



Living in Truth, Beauty, and Goodness

VALUES AND VIRTUES

J E F F R E Y W A T T L E S

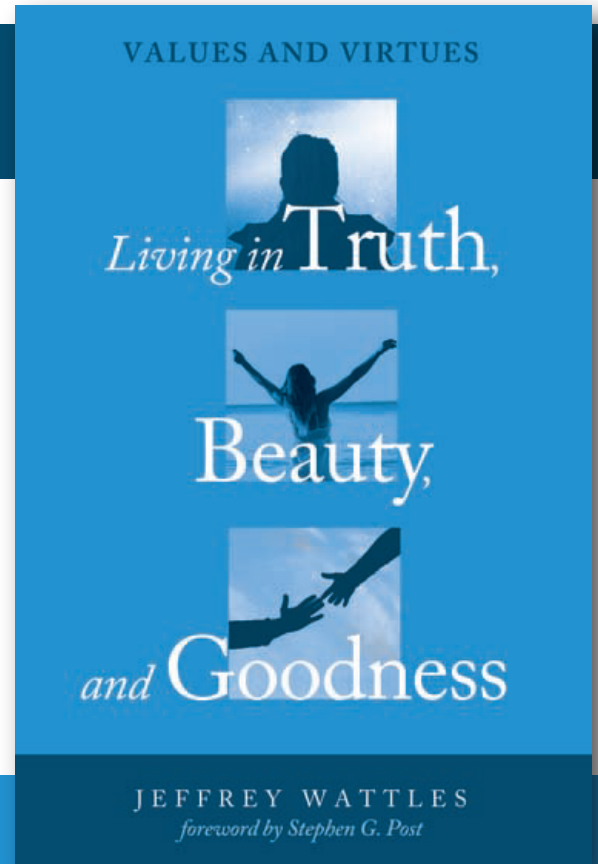
foreword by Stephen G. Post

Truth, beauty, and goodness are more than traditional ideas—they are living realities bearing dynamic potentials for a future we can help create. As we grow, these supreme values increasingly guide our thinking, feeling, and doing. No matter what your philosophical, religious, or spiritual orientation may be, having a philosophy of living centered on these ideals will enhance your understanding and integration.

Seasoned by the author's experience in leading thousands of students through experiential projects, *Living in Truth, Beauty, and Goodness* contains all the essential ingredients to help you develop your own personal philosophy. Your guides are Darwin, Socrates, Jesus, Bach, and other world-class pioneers, whose strengths and insights can inspire you to develop a resilient and virtuous character.

As you explore truths in science, philosophy, and spiritual experience; beauty in nature and the arts; and goodness in morality and character, you will be encouraged to transplant what is proposed here into the garden of your own concepts and then creatively put the emerging meanings and values into practice.

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Jeffrey Wattles retired from teaching philosophy to finish this book and start working *with* it rather than *on* it. He authored *The Golden Rule* (Oxford University Press) and has written articles on religious experience, environmental aesthetics, and the concept of purpose in cosmology and biology. Professor Wattles has led more than three thousand students through experiential projects in introductory philosophy, world religions, philosophy of religion, aesthetics, and ethics. His wife is Japanese, and their son works in Tokyo.

“Wattles makes a significant contribution to the exciting reemergence of the value triad of truth, beauty, and goodness—a powerful philosophical technology that can be used for both personal growth and social service. Wattles grounds his message through insightful biographical explorations of the lives of exemplary leaders who have lived out these most intrinsic values. Highly recommended!”

—STEVE MCINTOSH, Author, *The Presence of the Infinite: The Spiritual Experience of Beauty, Truth & Goodness*; President, The Institute for Cultural Evolution

“This is no ordinary book! Combining religion, philosophy, science, art, and ethics in a practical, how-to endeavor, Wattles invites readers on a transformative journey. The ideas have been trial-tested in the lives of his students over the decades, as the anecdotes and stories note. The insights and instructions herein make this a book I plan to reread often!”

—THOMAS JAY OORD, Author, *The Uncontrolling Love of God*

“Jeffrey Wattles’ timely new book provides an inspiring paradigm of an open-ended learning style that constantly transcends its borders. Drawing upon significant thinkers and doers, as well as his own academic and personal experience, Wattles charts a journey inspired by the ideals of Truth, Beauty, and Goodness to illustrate how these ideals can become integral to one’s being. In so doing, he challenges us to incorporate these themes in our own life’s journey.”

—KATHLEEN M. O’CONNELL, Author, *Rabindranath Tagore: The Poet as Educator*

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Values and Virtues

Jeffrey Wattles

Foreword by
Stephen G. Post



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LIVING IN TRUTH, BEAUTY, AND GOODNESS
Values and Virtues

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Foreword

I FIRST MET PROFESSOR Jeffrey Wattles at least fifteen years ago in one of his philosophy classes at Kent State University, where I was witness to his remarkable ability to engage students in a way that helped them gain perspective on the direction and meaning of their lives. They took him seriously not simply as an intellectual, but as someone who could coax them to live better by reflecting deeply on important matters of virtue and purpose in life. Professor Wattles is successful because while his motives and thought have their grounding in his basic Christianity, he is a Christian “inclusivist” in Paul Tillich’s sense of the term—someone who is going to appreciate the work of God in other traditions consistent with core Christian values. How else can anyone seriously engage our cosmopolitan and interspiritual age? Wattles is equally comfortable connecting with students who represent Hinduism, Buddhism, Taoism, and other traditions, including secular philosophy. He is not a simple-minded “pluralist” who endorses anything and everything, but a discerning thinker who looks for God’s work in a range of cultures and spiritualities.

I had already learned much from Wattles’s exceptional book *The Golden Rule* (Oxford University Press, 1996), in which he surveys the diverse historical contexts of the rule and delves into a number of the world’s religions as well as secular philosophical thought over the recent centuries. *The Golden Rule* is quite simply the authoritative study on the subject, weaving together science, history, ethics, and religious thought at a time when this approach was much rarer than it is now. On the back cover of *The Golden Rule* there is a brief biosketch that concludes with this line: “His next book will present a philosophy of living based on concepts of truth, beauty, and goodness.” Two decades after this promise, his second book has finally taken shape in *Living in Truth, Beauty, and Goodness: Values and Virtues*. Now

retired from his teaching career, Wattles has found the time to write this equally impressive and unique book. It is well worth reading and discussing.

Living in Truth, Beauty, and Goodness arises from his years of teaching students from diverse backgrounds who really want to be challenged to find new philosophies of living that will enhance their lives. Wattles has developed an excellent website to accompany this book at <http://UniversalFamily.org>. *Living in Truth, Beauty, and Goodness* is designed to be a guide for those perplexed by the spiritual and philosophical emptiness of modern culture and materialism, and their journey can continue forward after they finish the book with the many postings on the accompanying website.

True to his previous writing, Wattles presents a philosophy of living grounded in the trinity of truth, beauty, and goodness. In *Part I. Living the Truth*, he asks us to examine the character strengths and virtues of three very different individuals each deeply committed to following their quest for truth with integrity—Darwin, Socrates, and Jesus. The chapter on Darwin underscores how the pursuit of fact and accuracy shaped the life and character of Darwin as it does for any true scientist, even when critics abound. His chapter on Socrates highlights the philosopher's lifelong drive for rational truth, even to the point of accepting death in integrity rather than fleeing Athens. This theme of integrity reaches a clear crescendo in a chapter on the life and teachings of Jesus on spiritual truth. While each chapter includes careful interpretation of the thought worlds of their subjects, the greater emphasis is on their lives, their values and virtues, which help us live out everyday life to the fullest. We see three profiles in truth and courage in widely different contexts but all conjoined, for Wattles wants us all to seek truth in scientific fact, in philosophy and wisdom, and in spirituality. He sees no conflict between these three pursuits, and asks us each to be diligent in all these domains, for ultimately, truth is truth, approached empirically, rationally, or spiritually.

In *Part II. Walking in Beauty*, Wattles invites us to examine the character strengths and virtues of two individuals deeply committed to following their quest for beauty—John Muir and Johann Sebastian Bach. Muir pursued beauty as the nation's first great modern naturalist, and of course, Bach is Bach. As one who has read much about Bach and played at least some of his lute suites, I can attest that I have not found anything as thoughtful as Wattles's treatment of Bach. In this chapter all of Bach's biographical wanderings and his immense creativity come together in his character strengths and his profound theological insights. This chapter brings to mind Jaroslav Pelikan's great work *Bach Among the Theologians*. The reader comes to know what it means to pursue beauty despite hardships and challenges in a spiritual quest.

In *Part III. Participating in Divine Goodness*, Wattles draws on the great New Testament exegete, physician, and medical missionary Albert Schweitzer, whose love for life was unsurpassed. Here Wattles returns us to some of the themes from *The Golden Rule*, but with a level of depth and insight at the affective, rational, and spiritual levels that could only emerge from deep reflection over many years since the first book was written. Wattles also focuses a chapter on Pitirim Sorokin, the greatest twentieth-century sociological and integrative thinker on the centrality of love, and especially of our experience of God's love. As a scholar of Harvard's Sorokin myself over many years, and having met the man as a boy when he was speaking in New Hampshire, I can safely state that Sorokin's vision about a human future that must break through at the level of spiritual experience and practical application to the ways and power of divine love is very clearly and persuasively presented in Wattles's chapter. Over the years, Professor Wattles and I have had many discussions of the nature of Divine *agape* love and the various expressions of it, and I have emphasized Sorokin's work in conversations going back to 2000. Only now, in reading *Living in Truth, Beauty, and Goodness*, do I feel that I grasp the spiritual essence of this great man.

But I must end this foreword by stressing how easily readable this book will be to everyday people who just want to live better and more meaningful lives. The chapters are connected by the narrative of Wattles's own quite remarkable spiritual journey around the globe from youth, and with anecdotes from his many delighted students who were able to find their way to deep living with his mentorship and guidance. In summary, Wattles is a seeker, and he wants us to understand all that being a seeker implies. He has found himself in a very profound Christianity. Wattles joins the ranks of those humble believers who want to not just tolerate, but engage, various spiritual traditions and philosophical modalities. He is a humble man who has written a book that should be read by every college student and every thoughtful person concerned about the destructive drift of our materialistic, sensate, and increasingly dangerous world where growing up seems harder to do, and the future less certain than ever before.

Stephen G. Post, PhD

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Preface

AFTER AN INQUISITIVE AND devout early childhood, I consecrated myself at the age of seven to becoming perfect. For the most part, I continued to enjoy education, religion, and life generally. I was happily immersed in my high school studies in Charlottesville, Virginia, when one spring morning my English teacher gave our class some silent time to think. Truth, beauty, and goodness suddenly manifested for me not as intellectual ideas but as a trio of luminous realities. The experience was intuitive, utterly clear, and perfectly calm.

When I went to college and met Plato in the course on Western civilization and discovered the power of logical analysis in ethics, philosophy swept over me like a wave, and I determined to be a professor. My next few years of study were a headlong plunge into a new quality of thinking. The patient analysis, clarity, impressive arguments, and depth of concept made a tremendous appeal to my intellect. But I abandoned my religious rudder. I fell in love with Nietzsche, whose brilliant boldness struck me as insightful. Taking his ideas as my philosophy of living proved a disaster: without faith, I lost my moral compass and then my sanity. I did not realize that my philosophical passion was a quest for God.

Gradually, the pieces came together. I deepened my study of Plato and began to practice Transcendental Meditation, and my spiritual perspective brightened. In graduate school, I found God and started all over again, building my philosophy of living around concepts of truth, beauty, and goodness. I soon found my inquiry leading me into a meadow of joyous discovery; and I vowed to write a book to share the bountiful treasure.

After graduate school, with the mind of a philosopher and the heart of an evangelist, I spent some time in seminary and joined a group engaged in evangelism, going door to door and doing some street preaching. When I needed to get serious about my career, I went back to philosophy and

began working to subordinate my religious fervor to the will of God. My passion for high-quality thinking was unswerving, but I had a new message for people: “You are a divinely created, infinitely loved, spiritually indwelt, evolutionary, free-will son or daughter of God.”

After my forays into Western philosophy, I immersed myself for several years in the profound and beautiful simplicities of Eastern philosophy with Lao Tzu, Confucius, Mencius, Chu Hsi, and Wang Yang-ming. Later, I had the chance to teach units on Latin American philosophy and African philosophy.

Each layer of my education enabled me to better understand and identify with new groups of people. My travels in Europe, Asia, Africa, and Latin America; living for extended periods in France, Belgium, and Switzerland; working for seven years at a small international school in Berkeley, California, where I taught world history, world literature, humanities, English, business, and psychology; marrying a Japanese person and savoring the treasures of Japanese culture—these experiences strengthened my bonds with people, all kinds of people. Looking for what was true and beautiful and good yielded an abundant harvest.

My last fifteen years as a teacher were especially rewarding for bonding with diverse individuals and promoting discovery. I had gradually been learning to integrate concepts of truth, beauty, and goodness into my courses, and I started to center them on experiential projects based on these concepts. I would select the most universally appealing concept from the philosophy or religious tradition that we were studying and invite the students to modify that concept until they felt good about applying it in their own lives. For example, in the world religions course we would begin with the Bhagavad Gita of Hinduism and the Dhammapada of Buddhism, and the first project was on centered and compassionate living. For a centering practice, a person could select from alternatives ranging from conscious breathing to seeking the kingdom of God within. Conscious breathing simply means taking time to allow the attention to rest on the breath; described in this way, the practice is free of spiritual or religious connotations. My students were mostly Christians and atheists; classes might also include agnostics, Buddhists, Jews, Muslims, and people exploring spirituality independently. I made sure that they all felt supported no matter what they believed or did not believe about religion.

During the first week or so when students were thinking creatively about how to apply the assigned and personally modified concept in their lives, I would tell them that the greatest growth comes from tackling our front-burner issue, our biggest growth challenge—within the limits of psychological wisdom about not taking on too much. Most students did

tackle their number one issue, and this was one of the main reasons why so many of them had transformative experiences. I repeatedly emphasized that growth has its own rhythm and cannot be forced. They were warned about feeling pressure to achieve a dramatic breakthrough. The essential thing was to give evidence of sincere and persistent effort to *cultivate the soil* for growth.

Week by week, students would journal about what happened as they put the concept they had chosen into practice (journals were always private). After a month and a half, they would turn in papers that related the readings to their experience. I would read these immediately, usually moved to tears by the challenges that some of them had chosen to confront and the triumphs they achieved. I would make selections representing the range of experiences that seemed most educational, ask permission from each student to read their selection anonymously in class, and then dedicate the next class meeting to letting the students hear their classmates' amazing achievements. Those days of sharing were the highlight of my life.

How do I know that the students were not faking? A very few did and were caught. But the class was based on such a quality of interpersonal relating that most students—as far as I could tell—were drawn into the atmosphere of openness and trust. During office hours, many shared their lives with me. In their writing I would normally see a special kind of eloquence combining blunt factual description with the freshness of discovery. The writing had a spontaneous quality; it was not the rhetoric of skilled writers, but the mark of having sincerely followed through on a project. Usually about two-thirds of the students reported major breakthroughs. It was a privilege, a struggle at times, a tremendous learning experience, and a profound satisfaction to lead these experiential courses for over three thousand students.¹

Now, in retirement, I continue with my mission. My goal is to interact in ways that give tastes, promote discoveries, and whet appetites for projects of any duration, from minutes to years. My voice in these pages is more overtly religious than was my conduct in class, but it offers the same invitation to you, the reader. Create your own philosophy of living. Using the tools that this book provides, you can most effectively leverage your personal growth and planetary contribution by wrestling with these ideas, adapting them to what you honestly feel good about putting into practice,

1. About 10 percent of the students seemed to engage only superficially; in addition to the roughly two-thirds whose experiences were transformational, the rest reported positive but modest experiences. All the students were exposed for sixteen weeks to an uplifting environment of high meanings and values.

addressing your front-burner issue, and going forward with your own creative experiments in truth, beauty, and goodness.

Upon completing the reading of a chapter, it is wise to create for yourself some kind of summary so that you are not left with a pile of challenging ideas and an ever more daunting list of virtues to cultivate. To symbolize the whole of a chapter, a part, or book, you can create your own image, diagram, mind-map, gesture, phrase, or work of art that stands for the whole.

The chapters are designed with easy access on the ground floor and with high ceilings above so that the windows offer an expanded vista. The secret to success is to remember that even modest progress is rich in meaning and value; whenever a microproject or something more ambitious leads to a satisfactory result, it is appropriate to give thanks and take a victory lap.

The philosophy of living in truth, beauty, and goodness presented here is more than any one book can put into words and more than any one author can produce. Some of the needed work has already been done by men and women who have gone before; other students, scholars, authors, specialists, generalists, and interested persons are needed to bring this philosophy to fullness. Some will do projects in one or more of the seven areas featured here and share their experience. Some will use experiential education to help students discover and actualize these values. Some will contribute as I have tried to do, helping to build the new philosophy of living. Potentials for teamwork beckon on the horizon. I plan to make available more opportunities: a podcast series, YouTube videos, free online courses based on these chapters, with ongoing conversation on my weblog, <http://UniversalFamily.org>.

This book is full of resources for your voyage into truth, beauty, and goodness. Life introduces everyone to these values. Now let's go with them to the next level!

Introduction

Setting Out on a Path to Higher-Quality Thinking

I KNOW WHAT IT is to be moved by high-quality thinking. A relaxed satisfaction comes over me when I find writing that clarifies a muddled topic and awakens the urge to explore further. The flow, the quiet logic, the confident handling of information, the flavor of insight skillfully shared—such excellence has led me to some good decisions with far-reaching implications. I have seen good thinking spark enthusiasm in others too, and I see evidence of more and more people caring about improving the way their minds function.

The desire for quality thinking is not merely an esoteric passion shared by an elite group of intellectuals; it also affects popular culture, where we speak of smartphones, information technology, and the knowledge economy. The nationwide restaurant chain Chipotle prints brief essays on burrito bags in a series titled “Cultivating Thought”—a branding move that would be unthinkable unless their market research showed that it resonates with the interests of their clientele.

But cultivating one’s mind does not succeed as an isolated venture. Intimate connections exist between thinking, feeling, and doing. Neuroscience has found that our brains are wired to connect the parts of the brain involved in thinking with the parts of the brain associated with feeling. We can’t think clearly if our emotions are in turmoil. Nor does thinking go well if we are acting on material urges and selfish impulses. Think better, and you’ll feel better; feel better, and you’ll act better. These three aspects of our lives flourish together.

Our thinking, feeling, and doing are not random; they are oriented to values. Although the values we seek are diverse, we can classify them

under three suitable headings. When we wrestle with a problem and break through to the answer, we may speak of “intuition” or “insight,” words implying *truth*, which is sought in thinking. When we keenly enjoy listening to music or quietly contemplate the night sky, we may use words such as “cool” or “awesome,” expressing shades of *beauty*, which attracts feeling. When we get involved in doing something for others and speak of “making a difference,” “giving back,” or doing something “to make the world a better place,” the phrases imply *goodness*, expressed in doing.

Truth, beauty, and goodness are lofty and down-to-earth, universal and local, timeless and timely, celebrated and longed-for. They are values that we feel and ideas that we debate. We usually do not have them in mind when we are engaged in activity, but they are always present. They are living realities bearing dynamic potentials for a future that we can help create. Our sense of them affects the way we see things, how we feel and act, and the kind of person we become. To seek a higher quality of thinking about these values is therefore to seek a philosophy of living.

Our naturally developing philosophy

In a casual sense, we develop our own philosophy simply by growing up. An example is Sydney Jordan’s response to an assignment I gave my students during the first week in a philosophy class: Write about an experience that has given you an intuitive understanding of truth.

For me, truth is a feeling of satisfaction. Not in the way of feeling full and satisfied after a meal, but rather a sense of wholeness. For example, my family has a rather large garden that we work every summer. This past summer was the first time I was allowed to have a crop of my own. The feeling I got from the start when the ground is first turned to the harvest is a sense of completeness. At the end of each session in the garden I am dirty, sweaty, and tired, but it is my hard work and dedication that produce something good. People that do what I do need determination, hard work, patience. Being in the garden every summer is a truth for me. We plant it, care for it, wait, and it grows then feeds us and others. Truth is what is there when all of the fancy is taken away. Truth is understanding the value of things, that all things have value and are in some way connected.¹

Here we see blended cognitive, emotional, and practical experience, nurturing character growth and leading to an expanded understanding of truth.

1. Sydney Jordan’s experience report is quoted with her permission.

When our understanding is functioning well, we feel no need for wisdom to help us put the pieces together. But we run into difficulties that make us think, and think hard. We develop our philosophy of living further in our late teens and twenties as we face the challenges of adult life; we “make choices that lead to the creation of a pattern of life that lasts for almost 20 years.”²

Later on, when we wrestle with ethical dilemmas, struggle in relationships, question religion, or cope with loss, big questions loom. What is the meaning of life? Where is our world heading? Which values are worth committing to? Caught up in such questions, we want more than knowledge and quick solutions; we want wisdom. We become hungry for the power of high-quality thinking and spiritual realization that can lift us to a new level of emotional harmony and practical effectiveness. We become ready to develop our philosophy more deliberately.

A special opportunity for philosophy today

Once we become interested in a philosophy of truth, beauty, and goodness, our inquiry starts to overlap with what philosophers have been discussing for thousands of years. The project of developing such a philosophy goes back at least as far as Plato. In his dialogue, the *Symposium*, we find some ideas akin to what is proposed here—for example, intellectual insight into truth as a stepping stone to the realization of beauty, and reflection on beauty as leading to the realization of goodness.³ These values continued to be discussed by Thomas Aquinas and other medieval philosophers and theologians in the Catholic intellectual tradition down to the present day. The concepts are called transcendentals, because they transcend every category and apply to everything in every category: everything has a measure of truth (including being and unity), goodness, and beauty.⁴ Then, beginning in the eighteenth and nineteenth centuries, German idealists, along with kindred minds elsewhere, rethought these concepts in terms of our human capacities to make judgments. They probed aesthetics, ethics, and philosophy’s disciplines regarding truth, including philosophy of science, epistemology

2. The study of late teens and twenties developing a philosophy of living is mentioned in Buford, *Personal Philosophy*, v.

3. These insights are found in Plato, *Symposium*, 210d–212b and 204c–206a.

4. For a brief introduction to the transcendentals, see Kreeft, “Lewis’s Philosophy.” Ramos, *Dynamic Transcendentals*, takes theoretical and applied perspectives in the direction of the philosophy set forth here. Jaroszyński, *Beauty and Being*, gives fine discussions of truth and goodness as well as beauty. Nichols, *Key to Balthasar*, summarizes the contributions on these themes by a major twentieth-century theologian.

(knowledge-ology), and philosophy of religion—all essential ingredients in a philosophy of living.

Today the conversation is global, as philosophers around the world also draw on non-Western traditions. Philosophic sagacity is recognized as one of the four traditions of African philosophy, alongside ethnophilosophy, postcolonial philosophy, and professional philosophy. And for thousands of years, Asian philosophy has kept in touch with philosophy of living concerns.

The present age gives philosophy a new opportunity. Limited philosophies clash in their specific emphases on science, or on humanistic values, or on religion, but a more inclusive philosophy can play the role of a peacemaker. Although there is no peace between truth and error, most conflicts are between positions that have a mix of truth and error in them. Philosophy can lift up the truths in opposing positions, and it can speak to persons of different religions or no religion.

What is needed is a philosophy that takes high concepts of truth, beauty, and goodness, and makes them accessible for practical living. But contemporary Western academic philosophy—with all its marvelous resources and its disciplines of clarity, careful reasoning, conceptual coherence, and comprehensiveness—does not address the need. In the ancient world, philosophies of living flourished, but philosophers today find their discipline organized into specialties, none of which synthesizes philosophy into something livable. The philosophy of living is not yet recognized as a specialty alongside aesthetics and ethics in the way that medicine recognizes the specialty that is variously called primary care, general practice, or family medicine. And most of the philosophy of living found in the popular marketplace is being written by persons with little background in philosophy.

Since professional philosophy is not organized to address the need for a full philosophy of living, most people on a wisdom quest turn elsewhere. Many people who know God get their philosophy of living from books on spirituality as it is taught and practiced in any number of traditions. Seekers commonly look to the philosophies associated with Hinduism and the practice of yoga, Buddhism, and the practice of mindfulness, or Taoism and the practice of naturalness. Many turn to New Age explorations of integrated living or self-help. The philosophy of living being developed here has a strong core that can preserve its integrity even as it remains open to welcome genuine insights from these and other sources. Ancient Greek philosophy served for centuries as a resource for Jews, Christians, and Muslims; and the new philosophy emerging here could conceivably provide a shared language for a global conversation.

Before we continue, let's distinguish three things that are closely related: (1) The general term *the philosophy of living* refers to a field of inquiry that may be done from any philosophical perspective whatsoever. (2) When I talk about *this new or emerging philosophy of living*, I refer to an approach centered on concepts of truth, beauty, and goodness, found in science, philosophy, spiritual experience, nature, the arts, morality, and character;⁵ and (3) *my interpretation* of this emerging philosophy as set forth in this book.⁶

Philosophy as a friend of spirituality

One of philosophy's traditional strengths is its broad accessibility, its capacity to reach out to all thoughtful persons no matter what they believe or do not believe; but we must make a watershed decision about spirituality and religion. Philosophy traditionally aspires toward an integrated understanding of the full spectrum of human experience, but many experiences of truth, beauty, and goodness are spiritual experiences—so what are we to make of spiritual experience?⁷

Prior to considering this question, it helps to clarify two terms. Many truth lovers have become disillusioned with religion, and identify

5. The blueprint for *Living in Truth, Beauty, and Goodness* comes from the Urantia Foundation, *Urantia Book*, 43. This book has deeply informed my work on this project. I have also learned much from other books on truth, beauty, and goodness (in addition to those mentioned previously on the transcendentals). First is the book that merits its position as the current market leader: Gardner, *Truth, Beauty, Goodness Reframed*. Wilson, *Preaching as Poetry*, develops these themes in postmodernist and applied ways. McIntosh, *Presence of the Infinite*, synthesizes traditional, modern, and postmodernist approaches in an evolutionary spirituality. Brown, *Restoration of Reason*, provides a sturdy history of philosophy perspective; Pelikan, *Fools for Christ*, takes a cultural history approach; and Ross, *Gift of Beauty* and *Gift of Truth*, presents an elegant, postmodernist philosophical perspective.

6. Existentialism addresses the philosophy of living, if not in the fullness proposed here; and it has the merit of avoiding the formulation of a static, intellectual system. This book staves off that fate in many ways—by its concept of the mystery of each unique personality; its openness to contributions from every tradition; its embrace of the spiritual dimension; its concept of evolution and recourse to ever-developing science; its future-oriented and sometimes pragmatic approach; and its emphasis on personal experience in religion, education, and concept formation. Nevertheless, this book is systematic in setting forth its sequence of chapters. This outline is of course not intended to function as a pattern for other expressions of the emerging philosophy.

7. For recent books on the philosophy of living, see Seachris, *Exploring Meaning of Life*; Eagleton, *Meaning of Life*; Cottingham, *Meaning of Life*; Klemke and Cahn, *Meaning of Life Reader*; Kekes, *Art of Life*; Nozick, *Examined Life*; Thomson, *On the Meaning of Life*; Lurie, *Tracking the Meaning*; White, *Heart of Wisdom*; and Runzo and Martin, eds., *Meaning in World Religions*.

themselves as “spiritual but not religious.” They see bad religion loose in the world, with its fanaticism, moralism, intolerance, and ignorance, all of which make it hard to imagine that good religion, real religion, could be essential to the cure. When I use the term “spiritual,” I refer primarily to supreme values and to their source—the Source whose spirit is present within us. In spiritual experience, divine reality holds sway, no matter what the person believes or does not believe. When I call a person “religious,” I do not have organized religion in mind; I mean that the person holds a faith-based concept of God or some equivalent ideal, an ideal that I find in much of Hinduism and Buddhism. By extension, the new philosophy I set forth is religious philosophy. The term *religion* connotes more explicit associations with tradition; but true spirituality is the living heart of real religion, and the religious affirmation of a supreme Deity is essential to an adequate understanding of spirituality.

Religion tends to regard spiritual experience as a gift of God, while secularism generally dismisses religious experience, reducing it to biology and psychology. Reality is many-sided, and no one perspective tells the whole story. Diverse sciences, philosophies, and religions *all* contribute to understanding spiritual experience. The new philosophy of living in truth, beauty, and goodness does not take the secular option; it is a religious philosophy, and one that keeps inquiry alive on all levels.

We all have experiences of tasting the flavor of truth, being touched by beauty, or acting for the greater good. These experiences are often so blended that we might not even identify our tastes and touches and doings in these terms. In our most deeply satisfying experiences, when we are living at our best, we are consciously or unconsciously in touch with a wonderfulness within. Known by persons of every religion and of no religion, this wonderfulness within is a center of meaning and value, a source of energy, power, wisdom, peace, insight, love, joy, creativity, purpose, and guidance. Responding to these blessings, many people begin to sense the presence of something or *someone*, most commonly referred to as God, who often seems elusive but sometimes enters human experience as decisively real.

The goal of spiritual development is often understood to be a way of living; and core values of that spiritual way are set forth in this book. The simple thesis of this emerging philosophy is that truth, beauty, and goodness are qualities of God and values that we can live. Working with a concept of God, we can think of truth, beauty, and goodness as the language God uses to communicate with our thinking, feeling, and doing. The more we live these values, the better we can listen to what God is saying, and the better we can hold up our end of the conversation.

In every major cultural arena where you might expect to find it, this philosophy of living is lacking. The field of philosophy needs it conceptually; religions and other spiritual paths need it experientially. It displaces none of them, and contributes to all.

This book's special features

As we pursue truth, beauty, and goodness, we grow toward a strong character that unifies intellectual, spiritual, aesthetic, and moral virtues. This book leads the reader along a path of cultivating growth in these traits as we pursue the correlated primary values. Our guides (through biographical sketches) are Darwin, Socrates, Jesus, Bach, and other world-class pioneers, whose strengths inspire us to develop to a level that fits our gifts and opportunities. Each chapter explains and illustrates a set of basic principles to help the reader do what conduces to success. Each chapter also has a section titled "From my journey," which tells stories of my growth struggles toward some of the qualities under discussion. Having learned so many things the hard way, I hope that this openness, along with the careful unfolding of a path of growing in virtue, will enable readers to save time by learning some lessons an easier way. These chapters form a path to love.

Living in Truth, Beauty, and Goodness has a theoretical framework, but it focuses more on practical application. Philosophy gives rational support for its conclusions by describing examples, reasoning logically, and refuting objections; and these methods are used here. But the real proof that truth, beauty, and goodness are livable qualities of God comes from personal experience. My main goal in these pages is to give an accessible and inviting path to that experience. My way of expressing that path challenges the reader to transplant concepts presented with my interpretation and language into the context of his or her own garden of concepts, interpretation, and language—and then creatively put the resulting meanings and values into practice.

The reader can learn here to integrate science and religion, make wiser decisions, experience a deeper relationship with God, develop an outstanding aesthetic appreciation of nature, live more artistically, find new meaning and dynamism in the golden rule of treating others as we want to be treated, and love with divine motivation and enhanced maturity.

The vista ahead

When we contemplate the seemingly solid tangle of planetary problems that crowd in upon us, we may sense the magnitude of the wisdom, power,

creativity, courage, and love it will take to untangle them. In another thousand years, things should be much better. By our mistaken choices, humanity has usually learned things the hard way; but that can change. There is an easier way. That easier way is rugged, but it is vastly superior to the hard way of barricaded folly. Inspired leadership and teamwork could save our world from mountains of needless suffering. We could change this world's direction in one generation.

To achieve that new direction, the first requirement is for individuals to get into closer touch with the divine source of our inmost needs. Only by developing our spiritual awareness can we learn that each one of us is infinitely loved, and each has a role to play in the universal family. Every one of us can exercise our awesome privilege of being part of the plan that the Creator is guiding to fulfillment. We can experience spiritual insight, joy, and activation, and know that we walk in the corridors of cosmic power.

If we face a confusing mix of truths, half-truths, and lies, *truth* befriends us and empowers us (if we cooperate) to put the confusing mix in order. If we suffer from unstable attitudes, superficial attractions, and conflicting emotions, *beauty* attracts us toward emotional maturity that includes relaxed good humor and awe in the presence of the sublime. If we are overcommitted to our projects and undercommitted to the will of God, divine *goodness* leads us into paths that fit our gifts with others' needs.

Our thinking, feeling, and doing are being quietly uplifted. Whatever the state of our current philosophy of living, abundant help in developing it further is available from human and divine sources. Welcome to the collaborative quest!

Part I. Living the Truth

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Facts, Causes, and Evolution

Charles Darwin and Scientific Living

THE BEAUTY OF THIS vast, starry universe encourages us as we take up the challenge of living here. On our world, organisms have evolved with increasing powers of mind; now humankind is walking the earth, going through the life cycle, and beginning to take responsibility for the planet's future. Our challenge is that the universe is a place where material forces tend to dominate. We may be potentially more spiritual than we realize, but we are also more material than we know, as science increasingly teaches us. We work with a mind that is intertwined with brain process; and our behavior is affected by genetic, biochemical, environmental, and social factors. We wonder how our best thinking is to gain the upper hand; but we may suspect that our problems conceal within them the call of destiny.

In response to our collective challenges, what one person can contribute is a life well lived. Such a life comprises several components, and facing the facts of our problems launches the first component, scientific living—acting in the light of the relevant truths of science. But when we look at our personal problems and the problems of our world, they can seem overwhelming. The hectic pace of modern life makes it hard to focus effectively. We are not taught while growing up how to live scientifically. And the books on harmonizing science and religion are mostly theoretical, not practical.

In response to these difficulties, we can observe virtues of scientific living that Charles Darwin developed in his life of pursuing truth; and we can develop these qualities to the degree that is realistic for us by applying them in our daily lives. In this chapter, after an experience report on my own scientific living project, we will consider this challenge and then examine a four-step approach to scientific living. The last step pioneers ways to

integrate science and religion in practice, with examples from cosmology, biology, psychology, and history.

From my journey

My recent venture in scientific living has sometimes been a wild ride, with magnificent discoveries and sobering disappointments. Once I retired, I realized that I had overplayed my religion card and my philosophy card—used these responses in situations that called for something else. Having often blundered by failing to give adequate attention to the material facts of the here and now, I came to the realization that I needed to give scientific living a new level of priority in my life. Focusing fully on the task in hand is the basis for excellence in scientific living, and I had a tendency to get lost in thought while driving, which I picked as my primary activity to work on. The effort to balance philosophical and spiritual interests with scientific living opened up a new phase of growth.

I was familiar with some scientific findings about attention.¹ For example, we don't pay attention to things we find boring (so I found ways to make driving more interesting); our attention span is limited (so I didn't need to feel bad if my attention wandered a bit); multitasking interferes with concentration (it was easy to turn off the radio but hard to turn off the stream of philosophical reflection). I learned that effective focus does not mean fixing my gaze on the car immediately ahead of me; a policeman told me that it was better—and more relaxing—to look at the horizon on the road ahead, trusting that peripheral vision would alert me to anything important that was closer. He also recommended that I occasionally I sweep my attention from side to side. His suggestions gave me a sense of freedom of movement as I interacted with the scene unfolding around me, but I needed more than technique.

One breakthrough I'll never forget: On long trips, my wife and I usually take turns driving two-hour shifts so that no dangerous fatigue sets in. But one morning, I had to drive to Chicago, six and a half hours from our home in Ohio, and Hagiko was in Japan; and I enjoyed what was for me an unprecedented sustained focus on the road. Fatigue never threatened; distraction was almost nonexistent. I was immersed in spiritual love. And I needed only one break to eat and enjoy an hour of profound rest. One thing

1. These findings come from Medina, *Brain Rules*, chapter 4. People's attention spans are becoming shorter, according to mounting research; multitasking harms our ability to pay attention to things. The culture conspires to give us all some degree of attention deficit disorder.

that helped was to take advantage of the little opportunities to communicate with other drivers along the highway—for example, flashing my high beams at truckers to let them know that they had passed me completely and it was safe to pull back into the right lane. I sent love to each driver who came near, and when I arrived in Chicago, I was exhilarated.

Peak experiences underscore broader truths, in this case about the interweaving of practical and spiritual dimensions in the everyday reliable driving that I have finally attained, thank God. This ongoing project has led to improvement in other areas. In general, I am gradually getting better at being faithful in big and little things. Cosmically, I find increasing power in the idea of a friendly universe. Biologically, I am finding it more meaningful to maintain healthy habits. Psychologically, I'm growing in listening and adjusting my communication to people's receptivity. I recognize more quickly when my unbeautiful emotions are rumbling and my brain is getting its energies out of balance; and responding to these situations as they arise allows me to let go of ugly thoughts, mobilize truth, invite a new divine invasion, and cleanse the inner life. And I have a sharper sense of what I can contribute in the current phase of history.

Darwin's hunger for the truth of fact

This biographical sketch of Darwin, like others in this book, makes limited claims. No one person exemplifies every virtue connected with scientific living, and I don't know to what extent Darwin practiced his virtues as a scientist in the rest of his life. Nor do I aim to give a balanced estimate of Darwin's character or to suggest that he was a solitary genius without substantial debts to others. I do not take sides in the controversies about Darwinism beyond the limited use made of his ideas here. Our brief glimpse into Darwin's life is designed simply to help us grow. Above all, we should not let his achievements, or those of anyone else profiled in this book, lead us to form unreasonably high expectations of ourselves.

Charles Darwin (1809–1882) became a great scientist thanks to his extraordinary gifts, a fine scientific education, decades of experience in research—and because he developed the virtues of scientific living to a world-class level. Fortunately, we do not need his gifts, education, and experience to approach those same qualities.

Darwin understood that science is an activity to which nonscientists can contribute. He encouraged Navy officers to assist in his research, and found that with only a little preparation and equipment, they could make systematic observations of the causes of geological change. They could

observe “sedimentary deposition, erosion of cliffs, icebergs, coral reefs. . . . They should collect dust that settled on the deck, and, ashore, concentrate on fossils, volcanoes, and coal samples.”²

Darwin had been well trained and educated in the skills and knowledge of geology and biology, but went beyond academic norms in his voracious and innovative pursuit of facts. In search of evidence of biological mutation, he “followed up hearsay stories of exceptional hounds, silkworms, hybrid geese, feral and farm animals in the colonies—anything in fact on selection, inheritance, and breeding. . . . He looked anew at the gamekeepers’ familiar fare: agricultural shows, animal husbandry, farmhouse lore, and the *Poultry Chronicle*. And he began quizzing those who knew most about breeding and inheritance: fanciers and nurserymen.”³ Darwin found that through a profession or hobby or just keen observing, persons without any specialized academic background might acquire knowledge of scientific value.

In science, one quality rises above the others: hunger for truth. Truth is the value whose wholehearted pursuit is the main scientific virtue. Human motivation is rarely single, but it is hard to avoid the impression that a most diligent passion for truth spurred Darwin on, from his early studies in Edinburgh and Cambridge through his voyage on the *Beagle* to his later prodigious researches. In his autobiography, after modestly acknowledging his limitations, Darwin set forth his strengths: “noticing things which easily escape attention, and . . . observing them carefully”; observing and collecting facts; and being consistent and passionate in his “love of natural science.”⁴

Strengths are interconnected. Hunger for truth motivates concentration, hard work, and patience. For example, beginning in 1846, Darwin spent nearly eight years of physically demanding labor studying barnacles; describing one species after another with minute care, he found tiny variations in their sexual characteristics that provided another piece to the puzzle of how evolution works. Darwin wrote of his habit of concentrating and working energetically on whatever he was engaged in.⁵

A truth seeker needs courage, and the love of truth inspires courage. Darwin’s courage enabled him to rise above severe, chronic stomach troubles and to confront opposition from elements in his society whose respect mattered to him. He pursued unpopular lines of thinking, which shows particular courage in his case, since he was a kind and tactful man,

2. Desmond and Moore, *Darwin*, 352.

3. *Ibid.*, 426; cf. 565.

4. Darwin, *Autobiography*, 68.

5. *Ibid.*, 39.

not the aggressive or polarizing sort. His theory of evolution was not only controversial, but it was also linked to Lyell's unsettling geology of gradual change over enormous stretches of time. This idea competed with the traditional biblical view, which assumed a young earth some six thousand years old and posited an early era of catastrophic upheavals with volcanoes and earthquakes, in order to make sense of the relative geologic stability that has historically been observed.

To seek truth efficiently, Darwin needed to organize his inquiries. Every foray was strategic, part of his quest to puzzle out the causes of things. He described his own habits as methodical, and the trait was evident in his scholarship. In dozens of large scrapbooks, he collected and sorted by topic the facts he had gathered. He made an index of key facts in any book he bought; when he borrowed a book, he would make his own summary of it. Thus, before writing on a particular topic, he could review all his prior research.⁶

Willingness to test hypotheses thoroughly and follow truth wherever it leads fostered Darwin's humility. He was always ready to revise his cherished ideas; in response to a well-argued criticism of his writing, he deleted passages that he had hoped were true, noting that a scientist should have no regret about letting go of false beliefs.⁷ "I have steadily endeavoured to keep my mind free so as to give up any hypothesis, however much beloved (and I cannot resist forming one on every subject), as soon as facts are shown to be opposed to it. Indeed, I have had no choice but to act in this manner, for with the exception of the Coral Reefs, I cannot remember a single first-formed hypothesis which had not after a time to be given up or greatly modified."⁸

When it was called for, Darwin had no trouble acknowledging the weakness of his case, and he sometimes added a dash of gentle humor. To a friend who found a flaw in his reasoning, Darwin replied, "You speak of finding a flaw in my hypothesis. This shows you do not understand its nature. It is a mere rag of a hypothesis with as many flaws and holes as sound parts. But I can carry in it my fruit to market for a short distance over a gentle road; . . . and a poor rag is better than nothing to carry one's fruit to market in."⁹ In *The Origin of Species*, Darwin admitted the fact that the geological record does not adequately support natural selection as the primary mechanism of evolution. "He who rejects these views on the nature of the

6. Ibid., 65–66.

7. Desmond and Moore, *Darwin*, 457.

8. Darwin, *Autobiography*, 68.

9. Ibid., 475, modifying the spelling.

geological record, will rightly reject my whole theory. For he may ask in vain where are the numberless transitional links which must formerly have connected the closely allied or representative species, found in the several stages of the same great formation." A mark of Darwin's greatness was his unpretentious lucidity, which enabled him to write, "I am well aware that scarcely a single point is discussed in this volume on which facts cannot be adduced, often apparently leading to conclusions directly opposite to those at which I have arrived."¹⁰

Darwin's humility was combined with tenacious loyalty to the idea of evolution that he was developing. When research on one explanatory hypothesis went badly, he would be crestfallen; but he would push on to invent and pursue another hypothesis with characteristic vigor. The balance of these virtues in his character is evident in *The Origin of Species*: "Long before having arrived at this part of my work [chapter 6, "Difficulties on Theory"], a crowd of difficulties will have occurred to the reader. Some of them are so grave that to this day I can never reflect on them without being staggered; but, to the best of my judgment, the greater number are only apparent, and those that are real are not, I think, fatal to my theory."¹¹ This combination of confidence and humility liberates inquiry.

Hunger for truth leads to a thoroughgoing identification with reality, as we see in an account of Darwin late in life, when he was immersed in experiments on the movement of plants.

Spring turned the study into a pungent jungle, with seeds sprouting in biscuit tins on the chimneypiece, cabbages and runner beans in floor pots, and nasturtium, cyclamens, cacti, and telegraph plants scattered on tables. Charles was in his element, infatuated with every rootlet and blossom. All these were his companions; he had a feeling for their "aliveness." He talked to them unselfconsciously, praising their ingenuity or twitting the "little beggars" for "doing just what I don't want them to." Sometimes a flower caught his eye, and he would stroke it gently, childlike in his "love for its delicate form & colour." The plants moved him, like the romances [his wife] Emma read aloud in the afternoons, and when the plants moved themselves they stirred him most of all.¹²

Here the mind of the researcher fills with the life he investigates. A pervasive feature of scientific living is the passion of the very life of inquiry itself, in

10. Darwin, *Origin of Species*, 308 and 96.

11. *Ibid.*, 202.

12. *Ibid.*, 631.

which there are repeated attempts, ups and downs, perseverance, and progress. Darwin's identification with life hints at a kinship between the striving scientist and the evolving world he studies.

Nothing is more basic to science than what Darwin called "hard, unbending facts";¹³ nevertheless, a collection of facts by itself is not science. Darwin knew that skins and bones and "isolated facts soon become uninteresting."¹⁴ To move from extensive collections of facts to science, he would work to explain the facts, "grouping them so that general laws or conclusions may be drawn from them." Indeed, he could legitimately claim, as he did in *The Origin of Species*, to have created with massive supporting evidence and argument a remarkably broad unifying vision: "All living and extinct beings are united by complex, radiating, and circuitous lines of affinities into one grand system."¹⁵

Darwin's drive to piece together a grand narrative of evolution was combined with a scientist's resolve to keep his broad theory based on facts. He did not dabble in untestable speculation and had a keen sense for the crucial difference between well-supported fact and speculative theory. "Unlike the atheists, seeking an alternative to Anglican Creationism in a chemical soup, Darwin kept ultimate origins out of the picture. Life's initial appearance was inscrutable, he implied to [Robert] Hooker. All that should concern the naturalist was its subsequent change."¹⁶ He avoided speculation about chemical evolution, the idea that living organisms arose spontaneously from inorganic, chemical elements.

Darwin's sensitivity to beauty and commitment to goodness

The virtues of scientific inquiry appear to stand as a cluster on their own. But a perusal of the journal that Darwin wrote in his twenties during the years on the *Beagle* shows his scientific virtues enmeshed with his classical education: his love of Milton, Shakespeare, and other poets as part of his general aesthetic sensitivity; his broad reading and general anthropological interests; his religious faith; and his ethical humanity.¹⁷ The strengths of scientific living flourish best when integrated with other virtues.

13. Ibid., 284.

14. Desmond and Moore, *Darwin*, 190.

15. Darwin, *Origin of Species*, 377.

16. Desmond and Moore, *Darwin*, 412.

17. Darwin, *Journal*.

During his voyage on the *Beagle*, Darwin had many profound experiences of natural beauty. “He had climbed the Andes, stood on volcanic rims, seen glaciers crashing into the sea, waded along coral reefs, but with all said and done, none of these exceeded ‘in sublimity the primeval forests.’ He had sat enraptured in lush creeper-strewn jungles, ‘temples filled with the varied productions of the God of Nature.’ He had been filled with religious awe: ‘No one can stand unmoved in these solitudes, without feeling that there is more in man than the mere breath of his body.’”¹⁸

The breadth of Darwin’s bond with all of life was accompanied by strong ethical feelings for his fellow man. Darwin’s profound respect for human beings enabled him to observe anthropological differences while retaining his core convictions. He had a revulsion against the mistreatment of any person, no matter how “savage.” Although he surveyed what he regarded as a continuous spectrum of humanity, and even though he traced humankind to the apes, he retained a lifelong abhorrence of slavery, a strong, intuitive, visceral indignation. Darwin did not force science to proclaim his ethical message, but neither did he let science subvert his moral intuition.

Darwin developed virtues useful in any kind of inquiry:

- Hunger for truth and whole-souled identification with the real
- An approach to problem-solving that is alive, exploratory, and resourceful
- The habit of testing one’s ideas by patient, methodical inquiry, accurate reasoning, and careful attention to fact
- Keen perception and concentrated observation
- The ability to distinguish fact from theoretical speculation
- Humility, freedom from prejudice, and openness to diverse views
- Teamwork
- Courage

Further study expands this list. For example, Louis Caruna takes a different and fruitful approach that yields five virtues:

First, the virtue of living with due respect both toward common sense . . . and to the more sophisticated scientific world-views; second, the virtue of living in a way that gives [balanced] importance both to what is universal [as set forth in grand theories

18. Desmond and Moore, *Darwin*, 191. It is well known that the religious faith of Darwin’s early years waned later on; apparently his growth in spiritual experience did not keep pace with his intellectual advancement.

such as the physics of Newton and Einstein] and to what is particular [to guard against overgeneralization]; third, the virtue of prudential risk-taking that is aware of both the strong points and weak points of our intellectual faculties [willingness to exercise both a healthy skepticism about empirical claims and also a healthy trust about what reason can achieve]; fourth, the virtue of living in a way that acknowledges the [many factors that affect our views of things]; fifth, the virtue of heuristic courage [we need to trust tradition and the continuity of scientific progress and also to recognize that we must be ready for discoveries that carry us beyond conventional thinking].¹⁹

Barbara McClintock's virtues as a scientist

Feminist philosophy of science celebrates the way that keen perception develops intuitive power through long and loving practice. These virtues of scientific living, glimpsed in Darwin, are notably exemplified by Barbara McClintock, as portrayed by Evelyn Fox Keller in *A Feeling for the Organism*. McClintock was a specialist in the genetics of maize. She knew the corn plants in her field with a naturalist's intimacy and made discoveries in genetics that anticipated the work of later generations of biochemical researchers. A fellow Cornell cytogeneticist, Marcus Rhoades, once said to her: "I've often marveled that you can look at a cell under the microscope and can see so much!" What was her secret? After coming to a key insight regarding a cellular reproductive process in a particular plant, her experience of looking at the cells changed:

Where before she had seen only disorder, now she could pick out the chromosomes easily. "I found that the more I worked with them the bigger and bigger [they] got, and when I was really working with them I wasn't outside, I was down there. I was part of the system. I was right down there with them, and everything got big. I even was able to see the internal parts of the chromosomes—actually everything was there. It surprised me because I actually felt as if I were right down there and these were my friends." . . . She spoke of the "real affection" one gets for the pieces that "go together": "As you look at these things, they become part of you. And you forget yourself. The main thing about it is you forget yourself."²⁰

19. Caruna, *Science and Virtue*, 110–11.

20. Keller, *Feeling for the Organism*, 69 and 117.

Keller recalls that during her interviews, McClintock said over and over again that one must have the time to look, the patience to “hear what the material has to say to you,” the openness to “let it come to you.” Above all, one must have “a feeling for the organism.” To be sure, one doesn’t acquire such perception only by perceiving. McClintock explained, “I have learned so much about the corn plant that when I see things, I can interpret [them] right away.” Her seeing went back and forth between the microscope and the field:

[One must understand] how it grows, understand its parts, understand when something is going wrong with it. [An organism] isn’t just a piece of plastic, it’s something that is constantly being affected by the environment, constantly showing attributes or disabilities in its growth. You have to be aware of all of that. . . . You need to know those plants well enough so that if anything changes, . . . you [can] look at the plant and right away you know what this damage you see is from—something that scraped across it or something that bit it or something that the wind did.

No two plants are exactly alike. They’re all different, and as a consequence, you have to know that difference. . . . I start with the seedling, and I don’t want to leave it. I don’t feel I really know the story if I don’t watch the plant all the way along. So I know every plant in the field. I know them intimately, and I find it a great pleasure to know them.²¹

Scientists differ, as do branches of science, in the proportion of attention given to empirical particulars and to rational structure. McClintock’s grasp of particulars also nourished, and was nourished by, her grasp of the logic that explained her amazingly reliable intuitive solutions.

Many of the virtues that we observe in scientists can readily be translated into principles: Concentrate on the task at hand. Pay attention to the facts that define and surround your situation. Explore causes. Seek for a big-picture integration of all relevant data.²² Balance common sense with science and universal theories with attention to particulars. Have confidence

21. *Ibid.*, 198.

22. Another principle I have found helpful comes from a scientist friend of mine, James Edward Blessing: solve problems as they arise. For example, if you are working on a problem that seems to take only a few steps for its solution, and along the way an additional, unforeseen problem crops up, then turn to focus on that. If the path to solving the new problem turns up yet another one, turn to that with the same dedication, and so on. Finally, the intermediate problems will all be solved, resulting in the original problem being solved with an uncommon thoroughness. However, it is necessary to keep things in perspective; if too many problems show up, at some point it becomes unreasonable to continue to pursue a particular course of action.

in the power of reason alongside healthy skepticism about human intellectual weaknesses. Trust the wisdom of tradition but be ready to innovate. These habits are useful for any type of inquiry.

To learn the fine art of taking insights about scientific virtues into the laboratory of life, it helps to distinguish four stages of scientific living and see examples that guide us to approach our own goal of scientific living more concretely and confidently.

Scientific living basics

Scientists' practices challenge us as we recall that scientific living means acting in the light of the relevant truths of science. The truths of science are truths of fact. Scientific living begins with stage one: being aware of fact, understanding fact at a level that is normally satisfactory for practical purposes, and focusing effectively on the task at hand. When we focus well, we notice facts that would be easy to overlook, face facts that are hard to deal with, and establish important facts with care instead of jumping to conclusions. Exploring facts leads us to causes. We do what we reasonably can to figure out causes and their effects; and thinking about these leads us to consider factors that operate in our situation, the resources we can bring to bear, and the consequences of alternative courses of action.

Our intuitive, stage-one understanding of fact is continually revised by our forays into the later stages of scientific living: (2) bringing to mind the scientific information we already have, (3) acquiring new knowledge, and (4) putting things in a broad perspective. As we have need and time, we enter the second stage of scientific living: getting explicit about which science or sciences are relevant to our task, and bringing to mind and applying what we already know of the relevant scientific knowledge. For example, a student of mine whose project in scientific living was to quit smoking classified the temptations that arose as biological, psychological, or sociological. Simply identifying and classifying temptations empowered him to overcome them more readily. He did not study more science; he simply brought to mind what he already knew and made use of that knowledge.

The difference between using what we know and neglecting what we know is great. Consider a more detailed example. A student notices a problem: it is harder to concentrate in class when he is hungry. He immediately sees the cause, notes its practical implications, and then recognizes the solution: he needs to eat adequately before coming to class. He identifies the relevant science as biology. He states the relevant truth of science in a general and positive way: proper nutrition is required for the brain to

efficiently support learning. He already knows that coffee and a doughnut do not make a good breakfast. He realizes that if he disciplines himself to take time for proper nutrition, he will feel better, learn better, and contribute better. In order to form the habit of eating a healthy breakfast, he recognizes his need to develop virtues of time management and self-mastery (note that this need makes another science, psychology, relevant to his project).²³

The third stage of scientific living involves learning more of science and applying it in practice. Continuing the previous example: the student goes online, does a search for “nutrition brain learning,” and from the results selects resources that bring him new knowledge, enhance his perspective, enable him to make a better selection of foods, and boosts his motivation.²⁴

In the fourth stage of scientific living, we develop a perspective that integrates science with philosophy and religion, a perspective centered on a concept of evolution. Once biology set in motion the idea of evolution, the idea was taken up by other sciences. The picture of a long, gradual, and challenging process leading to the appearance of higher forms of life struck a responsive chord. The concept of evolution was expanded by Henri Bergson, Pierre Teilhard de Chardin, and others, to become a cosmic concept embracing all levels of life.²⁵ Today we can build on their achievements to affirm the outworking of divine purpose in the interconnected realms of energy and matter, biological development, personal growth, and planetary history. In its fullness, scientific living participates in that multidimensional evolutionary process.

Those of us who aspire to live the truth in its fullness do well to spend some time cultivating scientific habits of mind. Consider this testimony from Albert Schweitzer, who described what it was like to enter medical school, having already distinguished himself as a musician, philosopher, and theologian.

I was at last in a position to acquire the knowledge I needed in order to feel the firm ground of reality under my feet in philosophy!

But study of the natural sciences brought me even more than the increase of knowledge I had longed for. It was to me a spiritual experience. I had all along felt it to be psychically a danger that in the so-called humanities with which I had been concerned hitherto, there is no truth which affirms itself as

23. This example comes from the project of David Paulik.

24. See the article by Philippa Norman, “Feeding the Brain.”

25. For a contemporary version, see McIntosh, *Evolution's Purpose*, 168, and Wattles, “Teleology Past and Present.”

self-evident, but that a mere opinion can, by the way in which it deals with the subject matter, obtain recognition as true. The search for truth in the domains of history and philosophy is carried on in constantly repeated endless duels between the sense of reality of the one and the inventive imaginative power of the other. The argument from facts is never able to obtain a definite victory over the skillfully produced opinion. How often does what is reckoned as progress consist in a skillfully argued opinion putting real insight out of action for a long time!

To have to watch this drama going on and on, and deal in such different ways with men who had lost all feeling for reality I had found not a little depressing. Now I was suddenly in another country. I was concerned with truths which embodied realities, and found myself among men who took it as a matter of course that they had to justify with facts every statement they made. It was an experience which I felt to be needed for my own intellectual development.²⁶

Schweitzer discovered that he needed a scientific foundation, along with his philosophy and religion, in order fully to experience living the truth. We will learn more about Schweitzer in chapter 6.

If we are developing a religious philosophy, we can, when scientific discovery is mixed with an antireligious philosophy, transplant the scientific discovery into our own garden. We can regard science and religion as complementary. Science observes the outer world of things and leads the mind toward the invisible realm of microprocesses and mathematical law; religion takes the mind to the inner world of values. Science makes statements about the body and about observable behavior; religion makes affirmations about soul, spirit, and the whole person. The matter of science responds to physical gravity; religious experience responds to another kind of attraction. Mind spans the gap between brain and spirit, and philosophy spans the gap between science and religion. For philosophy to harmonize scientific realism with spiritual idealism, it helps to see that philosophy can interpret any fact of science as being consistent with any truth of religion. Material fact and spiritual truth do not contradict each other.

In practice, working with a multidimensional concept of evolution leads us to calm down, seek the long-range view in any situation, temper spiritual idealism with scientific realism, study to know the proper sequence of events, discern what projects are timely, and be patient with the long-term gradual unfolding. When we find ourselves in a decline, we work to slow it down. When we can lead an advance, we do not get too far ahead of

26. Schweitzer, *My Life and Thought*, 104.

those we hope to lead. The reward for scientific living is that when we act in accord with universe law and the wisdom of evolution, we gain stability and power. Note that a philosophically and spiritually expanded concept of evolution can symbolize this entire philosophy of living.

Cosmology and a friendly universe

As we participate in evolution concretely, we get involved in cosmology, biology, psychology, and history. Each item of scientific knowledge within these disciplines contributes to a big picture; and the widest framework for scientific thinking is cosmology, an account of the cosmos as a whole.

Each generation tends to project its cosmology in the light of the science or discipline that is most impressive at the time. The ancient Greeks, from Pythagoras through Ptolemy, beheld a universe of geometry, regularity, and proportion. Theologians in the Middle Ages saw creation as expressing the purposes of God, the First Cause. During the period from Galileo through Newton, an image arose of the creation as a mechanism like a clock, described in terms of the causal laws of classical mathematical physics. Then Darwin's theory of evolution stimulated concepts of the cosmos as a whole, sometimes in combination with postclassical physics of relativity and merely statistical laws at the micro level. Ecology also stimulates the cosmological imagination to see the earth as a living whole, and mother nature as an embracing and nurturing source with which we must learn anew to live in harmony. We can synthesize all these historical contributions in a concept of the cosmos. In that case, our wisdom synthesis would envision a universe of statistical laws at the micro level, which yield causal regularities at the perceptual level, supporting evolving life in an interconnected web, expressing the purpose of God.

We participate in cosmic evolution by our choice of attitude: we can regard the universe as friendly. From our human perspective, we experience much that strikes us as indifferent or hostile to human interests; but such experience does not require us to draw an atheistic or pessimistic conclusion about human destiny in the cosmos. Science by itself does not answer the question regarding a friendly universe, but there is evidence to support a belief in a wise, strong, and loving Creator of a universe that is being managed with our long-range best interests in mind.

Consider what cosmologists call fine-tuning: life as we know it requires a universe in which basic physical constants must be very precisely what they are; slight deviations would make life impossible. It is as though creative intelligence fine-tuned four basic forces. *Gravitation* is just strong

enough to hold galaxies together and weak enough to allow the universe to expand. The *weak nuclear force* slows down the rate at which stars burn their hydrogen, so that stars last long enough for life to evolve. The *strong nuclear force* is strong enough to bind together the protons and neutrons in an atom, but its range is limited; it does not draw electrons close to the nucleus, so electrons are available to form bonds with other atoms. The *electromagnetic force* holds electrons in their precise orbits so that these bonds form stable molecules.²⁷

Fine-tuning also seems evident in the way that the properties of water fit the requirements of life. Water covers three-quarters of our planet and makes up 90 percent of our body mass. It stores heat and helps maintain the temperature equilibrium required for planetary life, both in the individual organism and in the environment. When an animal perspires and the water evaporates, the heat carried off with the vapor brings efficient cooling to the skin. Unlike other liquids, water expands when it freezes; thus, because ice is less dense than its liquid form, it floats. In the winter, ice on lakes and rivers insulates the deeper water from heat loss and thereby protects marine life, without which no organism could exist. Each molecule of water has one atom of oxygen and two atoms of hydrogen. The bonds between these atoms are the primary forces within each molecule. But the hydrogen atoms tend to form weak and momentary bonds with oxygen atoms from other molecules. These “hydrogen bonds” give water molecules mutual cohesiveness. As a result, sap can rise in plants against the force of gravity. Finally, water vapor is one of the atmospheric devices for filtering out harmful radiation from the spectrum of radiation that the sun pours forth, and for transmitting precisely the wavelengths that life requires.

Despite evidence of the universe being fine-tuned for life, scientific cosmology has no room for the hope of everlasting life. Consider the Second Law of Thermodynamics, which has been interpreted to predict the “heat death” of the universe as a result of increasing entropy, disorder. The idea is that in all energy reactions, some energy is always reduced to heat. Heat is the simplest, most rudimentary, most “degraded” or disorganized form of energy—molecules randomly bumping against other molecules. Heat thus represents a loss of organization; due to this loss, no engine can be 100 percent efficient or run by itself forever. Another example of entropy is the reduction of an eggshell to pieces when it is broken; the previous order is replaced by fragmentation. Even organisms take more energy from the environment than they embody in their own highly ordered (“negentropic”)

27. For explanations and additional examples, see Rolnick, *Origins*, on which I rely for this description. Particularly helpful on the topic of fine tuning are writings by philosophers Robin Collins and John Leslie.

structures and activities. If the Second Law were extended to the cosmos as a whole, it would predict that the universe will eventually run down, and the final state of energy organization in the universe will be molecules or more primitive particles randomly bumping into one another. The scenario in which entropy has the final word assumes that the universe is a closed system in the sense that it receives no sustaining infusion of energy and mind-guided order.

Science itself evolves. The truths of science are as dependable as anything in this world; but scientific knowledge is growing and scientific theories are changing. Although an exclusively scientific discourse about cosmology must abstain from any talk of a Creator's purpose, we may consider modifying a key assumption in scientific cosmology: the idea of the physical universe as a closed system, unaffected by anything beyond itself and capable of being explained entirely in its own terms. To assume a closed universe shuts down the hope of everlasting life.²⁸

But what if the universe is open? What if an infinite and eternal Creator continuously nourishes the created universe with ordered energy? If such energy does in fact pour forth, and if, in addition, these energies are being intelligently managed, then we can put to rest the scenario of universal disintegration. This strategy leaves the Second Law of Thermodynamics intact but deprives it of cosmological finality, just as the law of gravity is not violated when a person stands up.

Even with all that is unresolved in scientific cosmology, we can regard the universe as friendly in the following ways: It supports life. It is intelligible to a significant degree and provides an environment of dependable facts and causes that we can work with. It gives us the prospect of a friendlier world if we cooperate with one another. And it gives us the choice to believe in a Friend we cannot see and a destiny we cannot prove.

Biology and spiritual openness

It is biology that first brought the idea of evolution to science, an idea that needs clarification because of debates that result from linking evolution to a group of widely varying ideas.

28. Paul Davies has reviewed the various scenarios of the far future of the universe that are considered plausible in scientific cosmology. All the scenarios are utterly bleak. See Davies, *Last Three Minutes*. He begins by confessing how speculative these scenarios are, and goes on to tell stories of inexorable, final doom.

1. *Early life forms were the ancestors of all later life forms.* This idea is called “descent with modification”; many kinds of evidence strongly support this statement.
2. *Natural selection is an important process in evolution.* It is a slow process, a gradual accumulation of numerous small, chance variations that proved beneficial in the struggle for survival. This idea, too, is well supported.
3. *Natural selection is the basic explanation of evolution.* Gaps in the fossil record continue to challenge this statement.
4. *The origin of life on earth is an accident wholly due to physical and chemical processes.* This statement is an unproven hypothesis, and scientists have generally given up trying to build a living organism starting with only water, chemicals, and electricity.
5. *Because of the many similarities between humans and animals, it is a mistake to think that human beings are on a higher level in mind and spirit.* This statement expresses a philosophical view, not a scientific one.
6. *Science is the only reliable source of truth.* This view is scientism, a philosophical view, not anything that science itself could prove.

To lump all these ideas together under the term “evolution” blocks the development of an integral concept of evolution that includes a spiritual side.²⁹

Scientific living in the biological realm means caring for our health, for the health of others, and for our ecosystems. Scientific living sets a stern agenda for our age. For example, overuse of social media can hamper the development of the brain’s capacity to support empathy, complex thinking, and moral decision-making.³⁰

Scientific living is healthy living, and biological evolution has provided us with bodies whose health flourishes when the whole person functions in harmony. Vigorous exercise promotes improved cognitive functioning.³¹ Allowing the attention to rest quietly on the breath promotes mind-body harmony with a variety of health benefits.³² Engaging in religious practices

29. This list of meanings of the term *evolution* is a variation on one put forth by Plantinga, “Creation and Evolution,” 779–89.

30. Small and Vorgan, *iBrain*, chapters 1 and 2.

31. Ratey and Hagerman, *Spark*.

32. Research on the health benefits of mindfulness and breathing can be found on the Harvard, Mayo Clinic, and Georgetown University websites: <http://www.health.harvard.edu/blog/mindfulness-meditation-improves-connections-in-the-brain-201104082253> (mentions benefits of mindfulness for high blood pressure,

is correlated with reduced hypertension, heart disease, cancer, immune system troubles, and mortality.³³ Taking fifteen minutes a day for appreciation brings physical benefits.

A study in 1995 by Dr. Rollin McCraty, director of research for the HeartMath Institute in Boulder Creek, California, has found that states of appreciation are correlated with a physiological state known as resonance (or parasympathetic dominance)—where heart, breathing, blood pressure, as well as brain rhythm and even the electrical potential of the skin are synchronized. Resonance also emerges during deep relaxation and sleep. In a state of resonance, says McCraty, the entire body is in a more efficient energy state. When we are feeling stressful emotions such as anger, frustration, or anxiety, our heart rhythms become more erratic. When we are in states of appreciation, gratitude, love, and compassion, heart rhythms are coherent and ordered—calming our neurological and endocrine systems.

McCraty measured thirty individuals' brain activity both before and during states when they were actively focusing on appreciation. He found that heart rhythm and alpha coherence significantly increase during periods of appreciation. In another . . . study, a fifteen-minute focus on appreciation resulted in an immediate and significant increase in levels of an immune antibody called secretory IgA. Secretory IgA is one of the body's primary defenses against invading microbes. After a month of a daily, fifteen-minute practice of appreciation, thirty individuals had a 100 percent increase in a potent beneficial hormone called dehydroepiandrosterone (DHEA), as well as a corresponding 30 percent reduction in the stress hormone cortisol.³⁴

Biological evolution has led to the emergence of human beings who are now increasingly recognizing that the levels of our being are interconnected. A healthy body supports, and is supported by, good mental and spiritual practices.

Neuroscience is amassing evidence that much of our thinking, emotional life, and behavior is highly influenced, if not controlled, by brain events. Depending on how it is interpreted, this evidence can be useful for spiritual growth. Consider this experiment. During the peak time of their

chronic pain, psoriasis, sleep difficulties, anxiety, depression, binge eating, and compromised immune function); <http://www.mayo.edu/research/labs/mindful-breathing/overview>; <http://hr.georgetown.edu/fsap/meditationandmindbodyskills.html>.

33. Koenig et al., *Religion and Health*.

34. Post and Neimark, *Why Good Things Happen*, 31.

practice periods, Christian nuns with at least twenty years of practice in a contemplative discipline called Centering Prayer and advanced practitioners of Tibetan Buddhist meditation were given brain scans. The results showed that during profound contemplation or meditation, input is cut off to a particular region of the brain, the posterior superior parietal lobe. This cutting off of input is called “deafferentation.” A wide variety of religious experiences have been found to be associated with some degree of deafferentation. This event in the brain is associated with a lessened sense of dichotomy between self and other, and a lessened sense of the self as localized in space and time.³⁵ Even in garden-variety experiences of prayer and worship, we relax our customary, highly physical sense of self.

This experiment can be interpreted in very different ways; here are some possibilities. (1) Neuroscience shows that spiritual experience can be totally explained in terms of brain events, which eliminates any place in the account for God. (2) Neuroscience helps us understand how the Creator designed the human body to support religious experience. (3) When someone begins to pray or meditate, the mind induces changes in the brain. (4) Whenever the relevant area of the posterior frontal lobe is totally deafferented, the experience of absolute, unitary being is the same, regardless of the subjective interpretations of the individuals involved. (5) Interpretation and experience cannot be separated: we co-create religious experience by our assumptions, conscious beliefs, expectations, and interpretations. For example, in this particular study, the Buddhists reported that the meditative state was empty of all meaning, whereas the Christians found their experience to be religiously meaningful.

This shows us that science by itself does not determine the philosophical significance of its results. Researchers draw on their own philosophical perspectives in designing experiments and reporting results; and science journalism and the interests of publishers and readers introduce additional influences on the way that research is presented. Neuroscience cannot tell the full story of any experience. It can only report on some aspects of what happens under experimental conditions in selected parts of the brain that researchers choose to study when their subjects engage in specific practices.

Researchers link biological language with language about experience, associating particular parts of the brain with specific functions of consciousness. But science cannot trace a chain of causes that explains even a basic physical function such as the experience of human vision. Neuroscience informs us that light hits the retina in the eye, which sends an electrochemical

35. For an account of the brain scan research with Christian nuns and Buddhist meditators, see Newberg et al., *Why God Won't Go Away*, chapters 1 and 6.

signal along the optic nerve going to the occipital lobe at the back of the brain—after which “it rises to consciousness.” But this last statement refers to experience and thus transcends the language of neuroscience.

Researchers and science journalists sometimes mix neuroscience with confusing speculation about body, mind, and spirit. Sometimes a deliberate philosophical choice of reductionism adds to the confusion: a reductionist view of religion claims that God is *nothing but* a projection of the human mind. A reductionist view of psychology says that talking about mental activities is *merely* a way of talking about processes in the brain. A reductionist view of biology sees the language of biology as *just* a convenient shorthand for what physics and chemistry will eventually totally explain. We live at a time when it seems sophisticated to say “in my head” instead of “in my mind”; companies market “smartphones”; and everyone speaks of computer “memory”—all without the slightest sense of treading on philosophical thin ice. The risk is that we may allow the momentum of technological society to corral us into adopting biological materialism as the ultimate interpretation of what consciousness is.

We can interpret the biology of spiritual experience in a way that supports spiritual progress if we remain open to consider the possibility of physical, mental, and spiritual inputs to experience. With that perspective, we can imagine three different types of experience. One type can be thoroughly explained by neuroscience and social science; it would have negligible spiritual content. Another type of experience is purely spiritual; any effects of brain process would play a negligible role in the experience. And a third type of experience carries a mix of inputs; it could have a spiritual core along with a periphery of inputs from mind and body. As we grow, the periphery shrinks and the spiritual content stands out in greater purity, clarity, and distinctness. Given the likelihood that most of our spiritual experiences will have a mix of inputs, we should not assume that they come 100 percent straight from God. But we do not need to speculate on the proportion of inputs involved in a particular experience. Instead, we can do our best to discern its truth, beauty, and goodness, take responsibility for our interpretation, and proceed in humility and joy. As we consider the brain supporting a mind which is open to spiritual inputs, wonder deepens and mystery remains.³⁶

36. To be sure, an individual can be mistaken in identifying an experience as purely spiritual, but to deny the possibility of such experiences shows either a needless skepticism or a lack of experience. Sociologist Margaret M. Poloma balances sympathy with scientific objectivity in a helpful description of Pentecostal and charismatic religious experiences in *Main Street Mystics*. Writing as a participant-observer, she relates moving stories, recognizes dangers, sets forth critical questions, describes behaviors that many people would classify as unspiritual, and gives some empathic interpretations that present a strong case for regarding such experiences as valid.

If neuroscience teaches us how enmeshed we are in the deterministic realm of cause and effect, religion, in contrast, teaches liberation. Hinduism offers paths to *moksha*, liberation; Buddha offered a path to enlightenment and *nirvana*. Jesus of Nazareth said, "You shall know the truth, and the truth shall make you free." In order to move from being mostly controlled by causes to enjoying increasing spiritual liberty, we can exercise our freedom to choose to walk a spiritual path, a choice that is not caused by the brain. Progressing on that path, we build habits of mind and body that support a higher quality of thinking, feeling, and doing. The spiritual core of our experience increases and the material and psychological periphery shrinks.

Psychology after reductionism

On the psychological level, we participate in evolution by personal growth. As we grow spiritually, we mature our concept of God and increasingly relate to others as family. Psychology in the person of Sigmund Freud put up road blocks to the concept of God as our Father and the teaching that we should love our neighbor as ourselves. Freud found that a child's first image of God tends to come from the child's father. Since the child's relation with the mother is so close biologically, the father is typically the first prominent, genuinely *other* person that the child comes to recognize as such.³⁷ The young child tends to idealize this other and to project this image in the earliest stage of religious development. But this fact is part of the story, not the heart of it.

If we replace Freud's science-centered account with a spiritually centered one, we may interpret the child's early image of God as Father as a divinely designed, evolutionary scaffolding to be gradually outshone by an increasingly spiritual realization of God's parental love.³⁸ In this interpretation, the fatherhood of God can be both an evolutionary image arising in the natural mind and also a spiritual truth. In other words, early in life, the Father concept of God is a metaphor based on the child's experience of the earthly father. However, in a spiritually maturing person who continues to relate with God as Father, images from childhood may be left behind.³⁹ The

37. I am indebted to Claire Thurston for this step in the reasoning.

38. De Luca, *Freud and Religious Experience*. See also Rizzuto, *Birth of God*. A more reductionistic view is implied in Fowler, *Stages of Faith*.

39. A spiritually mature concept of God as our Father is not a gendered metaphor projecting a social image of a biological male. The spiritually mature concept is not a metaphor or image at all but rather a realization of relationship. To be sure, any concept will always be short of the mystery of God's infinite and eternal nature. The vast literature on this topic generally affirms the equality of women with men and shows growing

image of the Creator as an old man with flowing white hair and beard is portrayed in a stunning painting by William Blake, *The Ancient of Days*. Spiritual maturity may be moved by such art; but it can also freely relate without such images.

Since Freud's day, the sociology of family life and the feminist movement have added complexity to the topic. We are now more ready to recognize that we experience motherly love as well as fatherly love in God. We support each person's freedom to choose the name that expresses his or her experience of relating with God. But after science has spoken, those who wish to relate to God as a son or daughter of a loving Father can in good conscience freely enjoy the spiritual simplicity and power of that relationship. We might even entertain the possibility that the father concept of God will prove to be part of the solution to the troubles of the modern family. The road blocks put up by Freud were built by mixing genuine insight with antireligious philosophy. If we untangle the confusion, then we can slow down, drive around the road blocks, share the insights, and get a better view of the created landscape along the way. Such a disentangling enables scientific living to be part of an integrated experience of living the truth.

Freud provides another example of keen psychological observations mixed with needlessly antireligious philosophy. He challenges the religious idea, found in the Hebrew Bible and the New Testament, "You shall love your neighbor as yourself."⁴⁰ While Freud approved of altruism in certain circumstances, he saw the generalized call to "love your neighbor as yourself" as foolish and dangerous. However, if we transplant his critique into the garden of a spiritually centered philosophy, we find a group of useful cautions:

- You need to receive love if you want to give love.
- Maintain self-respect.
- Do not be driven to become emotionally involved in the life of every person you meet.
- Do not neglect your duties as a family member, friend, co-worker, neighbor, and citizen.
- With strangers, let trust grow gradually.

recognition of motherly love in God.

40. Lev 19:18 and Mark 12:31. The ideas of Freud that I reinterpret come from Wallwork, "Love Thy Neighbor." Freud's cautions about loving everyone are more understandable when we recall that he lived as Jew during the rise of Nazism.

- Remember that what you can reasonably expect of yourself is less than your ideal of perfection.
- Develop a psychologically sound technique for acknowledging and re-channeling your own aggression.

When Freud's critique is reformulated in this way, these cautions can help our love to be intelligent and wise.

History and hope

On the level of planetary history, we participate in evolution by our contributions to a moral and spiritual renaissance.⁴¹ By the way we live at home, at school, at work, and in our free time, we can bring that better day closer. We live in a time of planetary transition, as an age dominated by materialism and selfishness is destroying itself and a new age is dawning. The vision of a transformed world has been proclaimed by prophets who told of the kingdom of God becoming a practical reality among humankind. That vision of progress was secularized in the eighteenth and nineteenth centuries, and it seemed to be discredited in the twentieth century by world war and other miseries.

From a spiritual perspective, history is like a decathlon, in which the forces of faith and love compete against the forces of rebellion and hatred.⁴² In any generation, it is uncertain which team will win; but in the long run, the triumph of faith and love is certain. There are reasons that support this hope, even with the tangle of biological, social, economic, and political problems our generation faces. The religious reason is that God has a destiny for us and will not allow us to destroy the human race; the only question is, how much more misery we will impose upon ourselves before we wake up and cooperate with the divine plan? To break up the tangle of problems, we need a worldwide spiritual awakening. When a critical mass of humanity do wake up, the average level of materialism and selfishness will go down as the level of idealism and generosity rises. Leadership and teamwork will then be empowered to tackle the tangle of problems effectively.

41. I use *history* as an umbrella term to include other social sciences such as anthropology, sociology, economics, and political science.

42. A decathlon comprises ten track and field events: 100-meter dash, long jump, shot put, high jump, 400-meter run, 110-meter hurdles, discus throw, pole vault, javelin throw, and 1,500-meter run (women have 100-meter hurdles and a different sequence of events).

Empirical, historical reasons for hope in a moral and spiritual renaissance have been set forth by Harvard sociologist Pitirim Sorokin, whom we shall meet again in the last chapter.

1. Crises of materialism and selfishness similar to the present crisis have been seen before on a smaller scale; and eventually new leaders have arisen and gained the necessary cooperation.
2. We already see groups of people rejecting false values and disastrous leaders.
3. We already see people turning to the higher way, partly through conscious reasoning and partly because of motivation found in the super-conscious realm—that frontier of the human mind where divine spirit injects creativity, power, and love.
4. Great changes are always assisted by the combined power of impersonal forces and by creative energies coming from a source higher than the conscious mind.
5. Many people, educated and uneducated, are lost and looking for something new.
6. Great moral and religious progress typically occurs during or immediately after crises, as can be seen in ancient civilizations and in Western countries.
7. What has occurred in individuals, groups, and nations may occur on a worldwide scale, and changes that would normally take centuries may instead take decades.⁴³

Sorokin was realistic: he saw the need for inspired leaders, but he knew that not everyone could reach a heroic level of altruism; he asked the rank and file to raise their level of altruism by 50 percent.

Participating in evolution, we can cherish high hopes for human destiny and work for historical progress, including a moral and spiritual renaissance. Sooner or later, humankind will turn from an overdose of materialism and self-centeredness to a predominance of spiritual ideals and cooperation, which will remotivate scientific action to replace world war with world peace.

In sum, an integrated concept of evolution embraces a positive attitude to the cosmos; learns from biology the ways of sound health practices and ecological care; promotes a spiritually open interpretation of psychology; and encourages hope for human destiny.

43. These reasons come from Sorokin, *Reconstruction of Humanity*, 237–41.

The stability of scientific truth

The truths of science are products gained at the conclusion of a process. The process varies from one science and method to another, but there are family resemblances. Disciplined, critical effort is applied to establish facts with as much care as circumstances require and permit; a search for causes expands understanding; empirical research can correct errors in previous research; and the knowledge gained is placed in the overarching framework of cosmic, biological, personal, and historical evolution.

When scientists make claims that go significantly beyond what their research has established, it is understandable that disputes arise; but these should not be allowed to distort the overall picture. There are laws and constants in nature: Gravity holds things together as galaxies whirl in their orbits. Pattern may be discerned. We can establish truths that express these laws and constants because the universe is dependable. The facts of the present are explained by causes from the past, and present facts carry implications for the future. In sum, science discloses the trustworthiness of nature's fidelity to law.

It is commonly said that scientific facts are theory-laden; and this is true in the sense that the meaning of a fact in science relies on a wider context of scientific theory. When the theory changes, the meaning of the fact will change. But it would be a mistake to regard all of science as uncertain and up for grabs. The testimony of philosopher of science Olaf Pedersen restores perspective by reminding us of the stability of scientific truth. He speaks not of theories but of a certain type of statement expressing what he calls primary relations. For example, "The boiling point of alcohol is 78° Celsius at a pressure of one atmosphere, which affirms a relationship between three classes of phenomena—the state of alcohol as a liquid or vapour, its temperature, and the pressure to which it is subjected."

What I have in mind is primarily that kind of statement which is listed in a work like the well-known *Handbook of Chemistry and Physics* with its thousands of specific gravities, melting points, refractive indices, atomic weights, electrical conductivities, etc.

This work appears from time to time in a new edition which is always more rich and comprehensive than its predecessor. The number of primary statements is ever increasing, and new information of permanent value is obtained all the time. . . . It is simply true in the sense that it would be scientifically impossible to replace it by a contradictory statement.⁴⁴

44. Pedersen, "Belief and Science," 127 and 129.

In the daily practice of most scientists, the flexibility of science due to changes in theory is negligible compared to the stability of well-established facts.⁴⁵

The stability of physical fact contrasts with the more varied character of facts established through the social sciences. Research on the unconscious indicates depths in the human being beyond what we can directly observe. Nevertheless, human beings show observable regularities that make social science possible, partly because we are largely material creatures. To be sure, the social sciences also use a variety of methods involving understanding and interpretation of meaning, themes central to the following chapter.

Conclusions

In this universe of awesome stability and dynamism—with its laws and uncertainties, its gradual processes and sudden changes, its beauty and terror—we human beings come on the scene. We discover ways to cope, learn facts the hard way, begin to explore causes, develop science—and our lives

45. The idea of fact has a broad sense and a narrow sense. In this book, it will sometimes be useful to speak, in a summary way, of fact, meaning, and value as the specialties of science, philosophy, and religion, respectively. This way of speaking should not be taken to imply that science lacks meaning or that there are no values inherent in scientific striving. In what sense, then, may science be said to focus on fact? Scientists typically contrast fact with hypothesis and theory; and, given those distinctions, they are right to resist an oversimplification of their work that conceals the intellectual sophistication of science. Nevertheless, there is another sense in which we may use the term *fact* to describe what science delivers, even in a broad sense. It is a fact, one may say, that there is such-and-such a probability of a particular event occurring. It is a fact that in a given event, a particular causal law accounts for the observed effect. It is a fact that a particular hypothesis has been raised to the status of a theory given its breadth of implication and the strength of supporting evidence. References to hypothesis, causal law, probability, and theory are ways of expressing what science takes to be fact in an intellectually advanced sense—our best attempts to accurately account for the way things are.

In some contexts, where facts are produced by science, we may identify the truths of science with such facts, including facts of great generality. In other contexts, fact and truth are sharply distinguished. Someone may correctly recognize a fact in daily life and wonder what the truth of that fact is.

Sometimes when people speak of a fact and call it a truth, they can be interpreted as presenting the fact as the conclusion of a process of inquiry (informal or scientific) that has indeed given the fact an enhanced truth halo. Or they may be discussing an emotional topic and expressing complete certainty, implying that anyone who takes the trouble to find out will verify what they are asserting. Both of these apparent counterexamples to my terminological proposal may represent a subtle application of the distinction that I am making. Ordinary language uses the terms *truth* and *fact* in a variety of ways; the use of these terms here is designed to clarify some significant distinctions, not to do justice to the various uses of the terms.

begin to change. Whether we are beginners or experts in science, growth in scientific living helps us flourish as largely material creatures in a largely material environment.

Scientific living is the virtue or excellence of being responsible to fact. To love intelligently, to communicate mercifully, to apply justice fairly, we need to understand facts. Scientific living provides a sturdy foundation for living the truth and prepares us to recognize higher meanings and values. Truth, beauty, and goodness all reach into the material realm; so our thinking, feeling, and doing are all enhanced by gaining a good grasp of material fact.

Truth has a spiritual core and a scientific periphery, joined by a philosophical bridge. When these components are coordinated, scientific living aligns with the Creator's laws to participate responsibly in the evolving creation. The spirituality of this philosophy of living is *into and through*, as well as *over and above*. And trust in God transforms our experience of fact, causation, and evolution.