms of those who work with joy.

For if you bake bread with indifference, you bake a bitter bread
that feeds but half man's hunger.

And if you grudge the crushing of the grapes, your grudge distils a
poison in the wine.

And if you sing though as angels, and love not the singing, you
muffle man's ears to the voices of the day and the voices of the
night.

—KAHLIL GIBRAN, "ON WORK"

As a young woman, Florence told friends that she would one day marry and have a son named Glenn who would be musical. She played music to him when he was in the womb, and she surrounded him with music from the day he was born: she sang and played for him, played the radio and recordings, and generously exposed him to what music Toronto had to offer....

Glenn's gifts quickly became apparent. "As a baby a few days old," said Bert [his father], he would reach his arms up and "flex his fingers almost as if playing a scale." ...When he was three years old, Glenn's parents determined

that he had perfect pitch when he correctly named a note being sung on a record.... When he was four, Florence began to give him piano lessons, and he took to the instrument instinctively. By the time he was five, he was picking out tunes and making up his own.

...He loved playing, and never needed to be encouraged to do so. He would practice for hours, and his parents eventually had to enforce daily time limits (Fulford remembered a four-hour limit being imposed at one point.) Bert said that locking the piano was more effective than corporal punishment in enforcing discipline....

...As early as age five or six...Glenn had decided he would become a professional pianist.

—KEVIN BAZZANA, *Wondrous Strange: The Life and Art of Glenn Gould*

Coming home late at night, regretfully leaving electrometers, test tubes and accurate balances, [Madame Curie] undressed and lay down on her narrow bed. But she could not sleep. An exaltation different from all those she had known kept her from sleep. Her vocation, for so long uncertain, had flashed into life. She was summoned to obey a secret order. She was suddenly in a hurry, whipped onward. When she took the test tubes of the Museum of Industry and Agriculture into her fine, clever hands [Curie] returned, as if by magic, to the absorbing memories of her childhood, to her father's physics apparatus, motionless in its glass case, with which, in the old days, she had always wanted to play. She had taken up the thread of her life again.

—EVE CURIE, *Madame Curie: A Biography*

Nancy Edison also sensed, or discovered by chance, the real direction of her son's interests; for one day she brought forth an elementary book of physical science, R.G. Parker's *School of Natural Philosophy*, which described and illustrated various scientific experiments that could be performed at home. Now

his mother found that the boy had truly caught fire. This was “the first book in science I read when a boy, nine years old, the first I could understand,” [Thomas Edison] later said. Here, learning became a “game” that he loved. He read and tested out every experiment in Parker; then his mother obtained for him an old *Dictionary of Science*, and he went to work on that. He was now ten and formed a boyish passion for chemistry, gathering together whole collections of chemicals in bottles or jars, which he ranged on shelves in his room. All his pocket money went for chemicals purchased at the pharmacist’s and for scraps of metal and wire.

Thus his mother had accomplished that which all truly great teachers do for their pupils: she brought him to the stage of learning things for himself, learning that which most amused and interested him, and she encouraged him to go on in that path....

“My mother was the making of me,” he said afterward. “She understood me; she let me follow my bent.”

—MATTHEW JOSEPHSON, *Edison: A Biography*

I don't know any more about the future than you do. I hope that it will be full of work, because I have come to know by experience that work is the nearest thing to happiness that I can find.... I want a busy life, a just mind and a timely death.

— ZORA NEALE HURSTON, *Dust Tracks on a Road*

Chapter II

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**SUBMIT TO
REALITY:
THE IDEAL
APPRENTICESHIP**



The voyage of the *Beagle* has been by far the most important event in my life, and has determined my whole career.... I have always felt that I owe to the voyage the first real training or education of my mind; I was led to attend closely to several branches of natural history, and thus my powers of observation were improved.... That my mind became developed through my pursuits during the voyage is rendered probable by a remark made by my father, who was the most acute observer whom I ever saw...for on first seeing me after the voyage, he turned round to my sisters, and exclaimed, “Why, the shape of his head is quite altered.”

—FROM *The Autobiography of Charles Darwin and Selected Letters*

“Everywhere is the individual who wants to show off, nowhere honest effort to subserve the Whole. Hence a bungling mode of production is unconsciously acquired. As children, people make verses; and they fancy, as youths, they can do something—until at last, manhood gives them insight into the excellence that exists, and then they look back in despair on the years they have wasted on a false and futile effort: though there are many that never attain a knowledge of what is perfect and of their own insufficiency and go on doing things by halves to the end of their days.”

“If all could early be made to feel how full the world is of excellence, and how much must be done to produce anything worthy of being placed beside what has already been done—of a hundred youths now poetizing, scarcely one would have courage, perseverance, and talent, to work quietly for the attainment of a similar mastery. Many young painters would never have taken their pencils in hand, if early enough they could have felt, known, and understood, what really produced a master like Raphael.”

—JOHANN WOLFGANG VON GOETHE, QUOTED IN *Conversations of Goethe*

Well...it means that you observe, and observe, and observe.... It means that you try to see reality for what it is, and realize that the game you are in keeps changing, so that it's up to you to figure out the current rules of the game as it's being played.... You stop being naïve, you stop appealing for [others] to play fair, you stop adhering to standard theories that are built on outmoded assumptions about the rules of play.... You just observe. And where you can make an effective move, you make a move.

—WILLIAM BRIAN ARTHUR, QUOTED IN *Complexity: The Emerging Science at the Edge of Order and Chaos*, M. MITCHELL WALDROP

Before we decide that not much can be done to improve our mental capacities, consider the encouraging results of intelligence studies. An “enriched environment”—a more challenging cage for rats, more things to do and talk about for humans—enhances the brain’s general functioning, making the individual smarter and more challenging and interesting to be around. In rats, neuronal dendrites (nerve cell extensions) are more elaborated. (Picture a tree in January and compare that same tree’s appearance in July.) Comparisons of brain cells in humans growing up in enriched versus psychologically impoverished environments haven’t been carried out, for obvious ethical and humanitarian reasons. But there is little doubt that a similar process takes place: not more cells or bigger cells, but *increasing numbers* of cell connections, culminating in more elaborate and intricate neuronal networks. In practical terms this means that even in old age we can exert some measure of control over how smart or creative we are.... Our activities, habits, and interests not only define our personalities in the psychological sense, but actually affect the physical structure of our brain. Throughout our lives we can enhance our brain’s performance and modify and enrich its structure by extending our range of interests and expanding our intellectual horizons....

But we can no longer blame anyone or anything other than ourselves if, because of laziness or disinterest, our brain never develops its full potential.

—RICHARD RESTAK, M.D., *The Brain Has a Mind of its Own: Insights from a Practicing Neurologist*

The modern era is often described as a skills economy, but what exactly is a skill? The generic answer is that skill is a trained practice. In this, skill contrasts to the...sudden inspiration. The lure of inspiration lies in part in the conviction that raw talent can take the place of training. Musical prodigies are often cited to support this conviction—and wrongly so. An infant musical prodigy like Wolfgang Amadeus Mozart did indeed harbor the capacity to remember large swatches of notes, but from ages five to seven Mozart learned how to train his great innate musical memory when he improvised at the keyboard....

We should be suspicious of claims for innate, untrained talent. “I could write a good novel if only I had the time” or “if only I could pull myself together” is usually a narcissist’s fantasy. Going over an action again and again, by contrast, enables self-criticism. Modern education fears repetitive learning as mind-numbing. Afraid of boring children, avid to present ever-different stimulation, the enlightened teacher may avoid routine—but thus deprives children of the experience of studying their own ingrained practice and modulating it from within....

Skill development depends on how repetition is organized. This is why in music, as in sports, the length of a practice session must be carefully judged: the number of times one repeats a piece can be no more than the individual’s attention span at a given stage. As skill expands, the capacity to sustain repetition increases. In music this is the so-called Isaac Stern rule, the great violinist declaring that the better your technique, the longer you can rehearse without becoming bored. There are “Eureka!” moments that turn the lock in a practice that has jammed, but they are embedded in routine.

—RICHARD SENNETT, *The Craftsman*

Leonardo spent the next twelve years in this creative environment, during which he diligently followed the rigorous course of a traditional apprenticeship. He would have drawn on tablets and familiarized himself with the artists' materials, which could not be bought ready-made but had to be prepared in the workshop. Pigments had to be freshly ground and mixed every day; he would have learned to make paintbrushes, prepare glazes, apply gold to backgrounds, and finally, after several years, to paint. In addition, he would have absorbed considerable technical knowledge by watching the master work on a variety of projects. Over the years, as he honed his skills by imitating his elders, he and the other apprentices would have increasingly participated in the *bottega's* production until he was finally designated a master craftsman and accepted into the appropriate association, or guild, of craftsmen.

In Verrocchio's workshop, Leonardo was introduced not only to a wide variety of artistic and technical skills, but also to many exciting new ideas. The *bottega* was a place where lively discussions of the latest events took place daily. Music was played in the evenings; the master's friends and fellow artists dropped by to exchange plans, sketches, and technical innovations; traveling writers and philosophers visited when they passed through the city. Many of the leading artists of the time were drawn to Verrocchio's *bottega*. Botticelli, Perugino, and Ghirlandaio all spent time there after they were already accomplished masters to learn novel techniques and discuss new ideas....

For Leonardo's own artistic and intellectual development, the years he spent in Verrocchio's workshop were decisive. His way of working and his entire approach to art and science were shaped significantly by his long immersion in that workshop culture.

—FRITJOF CAPRA, *The Science of Leonardo: Inside the Mind of the Great Genius of the Renaissance*

Coltrane worked hard, to the exclusion of any other interest. “I used to practice a lot with Trane,” said his friend Jimmy Heath, who was then also an alto saxophonist before making his name on tenor.... “He’d be in his shorts, we didn’t have any air conditioning in those hot tenement houses; he lived with his mother. He’d be practicing, sweating, man. Practicing all day. Nobody practiced that much at that time that I knew. He was practicing all the things he eventually perfected. Lines, harmonic concepts that we were learning together, things we had transcribed.”

Heath also remembers Coltrane practicing so hard that he made his reeds red with blood.

—BEN RATLIFF, *Coltrane: The Story of a Sound*

Deakin and Cobley (2003) found that the most elite figure skaters fall more often than others during practice sessions because they spent more time attempting jumps they hadn’t mastered. If we discouraged the skaters from falling, they wouldn’t learn as quickly.

—GARY KLEIN, *Streetlights and Shadows: Searching for the Keys to Adaptive Decision Making*

A team of neuroscientists at John Hopkins University has found that within the first 5 or 6 hours of practicing a new motor skill, the brain shifts the new instructions from short-term memory to the areas responsible for permanent motor skills. As subjects initially learned a task, the prefrontal cortex—involved in short-term memory and many kinds of learning—was relatively active. When the subjects returned 5 1/2 hours later, they had no trouble retracing the movements. But at that point, the premotor cortex, the posterior parietal cortex, and the cerebellum—regions that control movement—had taken over.

During the intermission, it seems, the neural links that form the brain's internal model of the task had shifted from the prefrontal region to the motor control region. Even without practice, after 5 or 6 hours the formula for the task was virtually hard-wired into the brain. This suggests that a newly learned skill could be impaired, confused, or even lost if a person tried to learn a different motor task during the critical 5-to-6-hour period, when the brain is trying to stabilize the neural representation and retention of the original task.

—JOHN J. RATEY, M.D., *A User's Guide to the Brain: Perception, Attention, and the Four Theaters of the Brain*

One day a man of the people said to Zen Master Ikkyu: "Master, will you please write for me some maxims of the highest wisdom?"

Ikkyu immediately took his brush and write the word "Attention."

"Is that all?" asked the man. "Will you not add something more?"

Ikkyu then wrote twice running: "Attention. Attention."

"Well," remarked the man rather irritably, "I really don't see much depth or subtlety in what you have just written."

Then Ikkyu wrote the same word three times running: "Attention. Attention. Attention."

Half angered, the man demanded: "What does that word 'Attention' mean anyway?"

And Ikkyu answered gently: "Attention means attention."

—*Dialogues of the Zen Masters*, TRANSLATED BY KUNI MATSUO AND E. STEINILBER—OBERLIN

Michelangelo saw in Raphael study, in himself nature: there *learning*, here *talent*. This, with all deference to the great pedant, is pedantic. For what is talent but a name for an *older* piece of learning, experience, practice, appropriation, incorporation, whether at the stage of our fathers or an even earlier stage! And

again: he who learns *bestows talent upon himself*—only it is not so easy to learn, and not only a matter of having the will to do so; one has to be *able* to learn. In the case of an artist learning is often prevented by envy, or by that pride which puts forth its sting as soon as it senses the presence of something strange and involuntarily assumes a defensive instead of a receptive posture. Raphael, like Goethe, was without pride or envy, and this why both were *great learners* and not merely exploiters of those veins of ore washed clean from the siftings of the history of their forefathers.

—FRIEDRICH NIETZSCHE, *Daybreak: Thoughts on the Prejudices of Morality*,
TRANSLATED BY R.J. HOLLINGDALE

I trust that I shall act—as I now think—that a man who dares to waste one hour of time, has not discovered the value of life...there is nothing as intolerable as idleness.

—CHARLES DARWIN, QUOTED IN *Darwin and the Beagle*, ALAN MOOREHEAD

Becoming a [Martha] Graham dancer was hard work. Graham believed that it took ten years to build a dancer (which fits with the ten-year rule for creative breakthroughs that I have described): “The body must be tempered by hard, definite technique—the science of dance movement—and the mind enriched by experience.” Students worked every day on “the torture,” becoming muscular and hardened in the process. After ten years a student could leave the ensemble and join a group of four. Graham commented that “it took years to become spontaneous and simple. Nijinsky took thousands of leaps before the memorable one.”

—HOWARD GARDNER, *Creating Minds: An Anatomy of Creativity*

When you are not practicing, remember, someone somewhere is practicing, and when you meet him he will win.

—BILL BRADLEY, QUOTED IN *A Sense of Where You Are: Bill Bradley at Princeton*,
JOHN MCPHEE

I have the nerve to walk my own way, however hard, in my search for reality,
rather than climb upon the rattling wagon of wishful illusions.

—ZORA NEALE HURSTON, IN A LETTER TO THE POET COUNTEE CULLEN

Chapter III

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**ABSORB THE
MASTER'S POWER:
THE MENTOR
DYNAMIC**



Freedom consists not in refusing to recognize anything above us, but in respecting something which is above us; for, by respecting it, we raise ourselves to it, and, by our very acknowledgement, prove that we bear within ourselves what is higher, and are worthy to be on a level with it.

—JOHANN WOLFGANG VON GOETHE, QUOTED IN *Conversations of Goethe*

When the mind is ready, a teacher will appear.

—ANCIENT CHINESE PROVERB

—Hakuin was with [Zen Master] Shoji for only eight months, but it is clear in reading his accounts of the period that they were the most important of his life. Hakuin said that until he met Shoji, he had believed it relatively easy to achieve religious attainment. Shoji's relentless hounding soon cleared his mind of that notion—"crushed it like an eggshell." Torei portrays Hakuin as being in a state of near terror the whole time he was with Shoji—"trembling in every joint, his flesh constantly puckered up in goosebumps." At one point, Shoji grabbed him and tossed him off the veranda onto the ground—"as if I were a little kitten," Hakuin later remembered. But Shoji assigned him a series of "hard-to-pass" koans, and in boring his way into them, he was successful in "dropping his bones and sinews" on three different occasions. These additional realizations deepened his understanding, gradually enabling him to appreciate why Shoji pressed him so vehemently to continue his practice; why when Shoji had asked his reason for becoming a monk, his reply—that he had done it because he was afraid of falling into hell—had brought the scornful retort: "You're a self-centered rascal, aren't you?" Not until eighteen years later, upon attainment of his final great enlightenment at the age of forty-one, would Hakuin fully grasp the significance of Shoji's reproach and with it the true meaning of "post-satori" practice.

—ZEN MASTER HAKUIN, *Wild Ivy: The Spiritual Autobiography of Zen Master Hakuin*, TRANSLATED BY NORMAN WADDELL

The son of a burglar saw his father growing older and thought, ‘If he is unable to carry on his profession, who will be the breadwinner of the family, except myself? I must learn the trade.’ He intimated the idea to his father, who approved of it.

One night the father took the son to a big house, broke through the fence, entered the house, and, opening one of the large chests, told the son to go in and pick out the clothing. As soon as the son got into it, the father dropped the lid and securely applied the lock. The father now came out to the courtyard and loudly knocked at the door, waking up the whole family; then he quietly slipped away by the hole in the fence. The residents got excited and lighted candles, but they found that the burglar had already gone.

The son, who had remained all the time securely confined in the chest, thought of his cruel father. He was greatly mortified, then a fine idea flashed upon him. He made a noise like the gnawing of a rat. The family told the maid to take a candle and examine the chest. When the lid was unlocked, out came the prisoner, who blew out the light, pushed away the maid, and fled. The people ran after him. Noticing a well by the road, he picked up a large stone and threw it into the water. The pursuers all gathered around the well trying to find the burglar drowning himself in the dark hole.

In the meantime he went safely back to his father’s house. He blamed his father deeply for his narrow escape. Said the father, ‘Be not offended, my son. Just tell me how you got out of it.’ When the son told him all about his adventures, the father remarked, ‘There you are, you have learned the art.’

—FROM *The Sayings of Goso Hoyen*, QUOTED IN *Zen and Japanese Culture*, DAISSETZ T. SUZUKI

Chapter IV

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**SEE PEOPLE AS
THEY ARE:
SOCIAL
INTELLIGENCE**



In order to secure my credit and character as a tradesman,” [Benjamin Franklin] explained, “I took care not only to be in *reality* industrious and frugal, but to avoid all *appearances* of the contrary. I dressed plainly; I was seen at no places of idle diversion; I never went out a-fishing or shooting; a book, indeed, sometimes debauched me from my work; but that was seldom, snug, and gave no scandal.” Even after he hired an assistant and took an apprentice...he continued occasionally to do the most menial tasks himself. “To show that I was not above my business, I sometimes brought home the paper I purchased at the stores, through the streets on a wheelbarrow.”

—H.W. BRANDS, *The First American: The Life and Times of Benjamin Franklin*

Social intelligence is clearly the key to the great apes’ biological success. It is in dealing with each other that these animals have to think, remember, calculate, and weigh things up inside their heads. And social intelligence requires every ounce of brain power that they have got....

Africa about twenty million years ago was a much lusher place than it is now. Warm, steaming forests covered the continent, and in those forests lived the common ancestor of modern apes and man—a fruit-eating, tree-dwelling animal about the size of a baboon. Then the climate changed and the forests began to thin out and retreat. Our ancestors came down on to the forest floor; they grew bigger and larger-brained—and almost certainly at that point began to be more socially dependent, with a family structure something like that of the modern chimpanzee.

The weather cooled further; areas of sparsely-treed grassland were developing. A new ecological niche was becoming available which was perhaps tempting to those early apes, but too risky and difficult, too technically demanding to lure them from their traditional haven in the trees. To exploit this new niche a new ‘subsistence technology’ would have to be developed. It would require a close knowledge of the plants and animals, it would require tools,

weapons, a system of sharing. It would require, in short, something approaching a human culture—and our chimpanzee-like ancestors were not yet capable of that. Clever and highly social as they were, I believe they were still incapable of maintaining the intimate long-term social relationships on which human culture depends.

Then, around six million years ago, the first experiment in human social life seems to have been made. While one group of apes—the ancestors of today’s gorillas and chimpanzees—stayed behind, another group—the animals from which we are descended—took to the field. It was the parting of the ways. A new line of man-like apes emerged, with the bodies, and more importantly the minds, that would allow them to survive and flourish as hunters and gatherers on the savannah.

It has been argued that the mark of the first man-like ape was the ability to walk on his hind legs, or to eat and digest a wider range of grassland food, or to relate his fingers to his thumb.... [But] the real mark of a man-like ape would have been his ability to manipulate and relate himself—in human ways—to the other apes around him. We cannot tell when these new-found social skills began to bear real fruit, but there is sufficient archaeological evidence to suggest that by two million years ago the fundamental pattern of human social living had already been laid down. Human beings were living in small communal groups, centered around a home base. There was division of labour, and sharing of food.... Already by that stage the social structure was so far in advance of anything that exists among the other apes, that it implies a quantum leap in the underlying *psychological* skills of the community.

—NICHOLAS HUMPHREY, *The Inner Eye: Social Intelligence in Evolution*

Take Charles Darwin, for instance. He is seen in the popular imagination as a reclusive scientist, preoccupied with his poor health, rarely straying from the house he lived in for almost forty years, and protecting his privacy by building

a high wall.... Yet Darwin would never have enjoyed the success he earned were it not for the fact that in addition to the intellectual capabilities, fierce determination, and single-mindedness that he possessed in common with other geniuses, he also had some impressive diplomatic skills, as well as courage and a marked ability to get on with others. People who knew Charles Darwin liked and respected him. He needed all these personal qualities for dealing with a series of characters whose cooperation he depended on, including a sometimes difficult male parent, and, later, the prickly and short-tempered Captain Robert Fitzroy, with whom Darwin worked hard at maintaining a harmonious working relationship on board the tiny HMS *Beagle* during its five-year voyage. Then there were the various scientists who served Darwin as mentors in his early days and collaborators and disciples later on. Darwin also assembled a network of individuals who were helpful to him because they knew about breeding and the domestication of species.... A glance at *On the Origin of Species* demonstrates that Darwin counted on the aid of these practical experts for much of the immense body of evidence that was needed to buttress the theory of evolution and make it invulnerable to the sharp attacks that he knew would be directed at it....

Later, it was because of Darwin's well-deserved high reputation that when the theory of evolution finally appeared in 1859 it was sympathetically examined by his fellow scientists (rather than encountering the instant rejection that had greeted other evolutionary ideas) and quickly seen to be as sound as it was revolutionary.

Darwin was by no means unusual or unique in having to call upon a variety of human qualities. Even Albert Einstein, although often seen as an isolated thinker, leaned heavily upon his communication skills and his capacity for friendship.

—MICHAEL J.A. HOWE, *Genius Explained*

Empathy.—To understand another person, that is, *to imitate his feelings in ourselves*, we do indeed often go back to the *reason* for his feeling thus or thus and ask for example: *why* is he troubled?—so as then for the same reason to become troubled ourselves; but it is much more usual to omit to do this and instead to produce the feeling in ourselves after the *effects* it exerts and displays on the other person by imitating with our own body the expression of his eyes, his voice, his walk, his bearing (or even their reflection in word, picture, music). Then a similar feeling arises in us in consequence of an ancient association between movement and sensation, which has been trained to move backwards or forwards in either direction. We have brought our skill in understanding the feelings of others to a high state of perfection and in the presence of another person we are always almost involuntarily practicing this skill: one should observe especially the play on the faces of women and how they quiver and glitter in continual imitation and reflection of what is felt to be going on around them.

—FRIEDRICH NIETZSCHE, *Daybreak: Thoughts on the Prejudices of Morality*,
TRANSLATED BY R.J. HOLLINGDALE

In any case it is well to take care not to form a highly favourable opinion of a person whose acquaintance you have only recently made, for otherwise you are very likely to be disappointed; and then you will be ashamed of yourself and perhaps even suffer some injury. And while I am on this subject, there is another fact that deserves mention. It is this. A man shows his character just in the way in which he deals with trifles—for then he is off his guard. This will often afford a good opportunity of observing the boundless egoism of a man's nature, and his total lack of consideration for others; and if these defects show themselves in small things, or merely in his general demeanour, you will find that they also underlie his action in matters of importance, although he may disguise the fact. This is an opportunity which should not be missed. If in the

little affairs of ever day...a man is inconsiderate and seeks only what is advantageous or convenient to himself, to the prejudice of others' rights; if he appropriates to himself that which belongs to all alike, you may be sure there is no justice in his heart, and that he would be a scoundrel on a wholesale scale, only that law and compulsion bind his hands. Do not trust him beyond your door.

—ARTHUR SCHOPENHAUER, *The Wisdom of Life and Counsels and Maxims*,
TRANSLATED BY T. BAILEY SAUNDERS

Never combat any man's opinion; for though you reached the age of Methuselah, you would never have done setting him right upon all the absurd things that he believes.

It is also well to avoid correcting people's mistakes in conversation, however good your intentions may be; for it is easy to offend people, and difficult, if not impossible, to mend them.

If you feel irritated by the absurd remarks of two people whose conversation you happen to overhear, you should imagine that you are listening to the dialogue of two fools in a comedy....

The man who comes into the world with the notion that he is really going to instruct it in matters of the highest importance, may thank his stars if he escapes with a whole skin.

—ARTHUR SCHOPENHAUER, *The Wisdom of Life and Counsels and Maxims*,
TRANSLATED BY T. BAILEY SAUNDERS

Chapter V

Pp. 167-246

AWAKEN THE
DIMENSIONAL
MIND: THE
CREATIVE-ACTIVE



“Every minute is precious,” [Mozart] wrote on one occasion; “I have so much to do that often I do not know whether I am on my head or heels,” he wrote again.... He described his enthusiasm while composing [the opera] *Die Entführung aus dem Serail*: “I rush to my desk with the greatest eagerness and remain seated there with the greatest delight.” “I have so much to compose and not a minute must be lost,” he wrote; “you know that usually I go on composing until I am hungry.” His wife came to believe that he “killed himself with overexertion,” recalling that he “frequently sat up composing until two and rose at four, an exertion which assisted to destroy him.”

Although stories of the colossal pace at which he was able to compose have passed into the realm of the legendary, there is no question but that he ordinarily worked at an extremely fast rate.... He wrote three numbers of *Die Entführung aus dem Serail* in one day, the “Haffner” Symphony in about two weeks, and...the “Linz” Symphony in five days at most. He was undaunted by deadlines.

—MAYNARD SOLOMON, *Mozart: A Life*

Mastery, involving both associative memory and deliberate judgment, is crucial. Like natural selection in biology, it enables us to take advantage of randomness, to recognize and develop its relevance. Mozart might conceivably have got a few ideas for a symphony from throwing dice, but he would have assessed their significance in musical terms....

Mastery also enlarges the mental environment, for a well-stocked associative memory provides extra opportunities for the new ideas to make connections, extra ‘ecological niches’ in which new combinations may prosper. This is partly why...experience, and the motivation to acquire it, is such an important aspect of creativity.

—MARGARET A. BODEN, *The Creative Mind: Myths and Mechanisms*

No argument ever so convinced him as to preclude his entertaining the opposite. Many people find uncertainty unsettling and insist on definite answers to the large and small questions of life. [Benjamin] Franklin was just the opposite, being of that less numerous tribe that finds certainty—or certitude, rather—unsettling. Doubtless this reflected, at least in part, his experience of the stifling certitude of the Mathers in Boston. It also reflected his wide, and ever-widening, reading, which exposed him to multiple viewpoints. Above all, it probably reflected something innate: an equipoise that nearly everyone who knew him noticed and that many remarked upon.... While others agonized upon life's deep issues, Franklin contented himself with incomplete answers, maintaining an open mind.

—H.W. BRANDS, *The First American: The Life and Times of Benjamin Franklin*

Let me tell you the secret that has led me to my goal. My only strength lies in my tenacity.

—LOUIS PASTEUR, QUOTED IN *Louis Pasteur: Freelance of Science*, RENÉ J. DUBOS

Kurt Lewin has observed that we do not become emotionally involved either in a task that is too easy or in one that is too difficult, but only in tasks that we can master at our best.

—MICHAEL POLANYI, *Personal Knowledge: Towards a Post-Critical Philosophy*

Alex Osborn, the inventor of brainstorming, found this interesting instruction in a letter written by Friedrich Schiller to “a friend who complained that he was unable to generate ideas.”

“The reason for your complaint lies, it seems to me, in the constraint which your intellect imposes upon your imagination.... Apparently it is not good—and indeed it hinders the creative work of the mind—if the intellect examines too closely the ideas already pouring in, as it were, at the gates.... In

the case of the creative mind, it seems to me, the intellect has withdrawn its watchers from the gates, and ideas rush in pell-mell, and only then does it review and inspect the multitude. You worthy critics, or whatever you may call yourselves, are ashamed or afraid of the momentary and passing madness which is found in all real creators.... Hence your complaints of unfruitfulness, for you reject too soon and discriminate too severely.”

—ROBERT H. MCKIM, *Experiences in Visual Thinking*

Some people have the capacity to take advantage of the opportunities provided by their experiential world, while others fail to do so. As Ernst Mach pointed out, many lucky discoveries “were seen numbers of times before they were noticed.” Fleming was certainly not the first to see a bacterial culture ruined by mold, but he was evidently the first to notice the significance of this observation. This suggests that creative geniuses may enjoy a special openness to the potential implications of the innumerable stimuli that impinge daily upon their brains.... When [Charles] Darwin had to specify what he considered his single best mental attribute, he claimed, “I think that I am superior to the common run of men in noticing things which easily escape attention.” This exceptional capacity was confirmed by Darwin’s son Francis, who was often his father’s scientific collaborator.

Francis took special note of his father’s “instinct for arresting exceptions: it was though he were charged with theorizing power ready to flow into any channel on the slightest disturbance, so that no fact, however small, could avoid releasing a stream of theory, and thus the fact became magnified into importance.... And so it happened that he was willing to test what would seem to most people not at all worth testing. These rather wild trials he called ‘fool’s experiments,’ and enjoyed extremely.”

Francis provided a curious example of one of these experiments: After noticing that the leaves of a certain plant seemed sensitive to table vibrations,

Darwin asked his son to play his bassoon close to the plant, to determine if it might perceive sound!... Yet by conducting such experiments, Charles Darwin was sending open invitations to Fortune in the hope that something serendipitous would be sent his way. Sometimes she complied, and when she did, Darwin always took note.

—DEAN KEITH SIMONTON, *Origins of Genius: Darwinian Perspectives on Creativity*

Very gradually I have discovered ways of writing with a minimum of worry and anxiety. When I was young each fresh piece of serious work used to seem to me for a time—perhaps a long time—to be beyond my powers. I would fret myself into a nervous state from fear that it was never going to come right. I would make one unsatisfying attempt after another, and in the end have to discard them all. At last I found that such fumbling attempts were a waste of time. It appeared that after first contemplating a book on some subject, and after giving serious preliminary attention to it, I needed a period of subconscious incubation which could not be hurried and was if anything impeded by deliberate thinking. Sometimes I would find, after a time, that I had made a mistake, and that I could not write the book I had had in mind. But often I was more fortunate. Having, by a time of very intense concentration, planted the problem in my subconsciousness, it would germinate underground until, suddenly, the solution emerged with blinding clarity, so that it only remained to write down what had appeared as if in a revelation.

—BERTRAND RUSSELL, *Portraits from Memory and Other Essays*

Since what we select to attend to is guided by our expectations of what it is we are going to see, there is a circularity involved which means we experience more and more only what we already know. Our incapacity to see the most apparently obvious features of the world around us, if they do not fit the

template we are currently working with...is so entrenched that it is hard to know how we can ever come to experience anything truly new....

The left hemisphere will never help us here. As one researcher has put it, the left hemisphere on its own, for example after a right-hemisphere stroke, just 'sees what it expected to see.' We need, as Heraclitus pointed out, to expect the unexpected: 'he who does not expect will not find out the unexpected, for it is trackless and unexplored.' In other words we must learn to use a different kind of seeing.

—IAIN MCGILCHRIST, *The Master and his Emissary: The Divided Brain and the Making of the Western World*

A particular case in point...is seen in the handling of errors during the creative process. Creative people, I have found, handle errors in such a characteristic way that it is fair to label this as a special mark of creativity. Whereas most people carrying out a very difficult task, as creating unquestionably is, tend to be rather careful, controlled, and constantly wary of making errors, such is not the case with the highly creative. While engaged in the creative process, they feel free to range far and wide, take chances and think thoughts that invariably lead to some error. Characteristically, when such errors appear, there is not a good deal of distress and consternation, but a virtually immediate attempt at articulation. Misses and mistakes are, if possible, joined into a whole. Significant elements in the error, ranging from a slip of the paintbrush to the growing of mold on a petri dish, are separated out, and an attempt is made to articulate them into the corpus of the work in progress and, at the same time, to join each together. In other words, the error may be incorporated into the work or, if it is suggestive, it may lead the entire work into completely new directions.

Such an approach to errors and mistakes could in part be classified as a type of flexibility of thinking, an attribute that has long been known to be a general characteristic of creative people. Also, there is a willingness to learn by

experience and to consider the significance of wrong results, capacities that are very advantageous for creating or for any type of high-level intellectual pursuit. Articulating errors during the creative process, however, consists of more than these types of capacities and approaches. Not only is it seeing how an error changes an initial conception or belief, there is a special allowing of, almost a courting of, errors and mistakes. There is sometimes even some pleasure connected with their appearance because of past successes. They are not purposely introduced, but as soon as they appear the creator engages in an active process of making in which errors are transformed into something else.

—ALBERT ROTHENBERG, M.D., *The Emerging Goddess: The Creative Process in Art, Science and Other Fields*

In the development of quantum theory, it is notable that Werner Heisenberg, in recalling the night on which he developed his matrix mechanics, associated it with freedom from chronic hayfever while vacationing on treeless Heligoland. The mathematician Poincaré had a breakthrough in a long-term problem in the act of lifting his foot in order to step onto a trolley car. One of us, David Bohm, experienced such a radical revision of order during childhood that it formed the theme of his later thinking about wholeness and the holomovement.

As a child, Bohm sought security in fixed position and prearranged strategies. One day, while approaching a stream with some friends, he, as usual, planned out his set of moves, visualizing in his mind the way he would use rocks as stepping stones, putting down each foot in order to traverse the stream. But as soon as he began to cross he realized that if he stopped moving for only a moment he would fall into the water. The only way he could cross was to keep on moving rather than making a series of transitions between fixed stopping points. At that moment he realized that security did not lie in grasping fixed positions but in continuous movement and flow. It was this order, first understood in a

purely somatic way, that had a major influence on all Bohm's later thinking in science and philosophy.

—DAVID BOHM AND F. DAVID PEAT, *Science, Order, and Creativity*

What is the typical creative genius like? According to the accumulated literature, creative geniuses are open to diverse experiences, display exceptional tolerance of ambiguity, seek out complexity and novelty, and can engage in defocused attention. They display a wide range of interests, including interests that extend beyond their immediate domain of creative activity.... They also exhibit tremendous independence and autonomy, often refusing to conform to conventional norms—at times exhibiting a pronounced rebellious streak. They deeply love what they do, showing uncommon enthusiasm, energy, and commitment.... They are persistent in the face of obstacles and disappointments, but at the same time they are flexible enough to alter strategies and tactics when repeated failure so dictates.

—DEAN KEITH SIMONTON, *Origins of Genius: Darwinian Perspectives on Creativity*

“Every night and all of every Saturday night I worked on the new motor. I cannot say that it was hard work. No work with interest is ever hard.”

—HENRY FORD, QUOTED IN *The People's Tycoon: Henry Ford and the American Century*, STEVEN WATTS

None but a naturalist can understand the intense excitement I experienced when at last I captured it [a new species of butterfly]. My heart began to beat violently, the blood rushed to my head, and I felt much more like fainting than I have done when in apprehension of immediate death. I had a headache the rest of the day, so great was the excitement produced by what will appear to most people a very inadequate cause.

—BRITISH BIOLOGIST ALFRED WALLACE, QUOTED IN *The Art of Scientific Investigation*, W.I.B. BEVERIDGE

Chapter VI

Pp. 247-311

**FUSE THE
INTUITIVE WITH
THE RATIONAL:
MASTERY**



If you think of Revolution, dream of Revolution, sleep with Revolution for thirty years, you are bound to achieve a Revolution one day.

—NIKOLAI LENIN, QUOTED IN *The Act of Creation*, ARTHUR KOESTLER

However, the intuitive powers of the investigator are always dominant and decisive. Good mathematicians are usually found capable of carrying out computations quickly and reliably, for unless they command this technique they may fail to make their ingenuity effective—but their ingenuity itself lies in producing ideas. Hadamard says that he used to make more mistakes in calculation than his own pupils, but that he more quickly discovered them because the result did not *look* right.... Gauss is widely quoted as having said: ‘I have had my solutions for a long time but I do not yet know how I am to arrive at them’...A situation of this kind certainly prevails every time we discover what we believe to be the solution to a problem. At that moment we have the vision of a solution which *looks* right and which we are there confident to *prove* right.

The manner in which the mathematician works his way towards discovery, by shifting his confidence from intuition to computation and back again from computation to intuition, while never releasing his hold on either of the two, represents in miniature the whole range of operations by which articulation disciplines and expands the reasoning powers of man.

—MICHAEL POLANYI, *Personal Knowledge: Towards a Post-Critical Philosophy*

“Draw bamboos for ten years, become a bamboo, then forget all about bamboos when you are drawing. In possession of an infallible technique, the individual places himself at the mercy of inspiration.”

To become a bamboo and to forget that you are one with it while drawing it—this is the Zen of the bamboo, this is the moving with the “rhythmic movement of the spirit” which resides in bamboo as well as in the artist himself.

What is now required of him is to have a firm hold on the spirit and yet not to be conscious of this fact. This is a very difficult task achieved only after long spiritual training.

—DAISETZ T. SUZUKI, *Zen and Japanese Culture*

In terrain often devoid of landmarks he [General Rommel] developed an uncanny sense of location. His memory seemed to have registered every empty oil drum, broken cairn or burned-out tank littering the sands. He had acquired the desert dweller's sixth sense, too. Driving far out in the desert one day with his chief of staff, he suddenly cried, "Let's pull out! In half an hour the enemy will be here!" Soon a dust cloud appeared on the distant horizon, betraying the approach of enemy armored cars.

—DAVID IRVING, *The Trail of the Fox*

But can one learn to play "out of his mind" on purpose? How can you be consciously unconscious? It sounds like a contradiction in terms; yet this state can be achieved. Perhaps a better way to describe the player who is "unconscious" is by saying that his mind is so concentrated, so focused, that it is *still*. It becomes one with what the body is doing, and unconscious or automatic functions are working without interference from thoughts. The concentrated mind has no room for thinking how well the body is doing, much less of the how-to's of the doing. When a player is in this state, there is little to interfere with the full expression of his potential to perform, learn and enjoy....

When a tennis player is "in the zone," he's not thinking about how, when or even where to hit the ball. He's not *trying* to hit the ball, and after the shot he doesn't think about how badly or how well he made contact. The ball seems to get hit through a process which doesn't require thought. There may be an awareness of the sight, sound and feel of the ball, and even of the tactical situation, but the player just seems to *know* without thinking what to do....

During such experiences, the mind does not act like a separate entity telling you what you should do or criticizing how you do it. It is quiet; you are “together,” and actions flows as free as a river.

—W. TIMOTHY GALLWEY, *The Inner Game of Tennis*

“When the identity is realized, I as swordsman see no opponent confronting me and threatening to strike me. I seem to transform myself into the opponent, and every movement he makes as well as every thought he conceives are felt as if they were all my own and I intuitively, or rather unconsciously, know when and how to strike him. All seems to be so natural.”

—THE SWORDSMAN TAKANO SHIGEYOSHI, QUOTED IN *Zen and Japanese Culture*,
DAISETZ T. SUZUKI

Intuition is a very powerful thing, more powerful than intellect, in my opinion. That's had a big impact on my work.... That's the power of intuition and experiential wisdom.

—STEVE JOBS, QUOTED IN *Steve Jobs*, WALTER ISAACSON

Basketball is a complex dance that requires shifting from one objective to another at lightning speed. To excel, you need to act with a clear mind and be totally focused on what everyone on the floor is doing. The secret is not thinking. That doesn't mean being stupid; it means quieting the endless jabbering of thoughts so that your body can do instinctively what it's been trained to do without the mind getting in the way. All of us have flashes of oneness.... When we're completely immersed in the moment, inseparable from what we're doing.

—PHIL JACKSON, *Sacred Hoops*

You perhaps have heard about the incredible long-term memories of chess masters; some are apparently able to recall every move of every game they have played. Dutch psychologist De Groot has found that the short-term memories of chess masters are equally acute. He showed an unfamiliar chess situation to chess players of various strengths for five seconds; expert and average players made many errors in reconstructing the chessboard from memory, while players such as ex-world-champion Max Euwe recalled each situation perfectly.

Binet and others have found that chess masters rarely see a realistic and detailed memory image of the chessboard, however. Instead, they commonly see a gestalt-like image made up of strategic groupings. Their inner imagery is pattern-like.... Pillsbury reported a “sort of formless vision of the positions”; Alekhine said he visualized the pieces as “lines of force.”

—ROBERT H. MCKIM, *Experiences in Visual Thinking*

The world as a living being—one nature, one soul. Keep that in mind. And how everything feeds into that single experience, moves with a single motion. And how everything helps produce everything else. Spun and woven together.

—MARCUS AURELIUS, *Meditations*, TRANSLATED BY GREGORY HAYS

There are countless reports in history about people with an extraordinary ability to know where they are going: pathfinders, guides, mariners, pioneers. Certainly, ancient peoples found their way across continents and oceans without compasses, sextants, radar, or the global positioning satellite system. We know too that species such as migratory birds and salmon have an instinctive sense of direction. Certain cells in the heads of honey bees and of homing pigeons contain crystals of magnetite, a natural magnetic material. The crystals align in the earth’s magnetic field much like the hands of a compass, which is somehow used by these species as a frame of reference in navigating.

Joseph Kirschvink and researchers at the California Institute of Technology have identified the same kind of magnetite particles in human brain tissue. They don't know what function the particles actually serve, but the possibilities are intriguing.

—JOHN J. RATEY, M.D., *A User's Guide to the Brain: Perception, Attention, and the Four Theaters of the Brain*

As William J. Cameron once noted, his boss [Henry Ford] read machines the way other people read books. They “were like a library to him. He could read in an old machine what the man had, what idea he had when he started it, what he had to work with,” Cameron noted. Ford described how he could examine an object and discover “what the man who made them was thinking, what he was aiming at.... A machine that has been run fifteen years tells its own story.”

—HENRY FORD, QUOTED IN *The People's Tycoon: Henry Ford and the American Century*, STEVEN WATTS

In the case of Hozoin he penetrated into the secret of using the spear and became *meijin* of his art. A *meijin* is a man who is more than an expert or a specialist, he is one who has gone even beyond the highest degree of proficiency in his art. He is a creative genius. Whatever art he may pursue, his original individuality marks him out. Such a one is known as *meijin* in Japanese. There is no born *meijin*, one becomes a *meijin* only after experiencing infinitely painstaking discipline, for only such a series of experiences leads to the intuition of the secret depths of art, that is, of the lifespring....

—DAISETZ T. SUZUKI, *Zen and Japanese Culture*

He invented a large number of astonishing devices during this time, which brought him considerable fame as an engineer–magician.

Many of these inventions were extraordinary for the period. Among them were doors that opened and closed automatically by means of counterweights; a table lamp with variable intensity; folding furniture; an octagonal mirror that generated an infinite number of multiple images; and an ingenious spit, in which “the roast will turn slow or fast, depending upon whether the fire is moderate or strong.” Other inventions of a more industrial nature included a press for making olive oil, and a variety of textile machines for spinning, weaving, twisting hemp, trimming felt, and making needles. Leonardo remained an avid inventor throughout his life. The total number of inventions attributed to him has been estimated at three hundred....

In addition to examining military fortifications and producing numerous drawings with suggestions for improvements, he studied the flora and geological formations of the areas he visited, drew beautiful, detailed maps that showed distances and elevations....

Leonardo’s maps from that period show geographical details with a degree of accuracy far beyond anything attempted by the cartographers of his time. He used washes of different intensities to follow the contours of mountain chains, different shades representing different elevations, and he pictured the rivers, valleys, and settlements in such a realistic manner that one has the eerie feeling of looking at the landscape from an airplane....

His geological observations are stunning not only by their great accuracy, but also because they led him to formulate general principles that were rediscovered only centuries later and are still used by geologists today. Leonardo recognized temporal sequences in the strata of soil and rock, and corresponding sequences in the fossils deposited in those strata, and he recorded many fine details concerning erosion and deposits by rivers.

He was the first to postulate that the forms of the Earth are the result of processes taking place over long epochs of what we now call geological time.

With this view he came close an evolutionary perspective more than three hundred years before Charles Darwin.

—FRITJOF CAPRA, *The Science of Leonardo: Inside the Mind of the Great Genius of the Renaissance*

He is the happiest man who can trace an unbroken connection between the end of his life and the beginning.

—JOHANN WOLFGANG VON GOETHE, *Maxims and Reflections*

OTHER WORKS BY ROBERT GREENE

The Art of Seduction (A Joost Elffers Production)

The 48 Laws of Power (A Joost Elffers Production)

The 33 Strategies of War (A Joost Elffers Production)

The 50th Law (with 50 Cent)