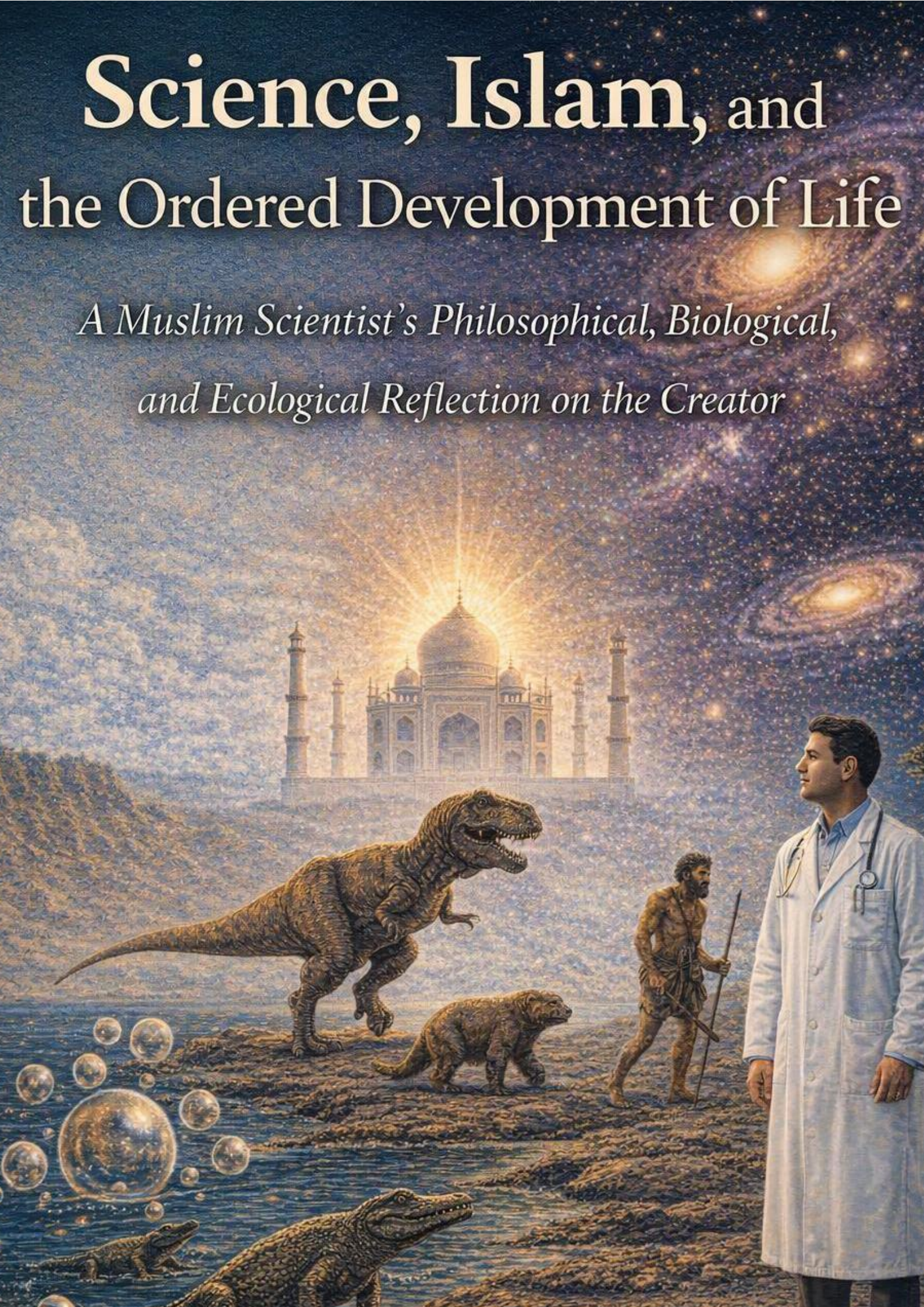
Science, Islam, and the Ordered Development of Life

A Muslim Scientist's Philosophical, Biological, and Ecological Reflection on the Creator



Science, Islam, and the Ordered Development of Life

A Muslim Scientist's Philosophical, Biological, and Ecological Reflection on the Creator

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Exploring how scientific reasoning, Islamic belief, natural development, biological evolution, homeostasis, ecological balance, and moral responsibility can illuminate different dimensions of one created reality.

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Preface

Alif Lām Mīm.
"I, Allah, am the Best Knower."
— Qurʾān 2:1, trans. Maulana Muhammad Ali

This book grows out of the convergence of my positions as a scientist, physician, university professor in physiology, and practicing Muslim. Across the laboratory, clinic, classroom, and mosque, I have repeatedly returned to one central question: does rigorous scientific inquiry weaken belief in the Creator, or can it deepen a disciplined awareness of the order, balance, fragility, and moral responsibility of life? My answer is that faith and inquiry need not be rivals when each is allowed to speak at its proper level. Science investigates mechanisms, evidence, histories, and causes within the created order; Quran asks what an intelligible, life-sustaining, morally significant world discloses about Allah as Creator, Sustainer, Guide, and Judge.

The aim of this work is not to make religion replace science, nor to force science to prove every article of faith. Both approaches are inadequate. If religion is used to avoid evidence, inquiry is weakened; if faith is made dependent on unstable scientific claims, belief becomes fragile. The stronger path is methodological honesty. Science explains how natural processes operate; philosophy asks why an ordered and intelligible world exists at all; revelation teaches how human beings should read creation as sign, mercy, trust, measure, guidance, and accountability.

The opening letters of Sūrah al-Baqarah give the book its first intellectual posture: humility before divine knowledge. Maulana Muhammad Ali renders *Alif Lām Mīm* as *"I, Allah, am the Best Knower"* (Muhammad Ali, 2002). This does not diminish human investigation; it places it in proportion. Human knowledge is real, valuable, and morally required, but it remains partial. The more deeply one studies cosmology, geology, biology, physiology, ecology, medicine, and human origins, the more necessary it becomes to distinguish mechanism from meaning, evidence from worship, and scientific explanation from ultimate dependence.

Mirza Ghulam Ahmad's *Barahin-e-Ahmadiyya* also shapes the spirit of this inquiry because it defends Islam through reasoned argument rather than fear of investigation (Ghulam Ahmad, 1880/1955). That example reminds me that believers should not protect faith by avoiding evidence, nor surrender faith to every changing intellectual fashion. The Qurʾān repeatedly calls human beings to observe, compare, verify, travel, reflect, and remember. This book therefore receives the natural world as a field of Allah's signs while refusing to turn the Qurʾān into a technical textbook of cosmology, geology, genetics, physiology, ecology, or paleontology.My being part of the Lahore Ahmadiyya Movement is important to this book because it gives me an intellectual and spiritual home in which reason, revelation, scientific inquiry, and moral responsibility can be held together without fear. This tradition has encouraged me to think openly about cosmology, geology, biology, evolution, physiology, medicine, ecology, and human origins while remaining anchored in the Qurʾān, the finality of prophethood, the Unity of Allah, and the moral purpose of human life. It allows me to ask difficult questions without treating questions as disloyalty, to receive

scientific evidence without making science ultimate, and to read creation as a field of signs without forcing the Qurʾān into changing scientific categories. In that sense, the Lahore Ahmadiyya framework is not a side note to this work; it is one of the reasons I can reason about everything discussed here with confidence, humility, and interpretive restraint.

The divine name Rabb provides the theological center of the book. Following Maulana Muhammad Ali, I use Rabb to mean not only Lord and Owner, but the One who nourishes, fosters, regulates, completes, and guides creation through successive conditions toward its appointed fulfilment (Muhammad Ali, 2002). This name gathers the book's main examples into one vision: cosmic order, Earth's preparation, life from water, biological evolution, bodily homeostasis, ecosystem balance, human moral awakening, medical compassion, and ecological responsibility all remain within Allah's sustaining lordship.

My work in physiology makes this theology concrete. The body lives through measured regulation: oxygen, water, salts, glucose, temperature, blood pressure, acidity, hormones, immunity, and waste removal are continually sensed, corrected, and adapted. Homeostasis therefore becomes a biological illustration of *mīzān* as balance and just proportion, *qadar* as measure, limit, capacity, and proportion, and Rabb as Allah's sustaining lordship over living regulation. Ecosystems provide the outward counterpart: climate, water cycles, soils, vegetation, biodiversity, pollination, decomposition, and nutrient cycling sustain the external conditions that make bodily regulation possible.

By ***divinely directed evolution***, I mean a theological reading of ordered natural development under Allah's knowledge, command, measure, mercy, wisdom, and guidance. Scientifically, biological evolution denotes heritable change in populations across generations through variation, mutation, recombination, natural selection, genetic drift, migration, adaptation, and common ancestry. It is not the sudden transformation of an individual organism, but the cumulative diversification of lineages over time. In this work, divinely directed evolution names the sustaining of creation through created means: the Qurʾān supplies the grammar of meaning—creation, measure, signs, balance, guidance, dignity, accountability, and worship—while science investigates mechanisms, histories, and evidence within that order.

Human origins require special care. The Lahore Ahmadiyya interpretation followed in this book does not require Adam to be the first biological human being. Rather, Adam is understood primarily as the first divinely appointed messenger or representative of morally responsible humanity: the beginning of prophetic address, knowledge of Allah's Unity, accountability, repentance, and human dignity (Muhammad Ali, 1996; Muhammad Ali, 2002). This approach allows biological prehistory to be discussed honestly while preserving the Qurʾānic boundary around revelation, moral responsibility, and the honored status of the children of Adam.

The ethical implication is direct. If balance is visible inwardly as homeostasis and outwardly as ecosystem order, then climate change, pollution, water stress, soil degradation, food insecurity, biodiversity loss, and public-health vulnerability are not merely technical problems. They are disturbances of the measured conditions through which Allah sustains life. Ecological care is therefore not optional sentiment; it belongs to moral accountability before the Creator.

In Gratitude and Dedication

I offer these reflections as a scientist who values evidence, as a physician who has learned that knowledge must be joined to compassion, and as a Muslim who receives creation as a field of signs. My purpose is not to collapse science into theology or theology into science, but to let each speak truthfully at its proper level. Science asks how created systems work; revelation teaches why creation matters and how human beings should respond—with humility, gratitude, disciplined inquiry, mercy, worship, and responsibility.

Therefore, I dedicate this book to Maulana Muhammad Ali, whose interpretations of *Rabb*, *Mīzān*, and *Qadar* inspired this work; who explained why Adam need not be understood as the first biological human being; and who remained humble despite his profound scholarship.

Prof. dr. Robbert Bipat

Summary

This book offers a sustained reflection on one created reality as seen through several disciplined lenses: scientific inquiry, philosophical reasoning, Qurʾānic faith, biological evolution, physiological homeostasis, ecological balance, medicine, and moral responsibility. Science explains mechanisms and histories within nature; philosophy asks about origin, intelligibility, value, consciousness, and purpose; and Islamic faith, grounded in the Qurʾān, receives creation as a field of signs disclosing Allah's wisdom, measure, mercy, guidance, and lordship. The book therefore seeks neither conflict nor forced harmonization, but a disciplined integration in which natural causes remain real created means and creation remains dependent on Allah as Rabb.

The opening frame is shaped by Q.2:1–2, Q.55:1–4, and Q.96:1–5. Q.2:1–2 places knowledge under Allah, the Best Knower, and presents the Book as guidance without doubt for those who keep their duty. Q.55:1–4 links divine teaching, human creation, and taught expression, while Q.96:1–5 joins reading, creation, the pen, and knowledge previously unknown. These verses give the book its intellectual posture: science, philosophy, language, writing, medicine, and historical inquiry are genuine human gifts, yet they are not self-originating or morally neutral. Human beings observe, reason, speak, write, preserve, and investigate because knowledge is taught, entrusted, guided, and answerable before Allah (Muhammad Ali, 2002).

The argument unfolds in a deliberate arc. The early chapters establish the philosophical, Qurʾānic, and methodological foundations: origin, contingency, fine-tuning, physical law, life, consciousness, morality, religious experience, signs, and the relation between science and faith. The middle chapters apply that framework to cosmic origins, Earth's preparation, life from water, geological habitability, the partial artificial environment of spacecraft, microbial foundations, plant evolution, animal diversification, dinosaur-era ecosystems, large mammals, human biological prehistory, and Adamic responsibility. The later chapters then bring Islamic intellectual traditions, contemporary Muslim evolution debates, Darwinian mechanism, final synthesis, medicine, compassion, and ecological accountability into one connected conversation.

The book's final position is one of disciplined confidence joined to humility. Biological evolution is accepted in its scientific sense as descent with modification, inherited variation, adaptation, natural selection, and common ancestry. At the same time, the wider created order—cosmic intelligibility, Earth's habitability, water, homeostasis, ecosystems, human dignity, moral accountability, and ecological responsibility—is read theologically through Rabb, *mīzān*, *qadar*, signs, provision, guidance, and worship. To study creation deeply is therefore not to move away from Allah, but to recognize more fully the gift, order, dependence, fragility, responsibility, and mercy within the world He sustains.

Reader's Guide and Structure of the Book

This book is best read as one continuous argument rather than as a collection of separate essays. It moves from the philosophical and Qurʾānic grounds for belief in the Creator toward a scientific and theological account of natural development. The early chapters establish the method; the later chapters apply it to cosmic history, Earth's habitability, life from water, biological evolution, homeostasis, ecosystems,

human origins, Islamic interpretation, Darwinian mechanism, medicine, and ecological responsibility.

Several interpretive safeguards guide the whole work. Unless explicitly stated otherwise, English renderings of Qurʾānic verses follow Maulana Muhammad Ali's translation, with surah and verse references supplied throughout (Muhammad Ali, 2002). The book uses Qurʾān, Qurʾānic, *āyah* and *āyāt*, Rabb, *Rabb al-ʿālamīn*, *mīzān*, *qadar*, *tawḥīd*, Adamic responsibility, and divinely directed evolution as preferred theological terms. Allah is the book's primary theological name for God; the word God appears where the discussion is philosophical, comparative, or cites non-Islamic scholarship. Throughout, the Qurʾān is treated as revelation that gives a grammar of meaning—creation, measure, water, stages, signs, balance, provision, guidance, dignity, worship, and accountability—not as a technical textbook of cosmology, geology, genetics, physiology, ecology, or paleontology. Scientific examples are used to support disciplined reflection, not to claim that every modern category is directly named in scripture.

The book follows a consistent convention for Arabic vocabulary. Transliterated Arabic terms are italicized when they function as technical terms, especially *mīzān*, *qadar*, *tawḥīd*, *fitrah*, *āyah* (a single Qurʾānic verse, sign, or indication), *āyāt* (Qurʾānic verses, signs, or indications), *dābbah*, *dukhan*, *ratq*, *fatq*, *ayyām*, and *falaq*. Proper names and established sacred titles such as Allah, Adam, Qurʾān, Qurʾānic, Sūrah, and Maulana Muhammad Ali are kept in roman type. Rabb may remain roman when used as a divine name, while longer Arabic phrases such as *Rabb al-ʿālamīn* may be italicized when treated as transliterated Arabic.

The word *evolution* is used with particular care. In the strict scientific sense, biological evolution means descent with modification, inherited variation, adaptation, natural selection, and common ancestry. In the broader theological sense used in this book, *divinely directed evolution* means the ordered unfolding and sustaining of creation under Allah's knowledge, command, measure, mercy, wisdom, and guidance. Cosmic formation, geological preparation, homeostasis, ecosystems, and human moral awakening are not biological evolution in the technical sense; rather, they form the wider created context in which biological evolution becomes possible and meaningful.

Human origins require special caution because they touch Adam, revelation, *tawḥīd*, moral responsibility, and human dignity. The Lahore Ahmadiyya interpretation followed here does not require Adam to be the first biological human being. Adam is understood primarily as the first divinely appointed messenger or representative of morally responsible humanity: the beginning of prophetic address, knowledge of Allah's Unity, accountability, repentance, and human dignity (Muhammad Ali, 1996; Muhammad Ali, 2002). This book uses *Adamic responsibility* for that theological boundary, allowing biological prehistory to be discussed honestly while preserving the Qurʾānic emphasis on revelation and moral accountability.

Chapter roadmap

	Title	Role in the argument
1	Contingency, Cosmic Order, and the Case for the Creator	Begins the case for the Creator through contingency, cosmic order, intelligible law, life's emergence, and consciousness.
2	Qurʾānic Signs and the Meaning of Creation	Presents Qurʾānic reasoning through signs, creation, dependence, purpose, inner awareness, knowledge, worship, and accountability.
3	Method, Evidence, and the Relation of Science and Faith	Clarifies how science, philosophy, and Qurʾānic revelation relate by preserving differences in method, evidence, authority, and purpose.
4	Natural Causes, Evolution, and Reflective Trust	Uses evolution as the main test case for showing that natural mechanisms can be real created means while faith remains reflective, humble, and intellectually responsible.
5	Cumulative Signs and the Reasonableness of Faith	Builds a cautious cumulative case by bringing together dependence, moral value, religious experience, *fiṭrah*, fine-tuning, origin-of-life research, consciousness, and Qurʾānic signs.
6	Creation as Ordered Development under Rabb	Defines divinely directed evolution as a theological reading of ordered natural development under Allah's sustaining lordship.
7	Cosmic Origins and Qurʾānic Creation Language	Reads cosmic history and Qurʾānic creation language with methodological caution, using Hubble and Webb as modern observational examples that make cosmic vastness, layered structure, and intelligibility more vivid without turning revelation into technical astronomy.
8	Earth as a Prepared Habitat	Shows how water, atmosphere, minerals, mountains, climate, and soils form the conditions for life.
9	Life from Water, Homeostasis, and Ecosystem Balance	Connects biological life with internal bodily balance and external ecological support.
10	Microbial and Plant Foundations of Life	Describes hidden microbial preparation and the greening of the Earth as foundations for later life.
11	Animal Life, Human Origins, and Adamic Responsibility	Follows animal diversification and human biological prehistory while preserving Adamic moral and prophetic meaning.
12	Islamic Intellectual Traditions and Evolutionary Interpretation	Places natural inquiry and evolution debates within Islamic interpretive history and contemporary scholarship.
13	Darwin, Natural Selection, and Created Means	Treats Darwinian evolution as scientific mechanism while preserving theological meaning and dependence on Allah.
14	Measure, Balance, and Final Synthesis	Gathers cosmic, biological, physiological, ecological, and moral themes under Rabb, mīzān, qadar, and responsibility.
15	Faith, Medicine, and Human Meaning	Brings the completed argument into personal, medical, and ethical reflection through compassion, worship, and lived responsibility.

Introduction: Creation, Reason, Faith, and Natural Development

"Say: Look at what is in the heavens and the earth."
— Qurʾān 10:101, trans. Maulana Muhammad Ali

This book begins with a question that has become unavoidable for many modern believers: how should scientific inquiry, philosophical reasoning, Qurʾānic faith, and the long history of nature be held together? Public debate often forces a false choice. Science and religion are treated either as rivals competing for the same explanatory territory, or as two languages that must be forced into immediate agreement. This book rejects both extremes. Science, philosophy, and Qurʾānic reflection address one created reality, but they do so at different levels, with different methods and purposes.

The central issue is therefore methodological. Science investigates natural mechanisms, evidence, and historical development. Philosophy asks whether the existence, order, intelligibility, life-bearing structure, consciousness, and moral significance of the world require deeper explanation. Qurʾānic revelation presents creation as a field of signs that call the human being to observation, reflection, gratitude, worship, humility, and accountability. Confusion begins when these modes of knowing are collapsed into one another, or when their differences are mistaken for conflict.

The book therefore unfolds as one sustained argument. It begins by considering scientific and philosophical reasons for taking belief in the Creator seriously. It then reads Qurʾānic signs on their own terms, compares the different modes of reasoning, and develops a compatibility model in which natural causes are real created means rather than rivals to Allah. On that basis, the discussion turns to divinely directed evolution: the ordered unfolding of creation through cosmic formation, Earth's preparation, life from water, biological diversification, physiological homeostasis, ecosystem balance, human moral awakening, and ecological responsibility.

This method requires humility. The arguments considered in this book are serious and cumulative, but they are not coercive in the way a laboratory measurement may be. Sincere disagreement remains possible. Faith is therefore presented not as the rejection of reason, but as reflective trust shaped by signs, moral seriousness, personal transformation, Qurʾānic guidance, worship, and disciplined openness. The book avoids God-of-the-gaps reasoning—the attempt to insert God only where current scientific explanation is incomplete—and it also avoids careless scientific miracle claims. It welcomes natural causes as real created means and asks how their order, fruitfulness, limits, and intelligibility may be understood under the lordship of Allah as Rabb.

This approach also distinguishes the book from what is often called Bucaillism (Bucaille, 1976), or scientific miracle concordism: the attempt to prove the Qurʾān by locating modern scientific discoveries directly inside particular verses. Such an approach may seem apologetically attractive, but it can make revelation depend too heavily on changing scientific interpretations and can reduce the Qurʾān to a hidden

technical manual. This book follows a more restrained path. It does not seek to prove the Qurʾān by claiming that modern cosmology, geology, embryology, genetics, evolution, physiology, or ecology is directly encoded in the text. Rather, it treats the Qurʾān as revelation that teaches how creation should be read—as sign, measure, provision, guidance, dignity, worship, and accountability—while science investigates the mechanisms and histories of the created order.

This posture is grounded in several Qurʾānic passages that shape the book's understanding of knowledge. Q.2:1–2 opens with *Alif Lām Mīm*, rendered by Maulana Muhammad Ali as *"I, Allah, am the Best Knower,"* and then declares: *"This Book, in which there is no doubt, is a guide to those who keep their duty."* Q.55:1–4 teaches that the Beneficent taught the Qurʾān, created the human being, and taught expression. Q.96:1–5 begins revelation with reading, creation, the pen, and knowledge previously unknown. Together, these verses affirm that science, philosophy, language, writing, medicine, and historical inquiry are genuine human gifts, but they are not self-originating or morally neutral. Human beings observe, reason, speak, write, preserve, and investigate because knowledge is taught under Allah, the Best Knower, and oriented by the Book that guides without doubt (Muhammad Ali, 2002).

Unless otherwise indicated, English renderings of Qurʾānic verses in this book follow Maulana Muhammad Ali's English translation and commentary of the Holy Qurʾān (Muhammad Ali, 2002). Verse numbers are cited by sūrah and *āyah* so that readers can compare each passage within its scriptural context.

The structure of the book should therefore be read as one continuous movement: from arguments for the Creator, to Qurʾānic signs, to the disciplined relation of science and faith, and finally to the natural history of divinely sustained development. Evolution is treated as the major test case for this method. If the universe is intelligible, lawful, life-permitting, morally significant, and open to Qurʾānic interpretation as a field of signs, then biological evolution, homeostasis, and ecological balance can be understood as part of creation's ordered fruitfulness rather than as alternatives to divine action. Chapter 1 begins this movement by asking why existence, cosmic order, life, and consciousness make the question of the Creator intellectually serious.

Chapter 1: Contingency, Cosmic Order, and the Case for the Creator

"Or were they created without a (creative) agency? Or are they the creators?"
— Qurʾān 52:35, trans. Maulana Muhammad Ali

Key themes: This chapter begins the book's cumulative case for a Divine Creator. It does not try to prove faith through one decisive argument. Instead, it follows five connected lines of reflection: the universe's origin and dependence, the life-permitting structure of the cosmos, the intelligibility of physical law, the emergence and organization of life, and the mystery of consciousness. Each argument has limits, but together they press the same question: is reality self-sufficient, or does its existence, order, lawfulness, life, mind, and moral awareness point beyond itself?

The flow of the chapter is therefore deliberate. It begins with the basic fact of existence, then asks why the existing universe is life-permitting, why its order is intelligible to reason, how life emerges within that order, and finally why conscious beings can reflect on meaning, value, and the Creator. Each step narrows the focus: from cosmos, to order, to law, to life, to the human mind.

1.1 Cosmological and *Kalām* Arguments: Origin, Causation, and Dependence

The chapter begins with origin and dependence because every later argument assumes that there is a world to investigate. The cosmological argument asks why there is a cosmos at all and whether the universe can be treated as self-explanatory. In its *kalām* form, rooted in Islamic theology, it reasons that whatever begins to exist requires a cause; if the universe began, then its existence calls for an explanation beyond the physical order it contains. Broader cosmological arguments press the same issue through contingency: even if physical history is described in detail, the question remains why dependent reality exists rather than nothing.

Modern cosmology gives this philosophical question a concrete setting. The Big Bang model, cosmic expansion, background radiation, and element abundances describe a universe with a hot, dense early history and measurable temporal development. These findings are scientific, not theological proofs. Their importance for this chapter is that they make the universe appear historically ordered rather than timelessly static, while leaving open the deeper question of ultimate dependence (Gleiser, 2007; Loke, 2022; Reichenbach, 2024).

This point requires restraint. In standard General Relativity, Big Bang cosmology reaches a boundary in the classical description of spacetime, but that boundary should not be treated as a direct laboratory proof of creation *ex nihilo*. Quantum cosmological models add further nuance by exploring early-universe states, tunneling, fluctuations, or other pre-classical conditions. The move from cosmic beginning to divine creation is therefore a philosophical and theological inference

informed by cosmology, not a measurement supplied by physics alone (Gleiser, 2007; Loke, 2022; Reichenbach, 2024).

The cosmological argument is strongest where causality, contingency, and finite cosmic history converge. A universe with a beginning calls for explanation beyond itself, while critics may appeal to quantum cosmology, brute-fact explanations, uncertainty about causality beyond the observable universe, or doubts about whether a first cause can be identified with the God of classical theism. For this book, the argument's value is not coercion but orientation: it prevents the existence of the universe from being treated as obvious or self-explanatory (Loke, 2022; Reichenbach, 2024).

The Qurʾān presses the same dependence question rhetorically rather than technically. In Maulana Muhammad Ali's rendering, it asks: *"Or were they created without a (creative) agency? Or are they the creators?"* (Qurʾān 52:35). The verse does not offer a physics model, but it refuses to let existence be treated as though it needs no source. This prepares the next step in the chapter: once existence itself is in view, the argument turns to the remarkable order that makes life possible.

This first argument establishes the question of dependence. The next argument does not repeat that question; it assumes a universe exists and asks why that universe has the kind of structure in which life can arise.

1.2 Fine-Tuning: Life-Permitting Order and Cosmic Constants

If the cosmological argument asks why the universe exists, the fine-tuning argument asks why the universe is structured in a way that permits life. Fundamental constants and initial conditions appear to fall within ranges that allow complex matter, chemistry, stars, planets, and living organisms. The philosophical question is how this life-permitting order should be interpreted. Design, multiverse selection, physical necessity, chance, and mind-involving metaphysical views are competing explanations, so fine-tuning is best treated as a comparative argument rather than as a simple appeal to improbability (Friederich, 2019; Goff, 2019; Leslie, 1989; Loke, 2022; Sober, 2018).

Scientifically, fine-tuning refers to the fact that many features of the universe must fall within life-permitting ranges. Cosmic expansion must allow galaxies and stars to form; nuclear forces must permit stable atoms and the production of heavier elements; particle properties must allow matter, chemistry, and structure; and stars must form and live long enough to produce the elements needed for planets and life. The philosophical question is how this life-permitting order should be explained. Several options remain in the debate: design interprets the order as evidence of purposive intelligence; multiverse and anthropic reasoning suggest that many universes may exist and observers naturally find themselves in one compatible with life; necessity claims that the constants could not have been otherwise; chance treats the order as a fortunate but unexplained fact; and mind-involving metaphysical accounts see consciousness, value, or mind as more basic to reality than reductive materialism allows. Because these alternatives remain serious, fine-tuning should be presented as a disciplined comparison of explanations, not as a quick proof settled by one interpretation (Friederich, 2019; Goff, 2019; Leslie, 1989; Loke, 2022; Sober, 2018).

Fine-tuning therefore contributes a second layer to the cumulative case. It does not replace the cosmological argument, and it does not settle the debate by itself. It adds a focused question about life-permitting order: why is the universe not only existent, but structured in ways that allow stable matter, chemistry, stars, planets, and life?

The Qurʾān presents cosmic order and balance as signs of divine wisdom. Sūrah al-Mulk speaks of creation without flaw or rupture, while Sūrah Yūnus presents the sun and moon as ordered signs through which human beings calculate time. These verses are not technical fine-tuning arguments, but they resonate with the chapter's central intuition: regularity, measure, and intelligibility invite reflection on purposeful creation (Qurʾān 10:5; 67:3–4). The next section narrows this question further by asking why the universe is intelligible to reason at all.

Fine-tuning therefore shifts the discussion from existence to life-permitting structure. The next step asks something even deeper: why such structure can be expressed through stable laws and understood by human reason.

1.3 Physical Laws and Rational Intelligibility

The third line of reflection moves from life-permitting order to rational intelligibility. Physics does not only observe events; it discovers stable patterns that can be expressed mathematically and used to understand the world. The philosophical question is why nature has laws, why mathematics applies so effectively, and why human reason can grasp the structure of reality. The classic puzzle of mathematical intelligibility, the historical development of the "laws of nature," and the relation between time, change, relativity, and divine eternity all sharpen this question without resolving it by themselves (Davies, 1985; Harrison, 2008; Saudek, 2020; Wigner, 1960).

This argument treats intelligibility itself as something to be explained. Its limits must also be acknowledged: laws may be fundamental, deeper physical theories may explain them further, and critics may argue that invoking God simply moves the explanatory question back a step. The point, therefore, is not that lawfulness proves God by itself. It is that a universe open to rational understanding remains philosophically significant and fits naturally with the Qurʾānic view of creation by measure and command (Davies, 1985; Gleiser, 2007; Harrison, 2008; Saudek, 2020; Wigner, 1960).

The Qurʾān frequently speaks of creation according to measure and of celestial bodies following appointed courses. Day and night, the sun and moon, and recurring natural patterns are presented as signs of governance. This aligns with the idea that law and order flow from the Creator's command, while remaining a matter of revelation and faith rather than a formal scientific theory (Qurʾān 13:2; 32:7; 54:49). The chapter now moves from the intelligibility of the cosmos to the more specific question of life within that intelligible order.

The argument from law and intelligibility supplies the framework in which scientific inquiry becomes possible. The next section moves from the lawful structure of nature to one of its most striking outcomes: living systems capable of growth, reproduction, adaptation, and diversification.

1.4 Biological Complexity and the Emergence of Life

The fourth line of reflection concerns life. Biological complexity includes organized structures, genetic information, adaptation, development, metabolism, and the capacity of living systems to reproduce and diversify. Older design arguments often treated complexity as too difficult for natural processes to produce, but contemporary discussion must take evolutionary biology seriously. Evolution explains many biological mechanisms, so design reasoning is better framed as a deeper question: why does nature have the laws, structures, and generative capacities that make evolutionary development possible? Biological design arguments must therefore be evaluated on their own evidential terms rather than simply borrowed from fine-tuning debates (Himma, 2015; Kojonen, 2021; Sober, 2018).

The origin of life raises a related but distinct question. Evolution explains diversification after self-replicating organisms exist; abiogenesis asks how the first living or life-like systems could arise from non-living chemistry. Cartwright and Russell's work on alkaline hydrothermal vent theory illustrates that origin-of-life research remains an active natural scientific field. This book neither treats such research as a threat nor exploits its open questions as gaps. Its role in the cumulative case is to show that life's emergence remains a serious question about nature's life-generating capacities (Cartwright & Russell, 2019; Kojonen, 2021).

The strongest biological argument therefore does not oppose evolution or origin-of-life research. It asks whether nature's lawful and life-generating capacities are best understood as brute facts or as signs of deeper purposive order. This keeps the argument from becoming either anti-scientific or merely gaps-based: mechanisms are welcomed, while their deeper intelligibility remains open to philosophical and theological interpretation (Cartwright & Russell, 2019; Himma, 2015; Kojonen, 2021; Sober, 2018).

The Qurʾān treats life as a sign rather than as a modern biology lesson. Q.21:30 states, *"And We made from water every living thing,"* framing life's dependence on water theologically rather than technically. Q.24:45 adds the diversity of living creatures, allowing life's complexity, movement, and order to become occasions for reflection on divine wisdom without making the verses a biology textbook (Qurʾān 21:30; 24:45). From life, the chapter turns finally to the being who reflects on life: the conscious human person.

Life therefore adds a further layer to the cumulative case. The universe is not only ordered and intelligible; it is also capable of producing and sustaining living beings. The final section turns to the most inward dimension of that living world: consciousness, rationality, and moral awareness.

1.5 Consciousness, Mind, and Rationality

The fifth line of reflection is consciousness. The chapter has moved from existence, to order, to intelligibility, to life; consciousness asks how a living body can also become a center of awareness. Human beings do not merely process information from the outside. They experience the world from within: pain hurts, color appears, memory returns, choices feel meaningful, and moral claims can be recognized as binding. This first-person dimension is what makes consciousness philosophically significant. Contemporary theories—including higher-order, global workspace, predictive-

processing, and integrated information approaches—help explain attention, perception, reportability, brain integration, and cognitive control. Yet the metaphysical question remains contested: do these accounts fully explain subjective experience itself, or do they describe the mechanisms that accompany it? Theism is one possible account of mind's place in reality; natural teleology and panpsychism show that alternatives to reductive physicalism are also part of the debate (Chalmers, 1995; Goff, 2019; Nagel, 2012; Seth & Bayne, 2022).

This is the point usually called the hard problem of consciousness. Scientific research can explain many difficult functions: how the brain receives information, integrates signals, focuses attention, stores memory, guides behavior, and produces reports. The hard problem asks a different question: why are any of these physical processes accompanied by lived experience at all? A complete map of neural activity may show which circuits are active when a person sees red, feels pain, or makes a decision; the remaining philosophical question is why those physical processes have an inner, felt character rather than occurring without awareness. Neuroscience therefore provides an essential counterbalance: brain activity clearly correlates with mental states, and experimental approaches continue to refine the study of perception, attention, selfhood, and awareness. But such findings do not by themselves settle whether subjective experience is ultimately reducible to physical processes, emergent from them, or indicative of a deeper reality (Chalmers, 1995; Klein & Barron, 2020; Seth & Bayne, 2022).

The consciousness argument is therefore suggestive rather than decisive. It does not claim that neuroscience has failed or that theism follows automatically from subjective experience. Its more careful claim is that consciousness resists being treated as a minor leftover after biology has finished its work. Self-awareness, rational insight, intentional thought, moral judgment, and the search for meaning raise questions about what kind of reality can contain subjects who know, value, and ask why anything exists. Different answers remain possible: physicalism treats consciousness as ultimately grounded in physical processes; emergentism holds that consciousness arises from complex physical organization while having features not obvious in its parts; panpsychism suggests that mind-like aspects are basic features of reality; natural teleology sees purpose-like direction within nature itself; and theism grounds mind and meaning in the Creator. Within the cumulative case of this chapter, consciousness completes the movement from the outer world to the inner person: the universe is not only existent, ordered, lawful, and life-bearing; it also contains beings who can know, question, judge, seek meaning, and ask about the Creator (Chalmers, 1995; Goff, 2019; Klein & Barron, 2020; Nagel, 2012; Seth & Bayne, 2022).

The Qurʾān does not formulate a technical argument from consciousness, but it highlights the human being's distinctive spiritual, rational, and moral capacities. It speaks of Allah breathing something of His spirit into the first human and invites human beings to reflect within themselves: *"And in yourselves; do you not see?"* These passages support the view that inner awareness can be read as a sign of the Creator, complementing the external signs in nature (Qurʾān 15:29; 51:21).

Chapter 1 therefore establishes the first movement of the book. The arguments are not isolated proofs but connected stages in a cumulative reflection: the universe exists, develops, permits life, follows intelligible laws, generates living complexity, and contains conscious beings capable of moral and spiritual reflection. This does not

compel faith as a mathematical conclusion, but it makes the question of the Creator intellectually serious. Chapter 2 then changes the mode of address: it shows how the Qurʾān gives these philosophical questions a revealed grammar of signs, remembrance, worship, and accountability.

Chapter 2: Qurʾānic Signs and the Meaning of Creation

> *"Surely in the creation of the heavens and the earth and the alternation of the night and the day there are signs for men of understanding."*
> *— Qurʾān 3:190, trans. Maulana Muhammad Ali*

Key themes: This chapter presents the Qurʾān's distinctive mode of reasoning through *āyāt*, or signs, together with remembrance, moral address, and worship. Creation, order, dependence, purpose, and human self-awareness are not treated as spiritually neutral facts, but as signs that disclose divine wisdom to those who reason and reflect. The chapter therefore shows how Qurʾānic argumentation differs from technical proof while still calling the reader to serious intellectual and moral recognition.

It reads Qurʾānic reasoning on its own terms. The Qurʾān is not treated here as a technical science manual or as a collection of isolated proof-texts. It is treated as revelation that addresses the whole person: reason, conscience, memory, language, worship, humility, and responsibility. Its signs invite the reader to observe creation, remember Allah, reflect on dependence and purpose, and respond with gratitude, worship, and accountability. The chapter therefore follows how the Qurʾān speaks of divine command, cosmic order, causality, purpose, inward awareness, expression, knowledge, and moral response.

2.1 Creation, Divine Command, and Ultimate Dependence

The Qurʾān challenges listeners to consider whether the universe could create itself or arise without a creative agency. In Maulana Muhammad Ali's rendering, it asks: *"Or were they created without a (creative) agency? Or are they the creators?"* (Qurʾān 52:35). The question presents the same basic alternatives considered in cosmological reasoning: a world without an adequate creative source, a world that somehow causes itself, or creation grounded in Allah. Another verse declares: *"Wonderful Originator of the heavens and the earth! And when He decrees an affair, He only says to it, Be, and it is."* (Qurʾān 2:117), affirming creation by divine command and ultimate dependence.

This form of reasoning is not identical to a scientific account of cosmic origins. The Qurʾān does not describe the physical stages of the early universe in technical terms; rather, it frames existence itself as dependent on divine command. The emphasis falls on contingency and dependence: the heavens and the earth are not self-explanatory realities, but created realities whose existence points beyond themselves. In this sense, creation *ex nihilo* functions as a theological claim about ultimate dependence rather than as a replacement for cosmological research.

The phrase *"Be, and it is"* expresses divine sovereignty and immediacy without requiring creation to be imagined as arbitrary or irrational. It affirms that the world ultimately depends on Allah's will, wisdom, and command. This complements

philosophical cosmological reasoning by placing the question of origin within a revealed framework of power, purpose, and worship. The result is both metaphysical and devotional: the reader is asked why anything exists and is directed toward recognition of the Creator.

2.2 Signs in Nature and Cosmic Order

A dominant Qurʾānic pattern is that the natural world is full of "signs" (*āyāt*) of God. Nature is not presented as a closed system without meaning, but as an ordered reality that invites reflection on divine wisdom and power. The verses cited in this section provide the textual examples, while scholarship on Qurʾānic natural theology helps frame how such verses function within the wider theological argument (Morrison, 2013; Qurʾān 2:164; 31:20).

Within this theme, the Qurʾān presents cosmic order, balance, and coherence as purposeful signs. Everything in creation is described as measured, while the sun, moon, and sky are presented as signs of calculation, balance, and regular movement. These celestial patterns are not merely beautiful; they make human life, timekeeping, and knowledge possible. The Qurʾān also challenges the reader to look for flaw or discrepancy in the creation of the All-Merciful, turning the unity and regularity of the natural order into an invitation to reflection on divine wisdom (Qurʾān 10:5; 36:40; 54:49; 55:5–7; 67:3–4).

The force of these signs lies not only in their beauty but also in their regularity and intelligibility. The recurring alternation of night and day, the measured movement of celestial bodies, the descent of rain, and the revival of the earth after lifelessness are presented as patterns that can be observed, remembered, and interpreted. In this way, the Qurʾān encourages a disciplined attention to nature: the reader is invited to notice that the world is not chaotic, but ordered in ways that sustain life and make human knowledge possible.

This does not mean that the Qurʾān offers a technical scientific theory of the cosmos. Rather, it presents nature as theologically meaningful: regularity, proportion, and coherence become signs through which human beings are called to reflect on divine wisdom. The natural world is therefore neither ignored nor treated as spiritually neutral. It becomes a field of inquiry and remembrance, where empirical observation and religious reflection can meet without being reduced to one another.

2.3 Purpose and Causality in the World

The Qurʾān rejects the idea that the universe is random or meaningless. It states that creation is not in vain, presents the order of creation as part of a stable divine way, and traces causes and origins back to their ultimate source. In this framework, Allah is the supreme cause and giver of purpose, while natural causes remain real created means within His sustaining order (Qurʾān 21:16; 33:62; 52:35–36).

This theme is important because the Qurʾān does not treat causality as a denial of divine action. Natural causes can operate within creation, but they remain dependent on the Creator who gives them order, regularity, and purpose. In this framework, rain may nourish the earth, plants may grow through observable processes, and human beings may act through ordinary causes, yet these processes are still understood as

occurring within a divinely sustained order. Causality is therefore not opposed to faith; it becomes one way in which divine wisdom is expressed through the regularity of the world.

The Qurʾānic emphasis on purpose also gives moral weight to creation. If the world is not created in vain, then human life is not merely biological existence but a field of responsibility. Reflection on origin and causality leads to questions of gratitude, accountability, and worship: the created order is not only something to be studied, but also something through which human beings are called to recognize the Giver of life and to act responsibly within creation.

2.4 Human Uniqueness and Inner Awareness

The Qurʾān's signs are not limited to the external world of heavens, earth, water, plants, and living creatures; they also appear within the human person. Intellect, conscience, self-reflection, moral judgment, the search for truth, and the recognition of meaning are presented as gifts that point beyond biological survival. Q.51:21 directs human beings to look within themselves, while Q.30:30 speaks of *fitrah*, the innate orientation toward recognizing Allah. Human nature is therefore not spiritually neutral. It may be obscured, resisted, or neglected, but it remains capable of recognition. The outer world and the inner self thus become complementary fields of signs, calling the human being to recognition, gratitude, and worship (Morrison, 2013; Qurʾān 30:30; 51:21).

The opening of Sūrah al-Raḥmān adds language and communication to this account of human distinctiveness: *"The Beneficent — taught the Quran. He created man, taught him expression"* (Qurʾān 55:1–4). Maulana Muhammad Ali renders *al-bayān* as "expression," placing human creation alongside the capacity to receive teaching and communicate meaning (Muhammad Ali, 2002). This does not deny animal communication, learning, memory, or social behavior. Rather, it identifies the human being as a creature addressed through articulated meaning: capable of instruction, remembrance, worship, repentance, moral response, and accountable speech. Expression therefore belongs with intellect, conscience, knowledge, and *fitrah* as a Qurʾānic sign of human distinctiveness.

Q.96:1–5 extends this theme from expression to reading, the pen, and taught knowledge: "Read in the name of thy Lord Who creates — creates man from a clot. Read and thy Lord is most Generous, Who taught by the pen, taught man what he knew not" (Qurʾān 96:1–5). The passage joins humble bodily origin with the elevation of knowledge. It should not be reduced to literacy alone, since human communities have also preserved wisdom orally and writing appears late in cultural history. The pen represents the wider vocation of symbolic expression, transmitted memory, scripture, law, teaching, correction, and moral responsibility. Humanity is thus capable not only of expression, but also of receiving, preserving, transmitting, and answering for knowledge (Muhammad Ali, 2002).

This sequence returns the reader to the book's opening posture in Q.2:1–2. Maulana Muhammad Ali renders *Alif Lām Mīm* as *"I, Allah, am the Best Knower,"* followed by the declaration: *"This Book, in which there is no doubt, is a guide to those who keep their duty"* (Qurʾān 2:1–2). Q.55:1–4 presents Allah as the One who teaches expression; Q.96:1–5 presents Him as the One who teaches by the pen; and Q.2:1–2 places all human knowing under divine knowledge and guidance. Human knowledge

is real, noble, and morally weighty, but it is neither self-originating nor self-sufficient. Expression, reading, writing, memory, scholarship, and scientific inquiry receive their proper dignity when joined to humility, duty, guidance, and accountability before Allah.

Human intelligence is therefore remarkable but finite. Human beings design tools, build machines, develop medicines, investigate nature, and discover patterns within the created order. Yet these capacities are received and dependent. If created beings can discover, calculate, heal, and organize knowledge, then the knowledge of the Creator must be infinitely greater. Scientific achievement should deepen humility rather than pride, for every true discovery points beyond human brilliance to Allah, the Best Knower, from whom all understanding ultimately comes.

Section 2.4 therefore completes the chapter's account of signs by adding the inward, communicative, and epistemic dimension. The human being is not merely a biological organism within creation, but a creature capable of recognizing signs, judging morally, receiving teaching, expressing meaning, preserving knowledge, and responding to Allah. Q.2:1–2 gives these capacities their proper proportion: Allah is the Best Knower, the Book is guidance without doubt, and human knowledge is taught, entrusted, and accountable. Qurʾānic reasoning therefore addresses the whole person—reason, conscience, memory, language, worship, humility, duty, and responsibility. Creation is meaningful not only because the universe is ordered, but because human beings are made capable of reading that order as sign and answering it through guided knowledge, gratitude, and accountability (Erlwein, 2017; Morrison, 2013; Muhammad Ali, 2002).

This point is strengthened when Qurʾānic and *kalām* reasoning are read within a wider theological and exegetical setting. Arguments for the Creator need not function as abstract proofs detached from worship. They may also clarify how creation points to the Creator, how Qurʾānic reasoning is structured, and how reflection on signs leads toward recognition, gratitude, and devotion. In this approach, the Qurʾān remains the main foundation, while secondary sources help keep the discussion balanced and prevent it from becoming only a set of modern apologetic arguments (Bucaille, 1976; Erlwein, 2017).

Taken together, these themes show that *Qurʾānic* argumentation works through signs, remembrance, moral orientation, and recognition rather than through technical proof alone. Whereas the scientific and philosophical arguments in Chapter 1 proceed mainly through public evidence, causal inference, and conceptual analysis, the *Qurʾān* addresses the reader as a rational, moral, and spiritual agent invited to interpret creation as meaningful and to respond with gratitude, accountability, and worship.

Having considered scientific, philosophical, and Qurʾānic approaches separately, the next task is to compare them directly. The question is not whether these approaches are identical, but whether they can address overlapping realities while differing in method, authority, and purpose.

Chapter 3: Method, Evidence, and the Relation of Science and Faith

"Say: Look at what is in the heavens and the earth."
— Qurʾān 10:101, trans. Maulana Muhammad Ali

Key themes: This chapter clarifies the method by which science, philosophy, and Qurʾānic revelation are related throughout the book. Each addresses the same created reality, but each does so through a distinct discipline of inquiry. Science investigates mechanisms, histories, patterns, and evidence within nature. Philosophy asks about explanation, contingency, intelligibility, causality, value, consciousness, and purpose. Qurʾānic revelation addresses the reader through divine speech, signs, remembrance, moral summons, worship, and accountability. The chapter therefore develops a disciplined compatibility model: genuine overlap is possible, but only when differences in method, authority, evidence, and purpose are preserved.

Chapter 3 functions as the bridge between presentation and comparison. Chapter 1 considered scientific and philosophical questions concerning origin, order, life, consciousness, and value. Chapter 2 examined the Qurʾān's language of signs, remembrance, worship, guidance, and responsibility. The task now is to relate these approaches without confusing them. Science, philosophy, and revelation can speak to the same world, but they do not speak with the same method or aim. Responsible integration therefore begins by identifying their points of contact, then marking their boundaries, and finally explaining how they may be held together without reduction.

3.1 Overlap and Thematic Parallels

The chapter begins with the observation that one created world can be approached through several disciplined forms of knowing. The scientist asks how natural processes occur, how they can be tested, and how they fit within wider bodies of evidence. The philosopher asks what order, causality, intelligibility, consciousness, and value imply about reality as a whole. The Qurʾān speaks with the authority of revelation, presenting creation as a field of signs that call the human being to recognition, gratitude, worship, and responsibility. Section 3.1 traces four major areas of overlap—origin, order, life, and the human person—before section 3.2 explains why overlap must not be mistaken for identical method.

The first area of overlap is origin and dependence. Scientific cosmology investigates the physical history of the universe through expansion, early conditions, radiation, matter, and structure formation. Philosophy asks whether the existence and intelligibility of such a universe require explanation beyond the physical system itself. The Qurʾān approaches the same reality through the language of divine command, contingency, and created dependence: the heavens and the earth are not self-originating, and created things do not explain their own existence. Cosmological reasoning and Qurʾānic creation language may therefore resonate, but they should not be identified. Scientific cosmology describes cosmic history; revelation gives that history its theological horizon.

The second area of overlap is order and intelligibility. Fine-tuning arguments, mathematical law, stable physical regularities, and life-permitting conditions raise philosophical questions about why the world is rationally accessible and hospitable to life. The Qurʾān repeatedly draws attention to measure, balance, appointed courses, repeated observation, and the absence of disorder in creation. These are not the same arguments. Fine-tuning debates compare explanatory options such as design, necessity, chance, and multiverse proposals; Qurʾānic reflection trains the reader to read order as sign, measure, and divine wisdom. The point of contact is not technical equivalence, but shared attention to a world whose regularity invites deeper interpretation (Friederich, 2019; Morrison, 2013; Sober, 2018).

The third area of overlap is life. Biology investigates living systems through chemistry, cells, inheritance, development, adaptation, natural selection, ecology, and deep time. Philosophy asks whether nature's capacity to generate and sustain life is best treated as a brute fact or as part of a deeper intelligible order. The Qurʾān frames life through water, provision, stages, creaturely diversity, and signs. Verses such as Q.21:30 and Q.24:45 should therefore not be turned into modern biology lessons. They provide a grammar of meaning within which scientific discoveries about water-based life, ecological dependence, and biological diversification can be contemplated with restraint (Cartwright & Russell, 2019; Kojonen, 2021; Muhammad Ali, 2002).

The fourth area of overlap is the human person. Philosophy of mind and moral philosophy ask why consciousness, rationality, conscience, responsibility, and value-awareness exist, and what kind of reality can account for them. The Qurʾān describes the human being as inwardly aware, morally addressed, taught, expressive, and accountable. Q.30:30, Q.51:21, Q.55:1–4, Q.96:1–5, and Q.2:1–2 together present human knowledge as received, expressed, preserved, guided, and judged before Allah. This does not deny neuroscience, psychology, or evolutionary accounts of cognition. It means that human interiority has theological significance that scientific description alone cannot exhaust (Chalmers, 1995; Morrison, 2013; Muhammad Ali, 2002).

This section therefore establishes the chapter's basic pattern. Origin, order, life, and the human person all invite more than one mode of inquiry. Science describes cosmic history, physical regularity, biological development, and human cognition. Philosophy asks whether these realities are self-explanatory or point beyond themselves. Qurʾānic revelation addresses them as signs that summon recognition, gratitude, worship, and responsibility. The claim is not that these approaches are identical, but that they converge upon the same created world at different levels of meaning. That convergence makes comparison necessary; the next section explains why comparison also requires disciplined boundaries.

3.2 Methodological and Epistemological Differences

The overlaps described in section 3.1 are meaningful only if the differences are kept clear. Science, philosophy, and Qurʾānic revelation may consider the same created world, but they do not ask the same primary question. Science asks what happens, through which mechanisms, under what conditions, and with what evidence. Philosophy asks what counts as adequate explanation and how contingency, causality, intelligibility, consciousness, value, and purpose should be understood. Qurʾānic revelation asks how created realities should be read before Allah—as signs,

trusts, reminders, gifts, tests, and calls to worship. These differences are not obstacles to knowledge; they are the conditions that allow each discipline to do its proper work.

A second difference concerns authority and evidence. Science is accountable to observation, measurement, experiment, modeling, replication, peer correction, and openness to revision. Philosophy is accountable to conceptual clarity, valid inference, coherence, and fair comparison among rival explanations. Qurʾānic interpretation is accountable to revelation, the Arabic language of the text, literary and historical context, theology, moral address, and worship, because meaning must be grounded in the Qurʾān's own wording before it is related to philosophical or scientific questions. Terms such as *āyah* and *āyāt* (signs or verses), *Rabb* (Lord, Sustainer, and Nurturer), *mīzān* (balance or measure), *qadar* (measure, proportion, capacity, or limit), *fitrah* (innate orientation), *al-bayān* (expression), and *dābbah* (moving creature) show why Arabic matters: each carries a range of meaning that shapes how creation, order, life, language, and human responsibility are interpreted. Work on Qurʾānic natural theology clarifies how nature may be read as signs while preserving revelation's primacy; studies of *kalām* and Qurʾānic reasoning show that arguments often function within theological and exegetical settings rather than as detached syllogisms; and fine-tuning debates discipline explanatory comparison by requiring evidence, background assumptions, and rival accounts. Later discussions of evolution require the same attention to metaphysics, hermeneutics, causality, and biology together (Erlwein, 2017; Friederich, 2019; Malik, 2021; Morrison, 2013; Sober, 2018).

Cosmic origin illustrates the distinction. Scientific cosmology describes early physical history: expansion, radiation, matter, structure formation, and the limits of current models. A formal *kalām* argument asks a philosophical question about causation and dependence: if the universe began to exist, does it require a cause beyond itself? Qurʾānic rhetoric works differently again. Q.52:35 confronts the listener with existential alternatives: were human beings created without a creative agency, or are they themselves the creators? The verse is neither a physics model nor a laboratory demonstration. Its force is moral and metaphysical: it awakens the reader to dependence and refuses to let existence be treated as self-explanatory.

Order provides a second example. Scientific work can describe stable laws, life-permitting constants, biological regularities, and ecological patterns. Philosophical fine-tuning arguments then ask how these patterns should be interpreted when compared with alternatives such as design, necessity, chance, multiverse reasoning, or other metaphysical accounts. Qurʾānic reflection addresses the same ordered world through another mode: sun and moon, measure, balance, rain, living creatures, inward awareness, and repeated looking become signs of mercy, wisdom, proportion, and trust. The same reality is in view, but the task differs. Science describes the order, philosophy asks how deeply it should be explained, and revelation calls the human being to recognize and answer it.

The methodological rule for the rest of the book can therefore be stated in three parts. First, distinguish explanation: science investigates created processes by asking what happens, through which mechanisms, and with what evidence. Second, distinguish interpretation: philosophy asks whether those mechanisms are ultimate, contingent, intelligible, purposive, morally significant, or dependent on a deeper ground. Third, distinguish guidance: revelation teaches what created realities mean before Allah and how human beings should respond. Only after these levels are distinguished can they be responsibly related. This rule governs later examples from astronomy, geology,

physiology, ecology, and evolutionary biology. Telescope observations may deepen reflection on cosmic vastness, fossils may reconstruct biological history, and physiology may explain bodily regulation, but none of these turns Qurʾānic creation language into a technical scientific model.

This distinction guards against three common errors. The first is conflict by category mistake: assuming that a scientific explanation of mechanism automatically removes divine meaning. The second is concordism by overreach: assuming that every scientific discovery must already be directly encoded in a verse. The third is separation by retreat: assuming that science studies meaningless mechanism while faith speaks only about private feeling. The book rejects all three. Natural causes can be real created means without becoming independent rivals to Allah. Qurʾānic verses can resonate with scientific discovery without being reduced to science. Philosophy can compare explanations without replacing either evidence or revelation. Compatibility is strongest when mechanism, interpretation, and guidance are distinguished before they are brought together.

Chapter 3 therefore completes the methodological bridge between the foundations of Chapters 1 and 2 and the constructive model developed in Chapter 4. Chapter 1 showed that scientific and philosophical reflection can raise serious questions about origin, order, life, consciousness, and value. Chapter 2 showed that the Qurʾān speaks through signs, remembrance, moral address, worship, and accountability. Chapter 3 relates these movements without forcing them into identicalness. The resulting framework allows science to explain processes, philosophy to evaluate explanatory depth, and revelation to teach the meaning, guidance, and accountability of creation.

3.3 The Working Compatibility Model

The working model of this book can now be stated directly: compatibility does not mean that science and revelation say the same thing in different words. It means that scientific explanation and Qurʾānic interpretation can be held together when their levels are distinguished. Science may explain how stars form, how Earth becomes habitable, how organisms diversify, how bodies regulate themselves, and how ecosystems sustain life. Revelation teaches that these realities are not self-sufficient or morally neutral: they are signs, provisions, trusts, measures, and fields of accountability under Allah as Rabb.

This model is deliberately modest. It does not claim that every scientific finding proves a verse, nor that faith depends on the success of any current theory. It also refuses a retreat into separation, as though science studied only meaningless mechanisms while faith concerned only private feeling. The better position is ordered relation. Scientific inquiry is honored because creation is intelligible; philosophical reflection is needed because explanation raises ultimate questions; and Qurʾānic revelation remains central because it teaches the human being how to read creation with humility, gratitude, worship, and moral responsibility.

With this method in place, Chapter 4 can move from comparison to constructive compatibility. The question is no longer whether science and faith use identical methods; they do not. The question is whether real natural causes can be understood as created means within divine lordship. That question becomes especially important

for evolution, where the book must affirm scientific mechanisms honestly while resisting the reduction of natural history to purposelessness.

Chapter 4: Natural Causes, Evolution, and Reflective Trust

"Our Lord is He Who gives to everything its creation, then guides it."
— Qurʾān 20:50, trans. Maulana Muhammad Ali

Key themes: This chapter applies the method developed in Chapter 3 to the question of natural causes and divine action. Evolution serves as the central test case because it is scientifically foundational, publicly contested, and theologically sensitive. The chapter argues that natural mechanisms need not be treated as rivals to Allah. They may be studied honestly as created means within His sustaining lordship, while faith remains a form of reflective trust: disciplined confidence joined to humility before evidence that is serious, cumulative, and not coercive. Chapter 4 therefore moves the book from methodological compatibility toward the cumulative signs considered in Chapter 5.

4.1 Compatibility with Modern Scientific Reasoning

Chapter 4 applies the distinction established in Chapter 3. Science investigates mechanisms, evidence, and natural histories; Qurʾānic reflection asks what the intelligibility, order, fruitfulness, and moral significance of those mechanisms disclose before Allah. These approaches differ in method, but difference does not require opposition. When mechanism and meaning are distinguished, they can be brought into responsible relation.

This relation requires two cautions. First, natural phenomena should not be treated as spiritually empty simply because science can describe their mechanisms. The Qurʾān repeatedly presents nature as a field of signs, so mechanism does not exhaust meaning. Second, verses about nature should not be forced into changing scientific categories. Scientific knowledge may deepen reflection, but revelation remains theological, moral, and devotional in purpose. These cautions allow the book to affirm scientific inquiry without making faith depend on the success of any current theory (Ghoneim, 2016; Morrison, 2013).

The restraint can be stated plainly: the Qurʾān should not be treated as a hidden textbook of modern science, and science should not be stretched into a worldview that declares nature meaningless because mechanisms can be described. Rain may nourish plants, genetic variation may shape populations, feedback loops may regulate bodies, and ecosystems may sustain life without becoming independent of Allah. The proper relation is ordered distinction: science describes created processes, while theology speaks of ultimate dependence, purpose, guidance, and moral meaning. Evolution now becomes the clearest test of whether that distinction can hold under pressure.

4.2 Religion, Science, and Evolutionary Development

Evolution is the chapter's test case because it brings the science-faith question into sharp focus. It is central to modern biology, frequently portrayed as excluding divine action, and closely tied to questions of life, purpose, chance, suffering, extinction, human origins, and Adamic responsibility. It therefore tests the chapter's central distinction: mechanism is not the same as ultimate meaning. If natural causes are treated as independent rivals to Allah, evolution appears threatening; if they are understood as created means, evolution can be studied honestly while still being interpreted within divine lordship. This is also the personal question behind my earlier reflection as a scientist and physician: how natural processes work and what they disclose about order, mercy, purpose, and responsibility are related questions, but not identical ones (Bipat, 2018).

The divine title Rabb gives this compatibility its theological depth. Rabb is the One who nourishes, regulates, completes, and guides created things through successive conditions toward fulfilment. This title allows the chapter to place many natural processes under one principle: seeds develop, embryos form, bodies regulate, ecosystems sustain, and populations evolve through discoverable mechanisms. These processes differ in scale and field, but they share one theological point: created processes can be real, law-governed, and fruitful without becoming self-sufficient (Muhammad Ali, 2002).

The Qurʾānic examples used in this chapter should therefore be read as theological signs rather than technical scientific claims. Verses about the heavens and earth, life from water, rain, revived land, mountains, iron, vegetation, animal diversity, embryological stages, and measure invite disciplined attention to the natural world. They do not require the reader to find modern geology, chemistry, biology, or evolutionary theory hidden in each passage. Their value lies in forming a pattern: nature is observable, ordered, life-sustaining, and worthy of reflection, gratitude, humility, and worship. Scientific detail can deepen contemplation, but it should not replace interpretation (Bipat, 2018; Morrison, 2013; Qurʾān 2:164; 3:190–191; 6:99; 10:101; 21:30; 23:12–14; 24:45; 27:60; 29:20; 30:24; 35:27; 54:49; 55:5–7; 57:25).

Design reasoning is strongest when it avoids appealing to isolated gaps in evolutionary explanation. Evolution can explain diversification, adaptation, and increasing biological complexity over time; the deeper theological and philosophical question is why nature possesses the lawful structure and generative capacities that make such development possible. Muslim reflection on evolution therefore cannot be limited to biology alone. It also involves metaphysics, hermeneutics, causality, and the theological meaning of Adam and human responsibility. This chapter accordingly treats evolution neither as a threat to be avoided nor as a total worldview to be accepted, but as a genuine scientific account whose meaning must be interpreted at the proper level (Kojonen, 2021; Malik, 2021).

This compatibility does not remove every difficulty. Evolution still raises serious questions about chance, suffering, extinction, human origins, and Adam, none of which can be resolved by slogans. The model's value is more modest but important: it rejects the false opposition between scientific explanation and theological interpretation. If evolution can be understood as a created means rather than as a self-sufficient process, then faith need not resist evidence. It can become reflective trust: a posture that holds evidence, ambiguity, worship, and responsibility together.

4.3 Faith, Reflective Trust, and Religious Ambiguity

Reflective trust is the name this book gives to faith under conditions of meaningful but non-coercive evidence. The evidence considered here is serious, cumulative, and intellectually suggestive, but it does not force every observer to the same conclusion in the way a repeatable laboratory measurement might. The question is not whether religion can be proven like an experiment, but whether a reflective believer can be rationally entitled to faith when the total evidence includes order, intelligibility, moral experience, religious experience, Qurʾānic guidance, personal transformation, and worship, while still leaving room for sincere disagreement. Faith is therefore not the rejection of reason, nor the demand that every uncertainty disappears. It is disciplined trust formed through reflection, evidence, moral orientation, worship, and commitment before Allah (Ali, 2013).

Reflective trust stands between two extremes. It is not blind acceptance, because it takes evidence, criticism, ambiguity, and alternative explanations seriously. It is also not triumphal certainty, because it does not pretend that philosophical arguments, scientific findings, or personal experience remove all possible doubt. Rather, it is a responsible posture of the whole person: reason weighs the evidence, conscience recognizes moral seriousness, revelation gives guidance, worship forms the heart, and the believer chooses fidelity under Allah's knowledge. Trust is reflective because it thinks; it remains trust because it still commits.

This approach completes the chapter's movement. Section 4.1 distinguished mechanism from meaning; section 4.2 tested that distinction through evolution; and section 4.3 explains how faith can remain responsible when evidence is meaningful but not coercive. Cosmological arguments, fine-tuning, life's emergence, consciousness, moral value, and the order of living systems may make theism intellectually plausible without functioning like experimental demonstrations. Likewise, evolution may explain biological change without requiring the conclusion that life is purposeless. Reflective trust is therefore disciplined confidence joined to humility: confidence because the signs are meaningful, humility because they are not coercive.

4.4 Chapter Synthesis: Created Means and Reflective Trust

Chapter 4 gives the book its constructive center. It shows that accepting natural mechanisms, including evolutionary mechanisms, does not require accepting a materialist interpretation of them. Natural causes are real and should be studied honestly, while their order, fruitfulness, and limits can be understood within Allah's sustaining lordship. Evolution is neither used to prove faith nor softened to protect faith. It is used to show why mechanism and ultimate meaning must be distinguished before they are related.

With this foundation in place, Chapter 5 broadens the inquiry from compatibility to cumulative support. It gathers contingency, moral value, religious experience, origin-of-life research, consciousness, and interpretive discipline to ask whether faith remains reasonable when many signs converge. The argument remains the same: faith is strongest when it welcomes evidence, preserves humility, and reads creation as a field of signs rather than as either a closed mechanism or a collection of forced miracles.

Chapter 5: Cumulative Signs and the Reasonableness of Faith

"And in the earth are signs for those who are sure, and in yourselves; do you not see?"
— Qurʾān 51:20–21, trans. Maulana Muhammad Ali

Key themes: This chapter moves from compatibility to cumulative support. Chapter 4 argued that natural causes may be understood as created means; Chapter 5 now asks whether several converging signs—contingency, moral value, religious experience, *fitrah*, life-permitting order, origin-of-life research, consciousness, design-evolution compatibility, and Qurʾānic interpretation—make faith intellectually responsible. The central question is whether reality, considered as dependent, ordered, life-bearing, morally serious, inwardly experienced, and open to revelation, should be treated as spiritually empty or read as a field of signs pointing to Allah as Rabb.

The chapter proceeds by disciplined accumulation rather than by a single decisive proof. Contingency keeps the question of dependence open; moral experience introduces obligation, justice, guilt, dignity, and accountability; religious experience and *fitrah* bring the argument inward; and fine-tuning, origin-of-life research, and consciousness return the reader to the ordered world and the embodied self. Philosophy compares the explanatory force of these strands, while Qurʾānic signs gather them into a unified reading of creation as evidence, summons, trust, and responsibility.

5.1 Contingency: Why Dependent Reality Exists

Contingency asks a deeper question than temporal beginning: why does dependent reality exist at all? Even if physical history extended indefinitely into the past, the universe would still call for explanation if its existence, laws, contents, and order are not necessary and could have been otherwise. Theistic reasoning answers by appealing to a necessary ground, while critics may reject the Principle of Sufficient Reason, treat the universe as a brute fact, or question whether such a ground can be identified with God. Used with restraint, the argument keeps ultimate dependence visible behind physical description and gives Qurʾānic language of creation, command, and Rabb philosophical depth (Reichenbach, 2024).

5.2 Moral Value, Obligation, and Accountability

The moral argument adds a different kind of evidence. Human beings do not merely prefer, dislike, cooperate, or compete; they experience duties, rights, justice, guilt, praise, blame, dignity, and accountability. Naturalistic accounts can explain much about moral development, including empathy, kinship, cooperation, social regulation, evolutionary advantage, and human flourishing. The remaining question is whether such accounts fully explain the authority of moral obligation. If justice is more than

useful convention, if guilt can disclose real failure, and if persons possess dignity that should not be violated even when violation is advantageous, then moral experience contributes an important strand to the cumulative case. Reality is therefore not only intelligible and life-permitting; it is inhabited by beings who experience responsibility and judgment as claims upon them (Evans, 2010).

5.3 Religious Experience, Fitrah, and Reflective Trust

Religious experience brings the cumulative case from public order into lived awareness. Experiences of dependence, prayer, repentance, awe, nearness to Allah, moral transformation, and encounter with the sacred do not function like laboratory measurements. They are first-person experiences interpreted within persons and communities. Yet that does not make them irrational or insignificant. Much of human life depends on forms of knowledge that include inward awareness: moral recognition, aesthetic judgment, trust between persons, remorse, love, and the search for meaning. In Islamic terms, *fitrah* gives this inward dimension theological shape. The human being is created with an orientation toward recognizing the Creator, although that orientation can be obscured, distorted, or resisted. Religious experience is therefore not a shortcut proof, but one strand in the wider pattern by which the human person is inwardly addressed by signs (Meister, 2013; Clark & Barrett, 2010).

Reflective trust becomes necessary because religious evidence is meaningful without being coercive. The believer does not stand before a single proof that removes all possible disagreement, but before a convergence of signs: moral seriousness, religious experience, Qurʾānic guidance, transformation of life, the intelligibility of creation, and the inward pull of *fitrah*. Psychological, social, and neurological explanations of religious experience must be taken seriously, but such explanations do not automatically decide whether the experiences are false, truthful, or properly trusted. Human cognition may be naturally open to belief in God without that openness being dismissed as irrational abnormality. Faith, on this account, is disciplined trust formed under conditions of ambiguity, evidence, worship, and moral responsibility (Ali, 2013; Clark & Barrett, 2010; Meister, 2013).

5.4 Fine-Tuning: Life-Permitting Order and Explanatory Discipline

Fine-tuning returns in this chapter not as a repetition of Chapter 1, but as a test of explanatory discipline within the cumulative case. Chapter 1 introduced fine-tuning as one early reason to take the question of the Creator seriously: why does the universe contain stable matter, long-lived stars, complex chemistry, planetary environments, and the regularities needed for life? Section 5.4 asks a later and more comparative question. Once contingency, moral value, religious experience, *fitrah*, origin-of-life research, consciousness, and Qurʾānic signs have already been considered, how should life-permitting order be weighed? Fine-tuning therefore functions here as another strand within a wider pattern, not as a standalone proof (Friederich, 2019; Goff, 2019; Leslie, 1989; Loke, 2022; Sober, 2018).

The same examples now serve a different purpose. Cosmic expansion, gravity, nuclear forces, stable atoms, carbon formation in stars, and planetary chemistry are not listed merely to restate the earlier argument. They become test cases for comparing

explanations. A design interpretation asks whether life-permitting order fits naturally with purposeful wisdom. A multiverse interpretation asks whether many universes with different conditions would make a life-permitting universe unsurprising. A necessity view asks whether the constants could not have been otherwise. A chance view treats the arrangement as a fortunate but unexplained fact. Other metaphysical accounts, including views that give mind, value, or teleology a deeper role in reality, also remain part of the debate. The point is not to hide these alternatives, but to compare them honestly and ask which account best fits the whole pattern of signs (Friederich, 2019; Goff, 2019; Leslie, 1989; Sober, 2018).

This wider comparison also prepares the reader for the later movement of the book. Chapter 6 defines ordered development under Allah as Rabb, and Chapter 7 applies that method first to cosmic origins and Qurʾānic creation language. Chapter 8 then brings the discussion down from cosmic order to Earth's prepared habitability. The direct treatment of homeostasis comes in Chapter 9, where life from water, internal bodily balance, and ecosystem support are considered together. This matters because fine-tuning should not be limited to galaxies, stars, constants, and chemistry. It also appears biologically as the fine-tuned regulation of living bodies. Homeostasis is a more intimate expression of life-permitting order: oxygen, water, salts, glucose, temperature, blood pressure, acidity, hormones, immune responses, and waste removal must remain within narrow and coordinated ranges for life to continue. The cosmos must be ordered for life to arise; the body must be regulated for life to endure (Hall, 2011; Modell et al., 2015; Bipat, 2022).

For that reason, homeostasis extends the meaning of fine-tuning without confusing the levels of argument. Cosmic fine-tuning concerns the conditions that make matter, stars, planets, chemistry, and life possible. Physiological fine-tuning concerns the ongoing regulation that keeps a living organism within viable limits. Both are dynamic forms of measured order. The first makes a habitable universe intelligible; the second shows that life, once present, must be continuously sustained through feedback, correction, adaptation, and proportion. Chapter 9 therefore gives biological concreteness to the language of *mīzān* and *qadar*: the body itself becomes a field of balance, measure, limit, and correction under Allah as Rabb (Muhammad Ali, 2002; Hall, 2011; Modell et al., 2015; Bipat, 2022).

Section 5.4 therefore avoids triumphal language. Fine-tuning may support theism, but it does not by itself compel belief or remove every alternative. Its strength is cumulative. If existence raises the question of dependence, if moral experience raises the question of accountability, if religious experience and *fitrah* bring the argument inward, if consciousness resists reduction to mechanism alone, and if both cosmic order and bodily regulation display measured conditions for life, then fine-tuning becomes more than an isolated curiosity. It becomes part of a broader pattern in which reality appears intelligible, ordered, life-sustaining, morally serious, and open to theological interpretation (Loke, 2022; Goff, 2019; Nagel, 2012; Sober, 2018).

Qurʾānic reflection gives this comparison its theological horizon. The Qurʾān does not present fine-tuning through modern probability theory, nor does it ask the reader to calculate the range of possible constants or physiological variables. It directs attention instead to measure, balance, regularity, repeated observation, and the absence of purposelessness in creation. Fine-tuning can therefore be received as one modern philosophical way of noticing what Qurʾānic signs teach more broadly: creation is not spiritually mute. Its order invites humility, gratitude, reflection, and

responsibility before Allah as Rabb. This prepares the next section, where the same discipline is applied to the origin of life: scientific mechanisms are welcomed, but they do not exhaust the deeper question of why nature has the capacity to generate and sustain life at all (Muhammad Ali, 2002; Morrison, 2013; Kojonen, 2021).

5.5 Origin of Life, Evolution, and Design without Gaps

Biological arguments require another distinction: evolution and abiogenesis are related, but they are not the same question. Evolution explains how life diversifies once self-replicating organisms exist; abiogenesis asks how the first living or life-like systems could arise from non-living chemistry. Origin-of-life research remains an active scientific field, with proposals involving prebiotic chemistry, RNA-world models, metabolism-first theories, lipid and protocell scenarios, hydrothermal vent environments, and self-organization. These lines of inquiry should be welcomed rather than feared. They show that the origin of life is a genuine scientific problem, not a slogan in an apologetic debate. For this book, their importance lies in a deeper question: why does nature possess the lawful, chemical, energetic, and generative capacities through which life can become possible at all? (Cartwright & Russell, 2019; Westall, 2025).

This is where design reasoning must avoid the temptation of gaps. If scientific explanations for life's origin become stronger, theological meaning is not thereby removed. Stronger mechanisms may instead sharpen the deeper question of why the created order has the capacity to generate and sustain life through such mechanisms. Qurʾānic verses about water, plants, animals, embryological development, and Rabb need not compete with chemistry, biology, or evolutionary theory. They invite reflection on the purposeful order within which natural development occurs. In the cumulative case, origin-of-life research therefore contributes neither a gap to exploit nor a threat to resist. It contributes a field of inquiry where mechanism and meaning must be distinguished before they are responsibly related (Bipat, 2018; Cartwright & Russell, 2019; Kojonen, 2021).

5.6 Qurʾānic Signs and the Discipline of Interpretation

The Qurʾānic concept of *āyāt* gives the chapter its theological integration. An *āyah* is more than a proof in the modern analytic sense. It is a sign, reminder, indication, disclosure of meaning, and call to response. The Qurʾān presents the world as readable: heavens, earth, rain, animals, conscience, language, death, resurrection, and history become interconnected signs. Contingency, moral value, religious experience, fine-tuning, origin-of-life research, consciousness, and ecological order should therefore not be treated as isolated arguments placed side by side. They are different ways in which creation addresses the human being and invites recognition, trust, moral orientation, and transformation.

This reading requires interpretive discipline. Qurʾānic signs should not be reduced to detached proof-texts, and verses about creation should not be forced into changing scientific categories. Discussions of Qurʾānic reasoning, religious ambiguity, and science interpretation all reinforce the same caution: revelation teaches dependence, guidance, measure, purpose, worship, and accountability; it does not function as a hidden technical manual of modern cosmology, chemistry, biology, or neuroscience.

The aim is not to turn every scientific result into a miracle claim, but to let revelation teach how created realities should be read before Allah—as signs that join knowledge to humility, gratitude, worship, and duty (Ali, 2013; Erlwein, 2017; Ghoneim, 2016; Morrison, 2013).

5.7 Synthesis: The Cumulative Case and Reflective Trust

Taken together, the lines of inquiry in Chapter 5 support a cautious cumulative case. Science has not proven or disproven God in a simple way, but several features of reality remain philosophically and theologically significant: dependence, intelligibility, life-permitting structure, moral obligation, consciousness, religious experience, and nature's generative capacity. Philosophy asks whether these features are best understood as isolated facts, unexplained accidents, or signs of deeper intelligible order. None carries the whole weight of faith alone; together, they form a pattern that is difficult to dismiss as spiritually empty (Loke, 2022; Sober, 2018).

This synthesis also strengthens the book's treatment of evolution. Design reasoning is most responsible when it does not oppose evolutionary biology or origin-of-life research, but asks why nature has the lawful and generative capacity to produce life at all. Natural mechanisms remain real; their reality does not settle the question of ultimate meaning. Qurʾānic language about signs, measure, growth, water, and divine nurturing can therefore support a theology of created means without turning scripture into a technical scientific source. Chapter 5 thus deepens Chapter 4: mechanism and meaning must be distinguished, but once distinguished they may be brought into a more integrated account of creation under Rabb (Kojonen, 2021; Muhammad Ali, 2002).

The chapter also preserves humility before the reader. Fine-tuning, consciousness, value, and teleology may challenge reductive materialism, but they do not automatically establish classical theism by themselves. Alternative metaphysical interpretations remain possible, and that possibility should be admitted rather than hidden. The Qurʾānic contribution is distinctive because it does not merely add one more hypothesis to scientific explanation. It gathers origin, order, measure, purpose, life, self-awareness, and moral accountability into an integrated worldview of creation, revelation, reason, and responsibility. It teaches the human being how to read existence as sign and how to respond to knowledge with humility, worship, and duty (Bipat, 2018; Goff, 2019; Kojonen, 2021; Loke, 2022; Nagel, 2012; Sober, 2018).

The final synthesis depends on keeping the levels distinct. Science investigates mechanisms within nature; philosophy interprets explanatory depth and compares rival accounts; revelation gives theological meaning, moral guidance, and the grammar of signs. Chapter 5 completes the movement begun in Chapter 4 by showing why mechanisms should not be treated as ultimate and why faith should not be reduced to unsupported assertion. If natural causes are real created means, then the cumulative signs considered here can be contemplated as part of an ordered, intelligible, morally serious creation. Chapter 6 can now define this pattern more precisely as divinely directed evolution under Allah as Rabb (Gleiser, 2007; Harrison, 2008; Saudek, 2020).

Chapter 6: Creation as Ordered Development under Rabb

"Who creates, then makes complete, and Who measures, then guides."
— Qurʾān 87:2–3, trans. Maulana Muhammad Ali

"Our Lord, Thou hast not created this in vain."
— Qurʾān 3:191, trans. Maulana Muhammad Ali

Key themes: This chapter defines *divinely directed evolution* with careful boundaries. It distinguishes biological evolution, in the strict scientific sense, from the broader theological language of ordered development. Biological evolution concerns heritable change in living populations over generations. Ordered development, as used here, refers to the wider created pattern in which cosmic formation, Earth's habitability, water, soils, microbes, physiology, ecosystems, and human moral awakening unfold under Allah's sustaining lordship. The chapter grounds this pattern in Allah as Rabb: the One who creates, completes, measures, guides, nourishes, regulates, and sustains. Q.87:2–3 gives the chapter its guiding sequence: Allah creates, makes complete, measures, and guides.

The transition from Chapter 5 to Chapter 6 is a movement from cumulative support to definition. Chapter 5 argued that existence, order, life, consciousness, morality, and religious orientation remain open to serious philosophical and theological interpretation. Chapter 6 now gives that interpretation a clearer name and structure. It explains what this book means by *divinely directed evolution*, clarifies what should still be called biological evolution in the strict scientific sense, and shows how both can be held together under Allah's sustaining lordship as Rabb.

6.1 Defining Divinely Directed Evolution

The phrase *divinely directed evolution* is used here at two related but distinct levels. In science, evolution means biological change in populations over generations through inheritance, variation, adaptation, natural selection, genetic drift, migration, and common ancestry. In theology, the phrase points to the wider pattern of created development under Allah's knowledge, command, measure, mercy, wisdom, and guidance. Biological evolution explains how life diversifies. Divinely directed evolution interprets that diversification, and the ordered world that makes it possible, as dependent on Allah as Rabb (Kojonen, 2021; Malik, 2021; Muhammad Ali, 2002).

This distinction protects the argument from two opposite errors. The first is to stretch the word evolution until it means every kind of change. Cosmic formation, geological preparation, homeostasis, ecosystem balance, and human moral awakening are not biological evolution in the technical sense. The second error is to imagine divine action only where science has no explanation. The approach used here avoids both mistakes. Biological evolution remains a real scientific account of diversification within life, while the wider history of creation remains theologically readable as

ordered development under Rabb (Kojonen, 2021; Malik, 2021; Muhammad Ali, 2002).

Biological evolution also depends on a prepared world. Natural selection, adaptation, and common ancestry operate within conditions supplied by cosmic and planetary history. Stars provide the elements of life; Earth provides water, atmosphere, minerals, magnetic protection, continents, climate, and soils; microbes transform chemistry and atmosphere; plants create productive landscapes; and ecosystems provide food, habitat, nutrient cycling, pollination, decomposition, and resilience. This wider setting does not replace evolution. It makes evolution possible (Condie, 2015; Halliday & Canup, 2022; Landeau et al., 2022; Cardinale et al., 2012; IPBES, 2016).

Homeostasis and ecosystems add a further clarification: creation is not only originated, but also continuously sustained. Homeostasis preserves the body's internal environment through feedback, correction, and adaptation. Ecosystems preserve the external conditions in which organisms live, reproduce, and adapt. Together they make *mīzān*, *qadar*, and Rabb concrete. Life endures through measured balance, bounded capacity, relational exchange, and ongoing regulation (Muhammad Ali, 2002; Bipat, 2022; Hall, 2011; Modell et al., 2015).

6.2 Allah as Rabb: The Theological Logic of Development

Maulana Muhammad Ali's explanation of Rabb gathers these examples into one principle. Rabb is not only Lord in the sense of owner or ruler. Rabb is the One who nourishes, fosters, regulates, completes, and brings created things through successive conditions toward fulfilment. Natural processes are therefore not independent of Allah simply because they operate through ordered means. Their order, capacity, fruitfulness, and direction are themselves signs of sustaining lordship (Muhammad Ali, 2002).

Q.87:2–3 gives this theology of Rabb a compact sequence: Allah creates, makes complete, measures, and guides. In this chapter, *qadar* means measure, proportion, limit, capacity, and direction, not blind fatalism. Water has life-supporting capacities, cells have metabolic limits, bodies have regulatory ranges, ecosystems have thresholds, and populations have possibilities for adaptation. These capacities are real, but they are not self-originating. They are measured and guided within the created order (Muhammad Ali, 2002).

Q.113:1 and Q.114:1 extend this theology of Rabb into refuge, emergence, and moral address. Q.113:1 teaches refuge in the Lord of the dawn, and Q.114:1 teaches refuge in the Lord of mankind. The word in Q.113:1 is *falaq*. Maulana Muhammad Ali explains it as daybreak, with a root sense of cleaving or splitting, because dawn cleaves through darkness. Used with restraint, this image supports a theology of opening and emergence without turning the verse into a scientific claim. The same Rabb who sustains natural emergence also grants human protection, guidance, and responsibility (Muhammad Ali, 2002).

The chapter's theological claim can therefore be stated simply: nature and Allah are not rival agents. Scientific mechanisms describe visible patterns of change; theology identifies their dependence, measure, purpose, and moral meaning under Rabb. Evolution can therefore be affirmed as a real biological mechanism without being

treated as self-sufficient. It is one created means within a larger order of creation, completion, measure, guidance, balance, and responsibility (Muhammad Ali, 2002; Malik, 2021).

6.3 Synthesis: Development without Reduction

Section 6.3 gathers the chapter into one methodological safeguard: respect evolution scientifically, and read development theologically. Biological evolution concerns populations, inheritance, variation, adaptation, natural selection, genetic drift, migration, and common ancestry. The broader created order includes cosmic history, Earth's habitability, water, minerals, microbes, plants, animals, homeostasis, ecosystems, and human responsibility. The phrase *divinely directed evolution* names this theological reading of ordered development under Rabb. It does not replace biology (Kojonen, 2021; Malik, 2021; Muhammad Ali, 2002).

This safeguard prevents both reduction and overextension. The created world is not reduced to mechanism alone, and evolution is not stretched until it means every kind of change. Science and theology remain distinct but related: science describes natural processes, while theology reads their dependence, order, purpose, and accountability before Allah (Ghoneim, 2016; Kojonen, 2021; Malik, 2021).

This framework prepares the transition to Chapter 7. Chapter 6 has defined the method; the next chapters apply it across cosmic origins, Earth's preparation, water-based life, bodily regulation, ecosystems, microbes, plants, animals, human biological prehistory, and Adamic responsibility. Each later chapter applies the same rule: natural processes may be studied honestly as created means, while Qurʾānic reflection teaches their highest meaning as signs of divine measure, guidance, and sustaining lordship.

Chapter 7: Cosmic Origins and Qurʾānic Creation Language

"Do not those who disbelieve see that the heavens and the earth were closed up, then We opened them out? And We made from water every living thing."
— Qurʾān 21:30, trans. Maulana Muhammad Ali

Key themes: This chapter reads Q.21:30, Q.41:11, Q.50:38, Q.51:47, Q.3:190–191, and Q.67:3–4 as theological signs of opening, smoke-like beginnings, staged creation, vastness, divine command, and ordered reflection. Modern astronomy, including Hubble and Webb, is used illustratively to make cosmic depth and intelligibility vivid. The chapter's method remains restrained: Qurʾānic creation language may resonate with modern cosmology, but it should not be reduced to technical physics. Its central claim is that Allah as Rabb creates a universe that is vast, ordered, intelligible, and not in vain.

Chapter 7 applies the method of Chapter 6 at the widest scale. Having defined ordered development under Rabb, the discussion now turns to cosmic origins, vastness, and structure. The question is how Qurʾānic creation language can guide reflection on cosmic history without becoming a modern physics lesson.

Table 7.1 maps the main verses used in this chapter and the cosmic themes they support.

	Qur'anic theme	**Theological connection**
Q.21:30	Heavens and earth "closed up" then opened; life from water.	Provides the chapter's main opening image of unity, separation, and life-giving provision. It can be compared cautiously with cosmic origins and biological dependence on water without making the verse a technical scientific statement.
Q.41:11	The heaven described as smoke and responding to divine command.	Supports reflection on an early subtle or vapor-like cosmic condition, while emphasizing that creation comes into order by divine will rather than by independent material necessity.
Q.50:38	Creation of the heavens, earth, and what is between them in six periods without fatigue.	Allows the chapter to speak of ordered stages while preserving divine transcendence: God is not limited by time, exhaustion, or material constraint.
Q.51:47	The heaven raised with power and made vast.	Connects with cosmic vastness and, in modern reflection, may resonate with expansion, while the safer meaning remains God's power in making the heavens immense.
Q.3:190–191	Reflection on the heavens and earth leads to worshipful recognition that creation is not in vain.	Frames cosmology spiritually: the purpose of studying cosmic order is not only information, but humility, remembrance, and recognition of divine wisdom.
Q.67:3–4	Repeated observation of creation reveals coherence and order.	Supports the method of careful observation and repeated reflection, while cautioning against both superficial reading and careless scientific overclaiming.

The sections that follow move from Q.21:30's language of opening and life from water, to smoke-like beginnings, stages, vastness, and divine command, and finally to modern telescopic observation as an illustration of cosmic depth.

7.1 The Initial Unity of the Heavens and the Earth (Qurʾān 21:30)

Qurʾān 21:30 declares: "Do not those who disbelieve see that the heavens and the earth were closed up, then We opened them out? And We made from water every living thing." The verse brings together three themes that shape this chapter and the chapters that follow: joining, opening, and life through water. It links cosmic order with the later biological argument that life depends on prepared conditions, while remaining first of all a theological sign of divine power and provision (Muhammad Ali, 2002; Hasan, 2014; Shojaie & Mazaheri Tehrani, 2022).

Earlier interpreters often understood *ratq*, "closed up," and *fatq*, "opened" or "split apart," through observable signs of provision: the sky yielding rain and the earth yielding vegetation. Maulana Muhammad Ali's rendering allows the verse to function as a strong image of separation, opening, and life-giving provision. The phrase "We made every living thing from water" remains its clearest point of contact with modern biology: life is inseparable from water in origin, structure, sustenance, and ecological renewal (Muhammad Ali, 2002).

Modern cosmological comparisons may be helpful, especially where readers see resonance with an early unified condition followed by separation, expansion, structure formation, or solar-system development. Such comparisons remain secondary. This book preserves the theological meaning first: Q.21:30 invites reflection on creative power, opening, separation, and life from water without turning the verse into a technical statement of modern physics (Hasan, 2014; Shojaie & Mazaheri Tehrani, 2022; Altaie, 2019).

With that caution established, section 7.2 turns to related Qurʾānic language about smoke, stages, vastness, and divine command.

7.2 Primordial Smoke, Stages of Creation, and Cosmic Expansion

Qurʾān 41:11 describes the heaven as *dukhan*, or smoke, within a passage that presents the ordering of the earth and heavens by divine command. In Maulana Muhammad Ali's rendering, heaven and earth are summoned and respond willingly. The emphasis is therefore not technical cosmology, but creation brought into order by Allah's will (Muhammad Ali, 2002).

The image of smoke may suggest an early subtle, vapor-like, or diffuse condition before full ordering. Modern readers may compare it cautiously with primordial gas, cosmic dust, or nebular matter, but the comparison should remain modest. The verse speaks in the language of revelation and command before it speaks to scientific analogy (Muhammad Ali, 2002; Hasan, 2014; Shojaie & Mazaheri Tehrani, 2022; Altaie, 2019).

The Qurʾān also describes the creation of the heavens and the earth in six *ayyām*, often rendered as "days" but also understood as periods or stages. Classical and modern readers differ over how this language should be understood, and Q.50:38 adds an important theological clarification: the heavens, the earth, and what is between them were created in six periods, yet no fatigue touched Allah. The point is therefore not to bind revelation to one scientific chronology, but to affirm ordered sequence while preserving divine transcendence: time measures change within creation, but it does not constrain the Creator (Muhammad Ali, 2002).

Q.51:47 is often discussed in relation to modern cosmology. Maulana Muhammad Ali renders it in terms of divine power and vastness: *"And the heaven, We raised it high with power, and surely We are Makers of the vast expanse."* The verse may resonate with cosmic expansion, but its safer emphasis is the immense breadth of the heavens and Allah's power in creating them (Muhammad Ali, 2002; Hasan, 2014; Shojaie & Mazaheri Tehrani, 2022).

Section 7.2 therefore keeps the same pattern as section 7.1: Qurʾānic creation language can resonate with modern cosmology, but its primary work is theological. The next section turns to Hubble and Webb as modern illustrations of the heavens' scale and depth.

7.3 Hubble, Webb, and the Deepening Visibility of Cosmic Order

Modern astronomy gives this chapter a vivid observational dimension. Hubble and Webb should not be used to force current discoveries into Qurʾānic verses, but they do show the universe as vast, layered, intelligible, and historically developing. Their value is illustrative: they make the Qurʾānic call to look at the heavens more concrete without turning revelation into a technical astronomy manual.

Hubble is especially useful for cosmic vastness and intelligibility. Its deep-field observations showed that a tiny, apparently empty region of sky contains thousands of galaxies, each with its own history of stars, dust, structure, and development. NASA's Hubble Ultra Deep Field 2014 description states that the image covers a small section of sky in Fornax, was made from 841 orbits of telescope viewing time, and contains approximately 10,000 galaxies, extending back to within a few hundred million years of the Big Bang. Theologically, it serves as a visual companion to Q.3:190–191 and Q.67:3–4, where repeated looking reveals order, coherence, and humility before creation (NASA, 2014).

Webb extends the same reflection through infrared observation. NASA explains that Webb observes infrared light because expansion stretches visible and ultraviolet light from extremely distant early objects into longer wavelengths, allowing astronomers to study galaxies only a few hundred million years after the Big Bang. NASA's Webb reporting also notes that Webb has identified galaxies from the first few hundred million years of cosmic history, including JADES observations of a galaxy about 290 million years after the Big Bang and later work on early galaxy formation and unexpectedly bright early galaxies. These findings strengthen methodological humility: new instruments refine scientific models by revealing that creation is deeper than earlier instruments allowed us to see (NASA, 2024a; NASA, 2024b; NASA, 2025a).

Hubble and Webb also show that observation itself has layers. Hubble's optical and ultraviolet observations reveal galaxies, star clusters, nebulae, and visible cosmic structure; Webb's infrared vision penetrates dust and reaches earlier, redshifted light. No single wavelength or instrument exhausts reality. This fits the Qurʾānic posture of repeated looking: disciplined attention reveals more than first appearance suggests.

This observational point helps modern readers feel the force of Q.51:47 and Q.41:11. Telescopes make vastness, diffuse matter, star formation, galaxy assembly, and deep time visible, but they do not make the Qurʾān dependent on one cosmological model. Their role is contemplative: they deepen the reader's sense of scale and order while preserving the theological meaning of the verses.

The conclusion is therefore modest but meaningful. Hubble and Webb do not prove the Qurʾān in a simplistic sense. They strengthen the book's central pattern: creation is vast, intelligible, layered, dynamic, and humbling. The deeper astronomy looks, the more cosmic history appears as an ordered sequence of emergence, structure, relationship, and development. In this chapter, these observatories function as modern witnesses to the depth of the heavens: not replacements for revelation, but instruments that make the call to look, reflect, and remember more vivid.

Chapter 7 completes the cosmic level of the book's natural-history sequence and prepares the transition from the vast heavens to Earth as the known habitat of water, atmosphere, minerals, climate, soils, and measurable provision.

Chapter 8: Earth as a Prepared Habitat

"And We send down water from the cloud according to a measure, then We cause it to settle in the earth."
— Qurʾān 23:18, trans. Maulana Muhammad Ali

Key themes: Chapter 8 moves from cosmic order to Earth as the prepared habitat in which known life unfolds. Water, atmosphere, oceans, minerals, iron, continents, mountains, climate, and soils form the planetary conditions that make biological history possible. The chapter carries the fine-tuning argument from the scale of the universe to the scale of Earth, reading Qurʾānic themes of measured water, provision, mountains, geological variety, and useful resources alongside Earth history with interpretive restraint. Its central claim is that habitability itself is a form of measured preparation: before biological evolution can unfold, Earth must be furnished through *qadar*, provision, and Allah's sustaining governance as Rabb.

This focus on Earth does not deny the possibility of other life-supporting worlds. The argument is local and evidential: Earth is the only inhabited planet directly known to us, and it is the concrete setting in which water, atmosphere, geology, ecosystems, bodily life, human responsibility, and revelation are known to unfold. Contemporary astrobiology continues to search for habitable environments beyond Earth, including Mars, icy moons, and exoplanets, while exoplanet science has confirmed thousands of planets beyond the solar system (NASA, 2023a; NASA, 2025a). If life exists elsewhere, that discovery would broaden rather than weaken the chapter's theological point, showing that Allah's creative wisdom, measure, provision, and lordship need not be confined to one planet.

8.1 Earth and Spacecraft: Partial Substitutes and Prepared Habitability

Modern spaceflight clarifies Earth's habitability by contrast. A spacecraft can keep astronauts alive only by engineering a narrow set of life-supporting conditions: breathable air, controlled pressure, regulated temperature and humidity, carbon dioxide removal, water recovery, waste handling, food storage, exercise equipment, lighting schedules, radiation monitoring, communication, and medical surveillance. These systems are remarkable achievements, yet they remain partial substitutes. They provide air without the full atmosphere, recycled water without a self-renewing water cycle, stored food without soils and food webs, artificial lighting without seasons and landscape, shielding without Earth's full atmospheric and magnetic protection, and exercise devices without ordinary gravity. A spacecraft therefore surrounds the astronaut with selected supports while leaving much of the human ecological niche absent or simulated.

The health effects of spaceflight show why this difference matters. In microgravity, the body loses the constant loading normally provided by standing, walking, lifting, and moving against Earth's gravity. Fluids shift toward the head and chest; balance and orientation must be relearned; bones lose mineral density; and postural, leg, and back muscles weaken. NASA reports that, without countermeasures, weight-bearing

bones may lose roughly one percent of density per month in microgravity, so astronauts commonly exercise about two hours each day to protect bone, muscle, and cardiovascular function (NASA, 2023b). Spaceflight can also affect immune responses, the microbiome, sleep, nutrition, and psychological resilience. These effects do not show that the body is poorly designed; they show that human physiology is fitted to a planetary setting in which gravity, atmosphere, day-night rhythm, water, food systems, microbial ecology, landscape, and social life work together.

Artemis extends the same lesson beyond low Earth orbit. Crews traveling around or toward the Moon remain dependent on a compact engineered refuge rather than a naturally habitable environment. NASA's Human Research Program groups the major hazards of human spaceflight into space radiation, isolation and confinement, distance from Earth, altered gravity, and hostile or closed environments (NASA, 2026a). Each hazard reveals what Earth normally supplies without machinery: magnetic and atmospheric protection, open social and ecological settings, nearby medical support, stable gravity, and self-renewing air, water, food, and waste cycles. Astronauts therefore become witnesses to Earth's prepared measure. Their bodies show that a spacecraft is a limited refuge within a hostile environment, while Earth is the complete known habitat in which human beings normally breathe, move, regulate, repair, sleep, drink, eat, reproduce, recover, and endure.

Table 8.1 summarizes the Qurʾānic verses that frame Earth's preparation as measured water, provision, geological variety, useful resources, landforms, and ecological renewal:

Q.23:18	Water is sent down according to measure and settled in the earth.	Frames hydrology, oceans, groundwater, rainfall, and habitability through the language of measured provision.
Q.15:19–21	The earth is spread out; mountains and provision appear according to known measure.	Links landforms, soils, minerals, water, vegetation, and ecological provision as conditions for life.
Q.20:53	The earth is made an expanse, pathways are placed within it, water descends from the clouds, and diverse pairs of plants are brought forth.	Strengthens the chapter's link between habitable land, movement across the earth, measured water, vegetation, plant diversity, and provision.
Q.6:99	Water is sent down from the sky; vegetation, green growth, clustered grain, date palms, grapes, olives, pomegranates, fruiting, and ripening are presented as signs.	Connects rainfall, plant productivity, fruit diversity, agricultural provision, maturation, and observation of growth to Earth's prepared habitability.
Q.35:27	Mountains display varied colors and layers.	Invites reflection on geological diversity, mineral richness, and the visible signs embedded in Earth's structure.
Q.57:25	Iron is associated with strength and benefit.	Connects material provision with planetary structure, magnetic protection, technology, physiology, and human responsibility without making the verse a technical geology or astrophysics claim.
Q.16:15	Mountains, rivers, and roads are placed for stability and guidance.	Relates landforms to orientation, settlement, and Earth's prepared structure while preserving interpretive restraint.
Q.39:21	Water enters the earth, emerges as springs, and brings forth vegetation.	Connects groundwater, plant growth, seasonal cycles, and ecological renewal.

8.2 Geological Preparation: Water, Mountains, Continents, and Soil

The movement from the heavens to the earth marks a change in scale. Cosmic order supplies matter, energy, stars, elements, and time; Earth's geological history supplies the local conditions in which life can begin and persist. Water, crust, atmosphere, mountains, continents, climate, minerals, and soils are not decorative background features. They are the physical groundwork of biological development.

Geological evolution bridges cosmic origins and biological history. Before microbes, plants, animals, dinosaurs, mammals, or human beings could exist, Earth had to become stable, watered, mineral-rich, atmospherically protected, and capable of sustaining life. The scientific sequence includes planetary formation, differentiation into core, mantle, and crust, the development of atmosphere and oceans, continental growth, plate tectonics, mountain building, erosion, sedimentation, climate cycles, hydrologic cycling, and soil formation (Condie, 2015; USGS, 2019; FAO, 2026; Sposito, 2026). Read with restraint, these stages resonate with Qurʾānic themes of measured water, spread-out land, mountains, and provision.

8.2.1 Planetary Formation and Earth's Internal Architecture

Earth first formed from the solar nebula and then differentiated internally. Heat from impacts, compression, and radioactive decay caused melting; heavier elements sank to form the core, while lighter materials rose to form the mantle and crust (Condie, 2015). This layered structure still governs Earth's behavior. Theologically, it illustrates how raw material became an ordered world: the planet had to acquire internal architecture before it could become a habitat for life.

8.2.2 Cooling, Atmosphere, Oceans, and Continental Surfaces

As Earth's surface cooled, crust, atmosphere, and oceans began to form. Volcanic outgassing helped create an early atmosphere, while water vapor condensed and contributed to oceans (Condie, 2015). Oceans were essential because they provided a setting for early life and later helped regulate climate, weathering, and nutrient cycles. Long before visible life appeared, Earth had to acquire stable liquid water and surface conditions where life could begin and continue. Later hydrologic cycling linked precipitation, infiltration, runoff, groundwater recharge, streamflow, evaporation, and transpiration into the moving water system on which terrestrial life depends (USGS, 2019; USGS, 2018; National Weather Service, 2026).

Continents and ocean basins then gave Earth more durable surfaces and varied habitats. Continental crust is less dense and more buoyant than oceanic crust, allowing it to persist over long periods (Condie, 2015). As continents grew, collided, separated, and reassembled, they shaped coastlines, shallow seas, mountain belts, river systems, and habitats. This was part of Earth's gradual furnishing: stable land surfaces were needed before soils, forests, animals, and later human communities could develop.

8.2.3 Plate Tectonics, Mountains, and Geological Variety

Plate tectonics moves, recycles, and reshapes Earth's crust. It opens and closes ocean basins, builds mountains, drives volcanic activity, and influences climate over long periods (Condie, 2015). Mountains are especially relevant to Qurʾānic language because they are repeatedly presented as prominent features of the earth. Scientifically, mountain belts also shape rainfall, river systems, erosion, sedimentation, and fertile plains. The same processes that create earthquakes and volcanoes can also renew landscapes, expose minerals, and generate new habitats.

Qurʾān 35:27 adds a vivid reflection on geological variety by describing mountains with streaks of white, red, and intensely black colors. The verse does not describe plate tectonics in modern language, but it invites attention to the visible diversity of rocks, minerals, and mountain forms. In this chapter, that diversity becomes a sign of Earth's layered richness: the planet is not a uniform surface, but a varied and mineral-bearing habitat (Muhammad Ali, 2002).

8.2.4 Iron, Minerals, Magnetic Protection, and Physiological Benefit

Qurʾān 57:25 belongs naturally in a chapter on Earth's material preparation because it speaks of iron as a source of strength and benefit. The verse should not be forced into a technical claim about astrophysics, meteorites, or planetary differentiation. Still, modern science makes iron theologically suggestive: it has a cosmic and meteoritic history (Scott, 2020), became central to Earth's metallic interior and early differentiation (Halliday & Canup, 2022), helps sustain the magnetic field through the geodynamo (Landeau et al., 2022), and is biologically essential for oxygen transport, cellular respiration, and iron-dependent enzymes (Abbaspour et al., 2014; Porras & Rouault, 2022). Iron therefore illustrates both planetary and physiological *mīzān*: Earth needs iron for structure and magnetic protection, while the body needs iron within safe limits for oxygen transport and cellular energy (Muhammad Ali, 2002).

8.2.5 Weathering, Soil Formation, and Measured Provision

Over long periods, rock, water, air, and life interact through weathering, erosion, sedimentation, and soil formation. Rivers wear down mountains and carry minerals to floodplains and seas; sediments accumulate and become rock; weathering releases nutrients; and biological activity helps transform mineral surfaces into fertile soils. Soil formation depends on interacting factors such as parent material, climate, topography, organisms, and time, while soils themselves store water, regulate nutrient cycling, support plant growth, sustain soil biodiversity, and help distribute rainfall through infiltration and groundwater recharge (Condie, 2015; Sposito, 2026; FAO, 2026; USGS, 2019). Plants therefore do not grow on a neutral surface. They require soils, minerals, drainage, climate, water storage, and microbial life. Geological evolution prepared the literal ground for biological evolution by making Earth capable of receiving water and bringing forth vegetation.

Large animals later added a biological layer to this geological and microbial preparation. Dinosaurs and, much later, large mammals did not plough the earth intentionally as human farmers do, but their movement, trampling, feeding, dung deposition, carcasses, and seed dispersal could disturb surfaces, return nutrients,

open patches for new growth, and help mix organic material into developing soils. In this ecological sense, large animals may have contributed to the renewal and fertility of landscapes, not as isolated causes of fertile soil, but as participants in a wider system already shaped by rock weathering, water movement, microbial activity, plant growth, climate, and time.

Qurʾān 23:18 and Q.15:19–21 add the language of measured water and distributed provision. Q.23:18 describes water being sent down in due measure, while Q.15:19–21 speaks of the earth being spread out, mountains being placed, things being made to grow in balance, and divine stores being sent down according to known measure. These verses do not describe hydrology, mineral cycling, or soil science in modern terms. They give theological vocabulary to the same pattern described scientifically: habitability depends on measure, storage, timing, and distribution. Water must arrive in usable forms, infiltrate soils, recharge groundwater, sustain streams and springs, become available to plants, and return through evaporation and transpiration; minerals must become available; soils must form; and climate must remain within life-supporting limits (Muhammad Ali, 2002; Condie, 2015; USGS, 2019; USGS, 2018; FAO, 2026; Sposito, 2026).

Earth's biological and chemical richness also appears in the abundance of pharmacological agents derived from nature. Plants, fungi, bacteria, marine organisms, and other living systems produce bioactive molecules that modern medicine has isolated, modified, standardized, and used to treat disease and disorder. Examples include morphine for severe pain, quinine and artemisinin for malaria, penicillin and other antibiotics from microorganisms, paclitaxel for cancer therapy, digoxin from foxglove, and many other natural-product-derived or natural-product-inspired agents. This should not be romanticized as though every natural substance is safe or therapeutic; many natural compounds are toxic, and all medicines require careful testing, purification, dosing, and clinical judgment. The stronger point is theological and ecological: Earth is not only a habitat that supplies water, minerals, soils, and food, but also a living reservoir of chemically diverse means through which healing can be discovered. Natural pharmacology can therefore be contemplated as another dimension of provision under Rabb, where created organisms become sources of benefit for human care while still requiring scientific discipline, ethical stewardship, and gratitude (Newman & Cragg, 2020; Newman, 2022; Liu & Chen, 2024).

8.2.6 Geological Preparation and Interpretive Restraint

This argument requires care. The Qurʾān does not present a modern geological timeline with terms such as Hadean, Archean, plate tectonics, continental drift, or sedimentary cycles. Geology serves an illustrative purpose: it shows that Earth's habitability depends on ordered physical preparation across deep time. Before biological history could unfold, the planet had to become structurally layered, watered, tectonically active, climatically regulated, mineral-rich, and soil-forming.

Summary: Chapter 8 presents Earth's habitability as layered preparation. Spacecraft show by contrast how difficult it is to replace even part of Earth's life-supporting environment, while geology shows how water, atmosphere, continents, mountains, minerals, iron, soils, and chemically rich living systems form the conditions for later life and healing. The chapter therefore prepares Chapter 9, where

water, homeostasis, and ecosystems become the biological and physiological expression of the same measured order.

Chapter 9: Life from Water, Homeostasis, and Ecosystem Balance

"And We made from water every living thing."
— Qurʾān 21:30, trans. Maulana Muhammad Ali

Key themes: Chapter 9 forms the book's biological and physiological center by linking life from water, staged formation, homeostasis, and ecosystem balance. Q.21:30 and Q.24:45 provide the principal Qurʾānic language for water-based life, while Q.71:14, Q.23:12–14, Q.29:20, Q.55:7–9, and Q.54:49 support a restrained vocabulary of stages, observation, balance, and measure. Scientifically, homeostasis is the body's internal regulation, while ecosystems provide the external conditions that make bodily life possible. Together, these themes make *mīzān*, *qadar*, and Rabb concrete: Allah sustains life through water, limits, feedback, correction, relationship, adaptation, and ecological responsibility.

9.1 Life from Water and the Qurʾānic Language of Stages

The chapter begins with the Qurʾān's repeated emphasis on water as the shared condition of living beings. Q.21:30 states, *"And We made from water every living thing,"* while Q.24:45 says that Allah created every animal from water and then describes creatures through varied modes of movement. These verses are not technical biology, but they give a powerful theological lens for a scientific reality: life depends on water for origin, structure, metabolism, circulation, cooling, reproduction, and ecological renewal (Muhammad Ali, 2002).

Q.2:164 broadens this theme by linking rain, revived earth, and the spreading of animals across the land. Water is therefore both the chemical medium of life and the means by which environments become habitable. The same water that enters cells and blood also circulates through clouds, soil, rivers, plants, and animals. Life from water is thus both inward and outward: organisms depend on regulated water within themselves and on water-bearing ecosystems around them (Muhammad Ali, 2002).

The Qurʾān also gives a vocabulary of stages. Q.71:14 says that human beings are created in different stages, and Q.23:12–14 describes individual human formation through successive embryological stages. Q.29:20 invites people to travel through the earth and observe how creation begins. These verses do not provide a modern evolutionary chart, but they allow the reader to think theologically about gradual formation, protected development, embodied growth, and disciplined observation. They support the book's wider claim that natural processes may unfold through stages while remaining dependent on divine measure and guidance (Muhammad Ali, 2002; Moore et al., 2020).

This staged vocabulary requires caution. The Qurʾān does not name microbes, cells, DNA, evolutionary lineages, fossils, or physiological feedback loops. Its language remains broader and theological: water, stages, growth, measure, signs, provision, and divine wisdom. This chapter therefore treats the scientific material not as a

hidden prediction inside the Qurʾān, but as a field of disciplined reflection in which Qurʾānic themes can be contemplated with restraint.

9.2 Homeostasis: The Internal Balance of Living Bodies

Homeostasis gives this chapter its physiological center. The human and animal body is not a set of organs placed side by side, but a coordinated living unity. Cells, tissues, organs, nerves, hormones, blood vessels, immune responses, and behavior work together to preserve the internal environment on which life depends. The heart, lungs, kidneys, liver, brain, endocrine glands, digestive tract, skin, blood, and immune system continually adjust so that oxygen, water, salts, glucose, temperature, blood pressure, acidity, hormones, and waste products remain within life-supporting limits (Hall, 2011; Modell et al., 2015).

This coordination is necessary because cells do not live directly in the outside world. They live in an internal fluid environment that must remain suitable for metabolism, electrical signaling, enzyme activity, oxygen delivery, nutrient supply, and waste removal. In evolutionary terms, land-dwelling organisms had to carry a regulated aqueous environment within themselves. In Qurʾānic and theological terms, this inner water-based environment can be contemplated as a sign of provision: life is not only made from water, but also preserved by keeping water and dissolved substances within measured limits (Bipat, 2022; Hall, 2011).

Homeostasis should not be misunderstood as stillness. The body is always changing: a person eats, fasts, sleeps, wakes, exercises, sweats, loses water, encounters infections, faces stress, ages, and adapts to heat, cold, altitude, pregnancy, or illness. Health is therefore not the absence of change, but the successful regulation of change. Through sensors, control centers, feedback loops, effectors, and adaptive responses, the body detects disturbance and corrects it before internal conditions move too far from the ranges compatible with life (Bipat, 2022; Hall, 2011; Modell et al., 2015; Estaphan et al., 2023; Debevec et al., 2024).

Ordinary experience makes this measured correction visible. Heat activates sweating and skin blood flow; cold produces shivering and reduced skin circulation. Thirst, antidiuretic hormone, and kidney conservation protect water balance. After a meal, insulin helps regulate blood glucose; between meals, stored fuel is mobilized. During exercise, breathing and heart function increase to restore oxygen delivery, carbon dioxide removal, and acid-base balance. When a person stands, vascular reflexes help maintain blood pressure to the brain. Fever, inflammation, clotting, and immune activation also show that the body defends itself through regulated responses that must remain proportionate.

Chapter 8 made the same point from the opposite direction. Spacecraft can provide selected supports—air, pressure, temperature control, water recycling, monitoring, exercise equipment, communication, and partial shielding—but they do not recreate Earth's gravity, atmosphere, magnetic protection, ecological support, water cycle, food webs, open landscape, or full day-night and seasonal rhythm. The health challenges of spaceflight show that homeostasis depends not only on internal feedback systems, but also on the planetary conditions within which those systems normally operate (NASA, 2023b; NASA, 2025; NASA, 2026a; NASA, 2026b).

Homeostasis therefore provides a concrete biological expression of *mīzān* and *qadar* without reducing those terms to physiology alone. *Mīzān* appears inwardly as balance and as the danger of transgressing life-supporting limits; *qadar* appears as measure, proportion, capacity, and boundary; and Rabb appears as sustaining lordship, because the body is not merely assembled once but continually preserved through regulation, correction, adaptation, and guidance. The living body endures because its internal conditions are held within proper measure under the sustaining order of Allah as Rabb (Muhammad Ali, 2002; Bipat, 2022).

9.3 Ecosystems: The External Counterpart of Homeostasis

The same logic extends beyond the body. Homeostasis preserves the internal environment; ecosystems sustain the external conditions in which organisms live. Climate, water cycles, soils, vegetation, biodiversity, pollination, seed dispersal, decomposition, predator-prey relationships, and nutrient cycling form the relational environment that makes bodily regulation, reproduction, adaptation, and survival possible (Cardinale et al., 2012; IPBES, 2016; Terborgh & Estes, 2010).

The relationship can be stated simply: homeostasis is internal balance; ecosystems are external balance. Damage to external balance increases the burden on internal regulation through heat, water scarcity, polluted air, food insecurity, disease pressure, and social disruption (IPCC, 2022; WHO, 2023).

Several examples make this connection concrete. Forests, wetlands, soil moisture, and vegetation help cool local environments; when vegetation is lost and heat increases, sweating, skin blood flow, heart rate, and fluid balance come under greater pressure. Watersheds, wetlands, groundwater, and rainfall patterns sustain usable water; when drought, flooding, or pollution disrupts them, hydration, kidney function, blood volume, and electrolyte balance become harder to maintain. Healthy soils, pollinators, seed dispersers, and crop-supporting biodiversity sustain food production; when these weaken, glucose regulation, metabolism, growth, pregnancy, immunity, and energy balance are affected (Cardinale et al., 2012; IPBES, 2016; IPCC, 2022; WHO, 2023).

Other examples show the same pattern. Vegetation and intact landscapes can reduce dust, erosion, and some pollutant exposure; degraded ecosystems, wildfires, and smoke burden oxygen exchange, lung inflammation, and cardiovascular regulation. Biodiversity can help stabilize food webs, vector habitats, and species interactions; when biodiversity is disrupted, disease exposure may shift and place added pressure on immune regulation, fever responses, inflammation, and public health systems. Predator-prey relationships, decomposers, soils, and vegetation help regulate nutrient flow, plant cover, fire risk, and water quality. Their disruption can return to the body as respiratory, nutritional, thermal, infectious, or cardiovascular stress (Cardinale et al., 2012; IPBES, 2016; Terborgh & Estes, 2010; IPCC, 2022; WHO, 2023).

Table 9.1 summarizes the chapter's central comparison between internal homeostasis and external ecosystem balance:

Level of balance	What is regulated or sustained	Harmonized theological significance
Homeostasis within the body	Water, salts, oxygen, glucose, temperature, blood pressure, acidity, hormones, and waste removal.	Shows *mīzān* and *qadar* inwardly: the body is sustained through measured regulation, feedback, correction, and adaptation.
Ecosystems around the body	Climate, water cycles, soils, vegetation, pollination, food webs, biodiversity, decomposition, and nutrient cycling.	Shows *mīzān* and *qadar* outwardly: the external environment sustains the conditions in which organisms live, reproduce, adapt, and maintain internal balance.
Shared principle under Rabb	Dynamic balance through limits, exchange, feedback, correction, adaptation, resilience, and relationship.	Life is not only originated but continuously nourished and regulated; this supports the book's language of Allah as Rabb, the One who sustains creation inwardly and outwardly.
Moral consequence	Climate change, pollution, water stress, food insecurity, soil degradation, and biodiversity loss.	To transgress external balance can return to the body as physiological, public-health, and social harm; ecological responsibility is therefore part of moral accountability.

9.4 Theological Synthesis: Sustained Creation and Moral Responsibility

The chapter's central claim is that life must be understood as both origin and maintenance. Water, stages, measure, balance, provision, and guidance describe not only how life begins, but how it continues. Homeostasis and ecosystems show two levels of the same truth: living systems endure through continual adjustment rather than static perfection.

This perspective gives ecological responsibility physiological seriousness. Climate change, pollution, soil degradation, biodiversity loss, water stress, and food insecurity are not only environmental concerns outside the body. They can return to the body as heat stress, dehydration, respiratory burden, malnutrition, infection risk, cardiovascular strain, metabolic instability, and public-health vulnerability. Damage to ecosystems can therefore become damage to the conditions under which homeostasis operates (IPCC, 2022; WHO, 2023).

Summary: Chapter 9 presents water as the shared condition of life, stages as Qurʾānic vocabulary for formation, homeostasis as internal balance, and ecosystems as external balance. Together they make *mīzān*, *qadar*, and Rabb concrete: Allah sustains life through measured regulation inside the body and through relational balance in the environment. This prepares Chapter 10, where microbial and plant life become the hidden and visible foundations of later ecosystems.

Chapter 10: Microbial and Plant Foundations of Life

"He brings forth the living from the dead and He brings forth the dead from the living."
— Qurʾān 6:95, trans. Maulana Muhammad Ali

Key themes: Chapter 10 continues the movement from Earth's prepared habitability in Chapter 8 and the inward–outward balance of life in Chapter 9. It turns to the hidden and visible foundations that made later terrestrial abundance possible. Microbial life first transformed oceans, minerals, atmosphere, oxygen, energy flow, decomposition, and nutrient cycles long before large organisms appeared. Plant life then greened the earth through algae, early land plants, vascular tissues, seeds, flowering plants, fruits, and grasses. Q.15:19 is especially important because it joins the spread-out earth, firm mountains, and growth of every suitable or balanced thing; Q.20:53 adds pathways, water from the clouds, and diverse pairs of plants; and Q.6:99 gives a concentrated picture of rain, vegetation, green growth, clustered grain, date palms, grapes, olives, pomegranates, fruiting, ripening, and signs for believers. Qurʾānic themes of life from water, living from the dead, revived earth, vegetation, fruits, pairs, provision, pathways, balance, maturation, and measured growth are read here as theological signs rather than as technical microbiological or botanical predictions.

10.1 Microbial Foundations: Hidden Life Before Visible Ecosystems

Microbial evolution belongs here because it carries Chapter 9's account of balance into the earliest living systems that made later ecosystems possible. Before forests, flowers, fish, reptiles, birds, mammals, or human communities existed, microscopic life was already reshaping Earth. Microbes transformed oceans, cycled nutrients, produced oxygen, built microbial mats, and contributed to the rise of complex cells (Knoll, 2015; Lyons et al., 2014; Moody et al., 2025). The Qurʾān does not speak in microbiological terminology, but microbial history gives a powerful scientific example of life unfolding through subtle, unseen stages before visible ecosystems appeared.

The first stage begins with early cells in an oxygen-poor world. Scientific accounts generally identify the earliest life forms as microbial and prokaryotic, lacking nuclei and complex internal compartments. These organisms likely lived in water-rich environments and used anaerobic metabolisms that did not require oxygen. This stage connects directly with the Qurʾānic emphasis that life is made from water, while also extending Chapter 9's point that water is both the medium and condition of living regulation. Before life became visible as plants and animals, it existed as microscopic cells in aquatic or moist settings. Theologically, this suggests hidden beginnings: the foundations of life may be present long before they become outwardly dramatic or recognizable to human observation (Knoll, 2015; Sousa et al., 2016; Westall, 2025).

The next stage involved the diversification of microbial metabolisms. Some microbes used chemical energy from inorganic compounds; others later developed photosynthetic pathways that allowed them to use sunlight. Microbial metabolism did more than sustain microbes themselves: it changed the planet. By cycling carbon, sulfur, nitrogen, and other elements, microbial communities gradually prepared conditions on which later organisms would depend. In this respect, microbial evolution offers a deep natural example of provision and balance, because created processes prepared nourishment, atmosphere, and environmental regulation long before larger life appeared (Knoll, 2015; Moody et al., 2025; Sousa et al., 2016).

The third stage brought the rise of cyanobacteria and oxygen-producing photosynthesis. Cyanobacteria rank among the most important organisms in Earth history because their photosynthesis released oxygen as a byproduct. Over immense timescales, this oxygen accumulated in oceans and the atmosphere, contributing to the Great Oxidation Event. This transformation made aerobic respiration possible and opened the way for more energy-intensive forms of life. From the standpoint of this chapter, Earth's oxygenation is a striking example of gradual preparation: microscopic organisms helped make the atmosphere suitable for later plants, animals, and human beings, linking hidden microbial work to the outward ecological balance discussed in Chapter 9 (Knoll, 2015; Lyons et al., 2014; Olejarz et al., 2021; Westall, 2025).

The fourth stage introduced aerobic respiration. Once oxygen became more available, some organisms evolved the ability to use oxygen efficiently to release energy from organic molecules. Aerobic respiration yields far more usable energy than many anaerobic pathways, and this energetic advantage helped support larger genomes, more complex cells, and later multicellular life. In theological language, this stage illustrates that creation is not only a matter of producing organisms, but also of establishing the chemical and energetic order through which life can flourish. The oxygen produced earlier by microscopic life became, over time, a condition through which more active, coordinated, and complex forms of life could arise. This fits the book's wider theme of Rabb: Allah does not merely bring beings into existence, but sustains them through measured conditions, ordered capacities, and successive preparations. Oxygen, respiration, mitochondria, cellular energy, and later organismal complexity can therefore be contemplated as parts of one created system in which provision is built into the very chemistry of life. Theologically, this does not make oxygen itself divine or turn respiration into a miracle claim; rather, it shows how natural mechanisms may function as created means. The same process can be described scientifically as energy metabolism and interpreted religiously as one expression of Allah's sustaining wisdom, measure, and mercy within the long preparation of life (Knoll, 2015; Martin et al., 2015; Sousa et al., 2016).

In the fifth stage eukaryotic cells originated through endosymbiosis. According to the endosymbiotic theory, complex cells emerged through symbiotic relationships among different microbial lineages, especially through the incorporation of bacterial ancestors of mitochondria and, later in photosynthetic lineages, chloroplasts. Mitochondria are widely understood to have originated from bacteria, while chloroplasts trace back to cyanobacteria-like ancestors. This stage links microbes directly to animals and plants: the later visible world of forests, flowers, insects, animals, and human bodies depends on cellular structures that began as microbial partnerships. Endosymbiosis therefore provides a powerful example of creation through relationship, cooperation, and integration rather than isolated events, and it

prepares the transition from hidden microbial foundations to visible plant abundance (Archibald, 2015; Martin et al., 2015; Vosseberg et al., 2024).

A further Qurʾānic reflection deepens the microbial section. Q.6:95 says that Allah causes the grain and the date-stone to split, brings forth the living from the dead, and brings forth the dead from the living. This should not be treated as a technical reference to microbes, but it resonates strongly with microbial ecology. Microbes decompose dead matter, recycle nutrients, transform minerals, release gases, and make chemical resources available for new life. In scientific terms, microbial communities sustain the carbon, nitrogen, sulfur, and oxygen cycles on which later organisms depend. In theological terms, this gives the phrase "living from the dead" ecological depth: what appears as decay may also participate in a divinely ordered system of renewal, nourishment, and preparation (Muhammad Ali, 2002; Knoll, 2015; Moody et al., 2025).

As with the plant and animal examples that follow, this argument must remain modest. The Qurʾān does not mention bacteria, archaea, cyanobacteria, mitochondria, chloroplasts, or the Great Oxidation Event by name. Microbial evolution serves an illustrative purpose: it shows that some of the most important preparations for later life occurred invisibly and gradually. Long before Earth filled with visible vegetation and animals, microbial life was already transforming water, air, minerals, and energy flows. This deepens the book's central argument that Qurʾānic language about life from water, staged creation, and divine provision can harmonize with a long natural history in which Allah's creative order works through hidden foundations as well as visible forms.

10.2 Plant Evolution: The Step-by-Step Greening of the Earth

Plant evolution makes the same pattern visible at the scale of landscapes. Where microbial life prepared air, water, minerals, oxygen, and cellular complexity, plant life clothed the earth with photosynthetic abundance, soil-building roots, food, shelter, and ecological structure. Several Qurʾānic passages describe life, nourishment, and human existence through water, growth, vegetation, fruits, ripening, and the earth bringing forth provision. Scientifically, the greening of Earth did not occur all at once; it unfolded through aquatic algae, early nonvascular land plants, vascular plants, seed plants, flowering plants, and eventually grasslands (Kenrick & Crane, 1997; Ligrone et al., 2012; Morris et al., 2018; Strömberg, 2011). This sequence shows how Earth became progressively more habitable, fertile, structured, productive, and capable of supporting later animal life over deep time.

Q.15:19 deserves explicit attention because it links three themes that connect this chapter back to Chapter 8 and forward to Chapter 11: the earth is spread out, firm mountains are placed within it, and every suitable or balanced thing is caused to grow. In Maulana Muhammad Ali's translation, the verse speaks of Allah causing growth from the earth in measured suitability rather than uncontrolled excess. Read beside geological and botanical history, the verse strengthens the connection between landforms, soils, mineral release, water movement, and vegetation. It does not name plant evolution or ecological succession, but it gives a theological vocabulary for the prepared ground on which plant life can diversify: growth appears within limits, conditions, proportions, and balance under Rabb (Muhammad Ali, 2002).

Q.20:53 fits this discussion because it brings together several themes from Chapters 8–10: the earth as a livable expanse, pathways across the land, water sent down from the clouds, and diverse pairs of plants brought forth from it. The verse should not be read as a technical account of botany, ecology, or plant evolution. Its theological force is that Allah prepares a habitable earth, opens routes through it, sends water, and produces varied vegetation as provision. Read alongside the scientific history of plant diversification, Q.20:53 supports the book's claim that vegetation belongs to a wider pattern of habitability, movement, water, fertility, diversity, and measured provision under Rabb (Muhammad Ali, 2002).

In addition, Q.6:99 offers one of this section's richest descriptions of vegetation and fruiting. It speaks of water sent down from the sky, growth of every kind, green herbage, clustered grain, date palms, gardens of grapes, olives, pomegranates, similarity and difference, and the call to observe fruit as it appears and ripens. The verse is not a botanical classification or evolutionary account, but it is highly relevant here because it joins water, plant diversity, fruit production, maturation, and observation within one theological sign. Read alongside plant evolution, Q.6:99 helps frame photosynthesis, flowering, fruiting, seed dispersal, agricultural provision, and ecological abundance as dimensions of a prepared and fruitful earth under Rabb (Muhammad Ali, 2002).

In plant evolution, the first stage was aquatic photosynthetic life, especially green algae and related organisms. These organisms lived in water, used sunlight to produce energy, and contributed to the oxygenation and productivity of early ecosystems (Kenrick & Crane, 1997; Morris et al., 2018). This stage connects strongly with the Qurʾānic emphasis that every living thing is made from water and with Chapter 9's insistence that water is both inward biological medium and outward ecological provision. Before plants could cover the land, photosynthetic life had to develop in aquatic settings, where water provided support, nutrients, and the medium for reproduction. The movement from water-based photosynthesis toward land-based vegetation therefore becomes a vivid example of staged biological development rather than instantaneous completion.

In the second stage early nonvascular plants colonized the land, including bryophyte-grade lineages such as mosses, liverworts, and hornworts. These early land plants were small and dependent on moist environments, but they introduced key adaptations for terrestrial life, including protective surfaces, spores, stomata in several lineages, simple conducting tissues, and associations with fungi. They did not yet form forests, crops, or grasslands, but they began the slow biological transformation of bare land into living terrain. Their presence helped stabilize surfaces, add organic material, influence weathering, and participate in early soil formation. Theologically, this stage can be compared with Qurʾānic imagery of the earth receiving water and bringing forth growth: vegetation begins humbly, close to the ground, but it initiates a wider process of fertility and preparation (Kenrick & Crane, 1997; Ligrone et al., 2012; Morris et al., 2018).

A final stage relevant to later animal history is the spread of grass and grassland ecosystems. Grasses became ecologically important during the Cenozoic and helped create open habitats for grazing mammals, herd movement, and predator-prey systems (Strömberg, 2011). Plant evolution therefore prepared not only forests and fruit-bearing ecosystems, but also the grasslands that shaped later mammalian life. In this sense, plant history links the dinosaur-era and large-mammal examples

together: vegetation first supported large herbivorous dinosaurs in Mesozoic landscapes and later supported grazing mammals in Cenozoic grasslands. Earth's greening was therefore a long preparatory process that made later animal life possible.

The fourth stage was the evolution of seeds. Seed plants, including gymnosperms such as conifers, allowed reproduction to become less dependent on open water than earlier spore-producing plants; seeds protected the embryo, stored nourishment, and enabled plants to spread into drier and more varied environments (Kenrick & Crane, 1997; Morris et al., 2018). This innovation helps explain why conifers and related plants became so important in later terrestrial ecosystems, including the dinosaur-era landscapes discussed in Chapter 11. From a theological perspective, seeds provide a striking image of hidden potential: a small, protected beginning can become a tree, forest, habitat, or food source. This aligns well with the book's theme that creation may unfold through means, stages, and latent capacities placed within nature.

The fifth stage was the rise and diversification of flowering plants, or angiosperms. Flowering plants added new reproductive strategies through flowers, fruits, pollination, and seed dispersal, and their expansion transformed ecosystems by strengthening relationships among plants, insects, birds, mammals, and other animals (Morris et al., 2018; Tiffney, 1984; Wing & Tiffney, 1987). Fruits and flowers connected vegetation more directly to food webs and animal behavior. This stage is useful for the chapter because it shows Earth becoming not only green, but increasingly interactive and abundant. Qurʾānic references to fruits, gardens, crops, and provision become especially meaningful when read beside the long natural history by which flowering plants came to dominate many terrestrial environments.

Qurʾān 36:33–36 and Q.50:7–11 strengthen the plant-evolution section. These passages describe dead earth being revived, grain being brought forth, gardens and fruits being produced, and created things appearing in pairs. The verses do not teach angiosperm evolution in a technical sense, but they give a rich theological language for fertility, reproduction, fruiting, and ordered abundance. When placed beside the scientific history of flowering plants, pollination, fruit formation, and seed dispersal, they help show why plant evolution is not merely a botanical sequence. It is also a story of relationships: plants, insects, birds, mammals, soils, water, and climate become linked in systems of provision. This fits the book's central claim that natural development may unfold through means while still being understood as Rabb's nourishing order (Muhammad Ali, 2002; Tiffney, 1984; Wing & Tiffney, 1987).

A final stage relevant to later animal history is the spread of grass and grassland ecosystems. Grasses became ecologically important during the Cenozoic and helped create open habitats for grazing mammals, herd movement, and predator-prey systems (Strömberg, 2011). Plant evolution therefore prepared not only forests and fruit-bearing ecosystems, but also the grasslands that shaped later mammalian life. In this sense, plant history links the dinosaur-era and large-mammal examples together: vegetation first supported large herbivorous dinosaurs in Mesozoic landscapes and later supported grazing mammals in Cenozoic grasslands. Earth's greening was therefore a long preparatory process that made later animal life possible.

As before, the argument requires careful framing. The Qurʾān does not give a scientific timeline of algae, bryophytes, vascular plants, gymnosperms, angiosperms, and grasses. The stronger point is that plant history illustrates how staged

development and divine provision can appear in natural history. Water-based photosynthesis, soil formation, vascular transport, seeds, flowers, fruits, and grasslands gradually made Earth fertile, productive, and ecologically connected. These stages deepen the book's central argument that Qurʾānic language about water, growth, vegetation, and provision can harmonize with a long and ordered process by which Allah furnished the earth for life.

Summary: Chapter 10 shows that later animal and human history depends on foundations laid by microbes and plants. Microbes transformed water, minerals, atmosphere, oxygen, nutrient cycles, energy flow, decomposition, and cellular complexity; plants then greened Earth through photosynthesis, soils, vascular transport, seeds, flowers, fruits, ripening, grasses, and ecological relationships. Q.6:99 strengthens this plant-centered argument by drawing attention to rain, green growth, clustered grain, palms, grapes, olives, pomegranates, similarity and difference, and the observable process of fruiting and maturation. The chapter therefore completes the transition from the inner and outer balances of Chapter 9 to the animal ecosystems of Chapter 11, where life develops within environments already shaped by microbial and plant preparation.

Chapter 11: Animal Life, Human Origins, and Adamic Responsibility

"And Allah has created every animal from water."
— Qurʾān 24:45, trans. Maulana Muhammad Ali

Key themes: Chapter 11 flows directly from Chapter 10's microbial and plant foundations. After microbes prepared oxygen, nutrient cycles, cellular complexity, decomposition, and energy flow, and after plants greened the earth through photosynthesis, soils, seeds, flowers, fruits, and grasses, animal life appears within environments already furnished for movement, feeding, reproduction, and ecological interaction. This chapter follows animal life from aquatic origins through movement onto land, dinosaur-era ecosystems, Cenozoic mammals, and human biological prehistory. Q.24:45 provides the central Qurʾānic lens for animal diversity from water, while Q.15:19 and Q.6:99 help frame the terrestrial setting in which animal life flourishes. Q.15:19 emphasizes the spread-out earth, firm mountains, and balanced growth; Q.6:99 emphasizes rain, green vegetation, clustered grain, fruits, similarity and difference, ripening, and signs for believers. Together these verses help explain the plant base, habitats, food webs, ecological abundance, and provision on which animal communities depend. Related verses support creaturely communities, ecological dispersal, succession, dignity, taught expression, the pen, transmitted knowledge, divine knowledge, and Adamic responsibility. The chapter distinguishes biological continuity from theological accountability: in the Lahore Ahmadiyya reading, Adam marks the beginning of prophetic and morally responsible humanity rather than necessarily the first biological human being.

11.1 Animal Evolution: Diversification of Movement and Form

Animal evolution is the next stage in the book's sequence because it depends on the foundations established in Chapter 10. Microbes had already changed the chemistry of oceans and atmosphere, while plants had converted sunlight, water, carbon dioxide and nitrogen into food, stabilized soils, expanded vegetation, and created the habitats on which animal communities would depend. If plant evolution shows how the earth became green, fertile, and productive, animal evolution shows how life became mobile, sensory, relational, and ecologically complex. Q.24:45 can therefore be read as a theological affirmation of life's variety and dependence on water, while the scientific sequence explains how animal forms diversified over deep time through changing bodies, movements, habitats, and ecological roles.

Q.42:29 strengthens the overview of animal evolution by describing the living creatures Allah has spread throughout creation. The verse is not a zoological classification, but it supports a broad theology of creaturely diversity and distribution. Scientific animal history shows life diversifying through marine ecosystems, the origins of vertebrates, movement onto land, and the later spread of land animals into many forms and habitats. Q.42:29 gives this diversity a theological horizon: living creatures are not accidental clutter in the world, but signs dispersed within creation. This prepares the reader to understand the following animal-

evolution stages as scientific descriptions of diversification within a divinely sustained order rather than as rival accounts of creation (Muhammad Ali, 2002; Erwin et al., 2011; Sperling & Stockey, 2018).

Section 11.1 therefore sets the theological and biological frame for animal diversification while preserving the flow from Chapter 10. The reader has just seen how microbial and plant life prepared oxygen, soils, vegetation, fruits, grasses, and ecological relationships; now the argument turns to the animals that moved through, fed within, dispersed, disturbed, and reshaped those prepared environments. The next section gives the detailed aquatic-to-terrestrial sequence. This keeps the argument from repeating the same stages twice: first the reader receives the Qurʾānic horizon of water, creaturely diversity, and ecological distribution; then the scientific sequence of early animal life, marine diversification, vertebrate origins, and movement onto land is examined in detail.

11.2 Early Animal Life in Water and the Movement Onto Land

A more detailed treatment of early animal life makes the Qurʾānic emphasis on water even stronger. Animal history did not begin on dry land. The earliest widely discussed animal communities were marine, and the transition onto land followed long aquatic preparation (Droser & Gehling, 2015; Sperling & Stockey, 2018). Q.24:45's statement that every living creature was created from water can therefore be read beside a scientific history in which animals first lived, fed, moved, and diversified in aquatic environments before some lineages gradually adapted to shorelines, wetlands, and terrestrial habitats. This is not a direct scientific prediction, but it is a strong example of compatibility between the Qurʾān's broad theological language and the biological sequence preserved in the fossil record.

The first example is the Ediacaran marine world, which included some of the earliest large and complex multicellular organisms known from the fossil record. Many Ediacaran organisms were soft-bodied and lived on or near the seafloor. Some, such as rangeomorphs, had frond-like or branching forms and appear to have been fixed to the seabed rather than actively swimming. Their exact relationships to later animals remain debated, but they show that visible animal-like complexity first emerged in marine settings. Theologically, this supports the idea of hidden and gradual preparation: before land animals, forests, or human societies existed, the oceans already contained forms of life that were testing the possibilities of body size, shape, feeding, and ecological interaction (Droser & Gehling, 2015; Sperling & Stockey, 2018).

The second example is the Cambrian marine expansion. During the Cambrian period, many major animal groups appeared or diversified in the fossil record, including arthropods, mollusks, echinoderms, worms, sponges, and early chordates (Erwin et al., 2011; Sperling & Stockey, 2018). Trilobites, early arthropods, became especially characteristic of Cambrian seas, while predators such as *Anomalocaris* illustrate the rise of more active feeding and predator-prey relationships. This stage is important because animal life became not only more visible but also more interactive: animals burrowed, hunted, defended themselves with shells or hard parts, and occupied increasingly specialized ecological roles. In relation to the chapter's argument, the Cambrian seas show that water was not merely the chemical origin of life; it was also the first major arena in which animal diversity and ecological complexity unfolded.

The third example is the rise of early fish and other vertebrates in water. Jawless fish, followed by jawed fish and later lobe-finned fish, show how animal bodies became better organized for movement, sensation, feeding, and survival in aquatic environments. Fins, backbones, skulls, jaws, and sensory systems all developed before vertebrates moved onto land. This point is important because it avoids a simplistic picture of land life appearing suddenly. The body plan that later made terrestrial movement possible was first shaped in water. Thus, the scientific sequence from aquatic vertebrates to land vertebrates strengthens the book's recurring theme that creation can involve preparation within one environment before a later transition into another (Benton, 2024; Clack, 2012).

The fourth example is the movement of some animal lineages out of water. This happened in more than one way. Invertebrates such as arthropods were among the early animals to exploit land environments, especially after plants and microbial communities began stabilizing soils and creating habitats. Later, vertebrates followed through the fish-to-tetrapod transition. Lobe-finned fish and early tetrapods developed limb-like fins, stronger internal skeletons, lungs or air-breathing capacities, and new forms of movement. Fossils such as *Tiktaalik*, *Acanthostega*, and *Ichthyostega* are commonly discussed as part of this transition because they show mixtures of aquatic and limb-bearing features (Benton, 2024; Clack, 2012). These examples make the phrase "from water" especially vivid: the animals that eventually gave rise to land vertebrates did not abandon water immediately, but moved through shoreline, shallow-water, and semi-terrestrial stages.

The fifth example is the gradual refinement of life outside water. Early land animals faced major challenges: supporting body weight without buoyancy, preventing dehydration, breathing air, reproducing away from water, and moving effectively on solid ground. Arthropods solved some of these problems through exoskeletons and jointed limbs, while vertebrates eventually developed stronger limbs, modified skeletons, lungs, and later the amniotic egg. This sequence shows that "out of water" did not mean instant independence from water. Many early land animals remained tied to moist habitats, wetlands, or aquatic reproduction. The earliest land movements were often low to the ground—crawling, creeping, or dragging the body close to the surface—so this stage can be read beside Q.24:45, where some creatures are described as moving on their bellies before others walk on two or four legs. Theologically, this makes the transition from water to land a useful illustration of measured development: life moves outward from water, but it carries traces of its aquatic origin and remains dependent on water for survival (Muhammad Ali, 2002; Benton, 2024; Clack, 2012).

This example should also be framed carefully. The Qurʾān does not name Ediacaran organisms, trilobites, *Anomalocaris*, lobe-finned fish, or early tetrapods. The point is not that the Qurʾān gives a paleontological chart, but that its broad claim about life from water remains open to a history in which animal life begins in the sea and later expands into new environments. Early animal life in and out of water therefore strengthens the book's central thesis: creation can be understood as a sequence of divinely sustained transitions, where water is both the original medium of life and the continuing condition for life's flourishing.

11.3 Dinosaur-Era Ecosystems: Vegetation, Food Webs, and Ecological Preparation

The Mesozoic era, commonly associated with dinosaurs, strengthens the book's argument for gradual ecological preparation without reading dinosaurs directly into the Qurʾān. It also shows why Chapter 10 had to come first. Dinosaur-era ecosystems were possible only because earlier microbial and plant processes had already prepared oxygen-rich air, soils, vegetation, seeds, forests, and food webs. The point here is illustrative: before mammals and human beings entered the later theological story of life, Earth had already passed through long periods in which vegetation, habitats, food webs, and large animal communities developed together. Qurʾānic language about growth from the earth, provision, and creation in stages can therefore be compared cautiously with a scientific picture of a planet becoming biologically furnished over deep time.

Q.15:19 fits naturally into this section because animal ecosystems depend on the plant-bearing earth described in the verse. The spread-out earth provides habitable surfaces and movement corridors; firm mountains shape rainfall, rivers, erosion, soils, and regional climates; and the growth of every suitable or balanced thing supplies vegetation, food, shelter, and ecological structure. Read beside dinosaur-era landscapes, the verse does not name dinosaurs or the Mesozoic world, but it gives theological language for the conditions that made large terrestrial animals possible. Herbivorous dinosaurs required plant abundance; predators required herbivores; and both depended on landforms, water, soils, climate, and vegetation growing within proper limits. In this way, Q.15:19 strengthens the chapter's claim that animal life unfolds within a prepared and balanced terrestrial order under Rabb (Muhammad Ali, 2002).

Q.6:99 adds a more detailed plant-centered layer to the same ecological argument. The verse speaks of water sent down from the clouds, growth brought forth from it, green foliage, clustered grain, date palms, grapes, olives, pomegranates, similarity and difference, and the invitation to look at fruit as it appears and ripens. In Chapter 11, this verse matters because animal ecosystems depend on precisely such plant productivity. Herbivores require leaves, seeds, fruits, stems, and seasonal growth; predators depend indirectly on that vegetation through prey; and seed dispersal, pollination, grazing, browsing, dung deposition, and decomposition all connect plants and animals in food webs. Read alongside dinosaur-era and mammalian ecosystems, Q.6:99 should not be turned into technical botany or paleontology. Rather, it supplies theological language for rain-fed productivity, diversity, ripening, and observation—the vegetation base through which animal life is sustained by Allah's provision under Rabb (Muhammad Ali, 2002).

Vegetation formed the foundation of dinosaur ecosystems. Conifers, cycads, ginkgoes, ferns, horsetails, and later flowering plants supplied the food base and habitat structure for large herbivores, predators, and complex terrestrial food webs (Sander et al., 2011; Tiffney, 1984; Wing & Tiffney, 1987). Forests, floodplains, river systems, and humid regions were not background scenery; they were the biological infrastructure that allowed large land animals to flourish. In this sense, the dinosaur era gives a vivid natural analogy for the earth as a productive matrix from which successive forms of life are sustained.

Large herbivorous dinosaurs may also have acted as ecosystem engineers. Sauropods and other giant plant-eaters likely browsed across wide areas, trampled vegetation, opened pathways, disturbed and loosened surface soils, and returned nutrients to soils through dung and carcasses (Farlow, 1987; Sander et al., 2011). In this limited ecological sense, their ordinary movement and feeding could be compared to a natural kind of earth-ploughing: not deliberate agriculture, but physical disturbance that mixed organic matter, exposed patches of ground, helped seeds reach soil, and created spaces where new plants could establish. This makes the Mesozoic landscape more dynamic than a simple chain of plants being eaten by dinosaurs. Feeding, movement, decay, disturbance, and renewal may all have helped shape where plants grew and how ecosystems recovered after disturbance.

Seed dispersal should be treated with the same care. Some large herbivorous dinosaurs may have swallowed reproductive plant material, moved viable seeds over distance, and deposited them in nutrient-rich dung (Perry, 2021; Poropat et al., 2025; Schupp et al., 2010; Tiffney, 1984; Wing & Tiffney, 1987). This does not mean that all seeds survived digestion or that dinosaurs alone "greened" the continents. Seed movement could help vegetation spread only where climate, soils, land connections, pollinators, competitors, and establishment conditions also allowed plants to take root (Bascompte & Jordano, 2007; Vavrek, 2016). The better conclusion is that giant animals may have contributed to vegetation connectivity within a wider web of geological, climatic, and biological causes.

The Jurassic and Cretaceous periods illustrate this gradual ecological furnishing in different ways. Jurassic ecosystems included warm climates, conifer forests, cycads, ginkgoes, ferns, and other vegetation that supported large herbivorous dinosaurs and their predators (Sander et al., 2011; Tiffney, 1984; Wing & Tiffney, 1987). During the Cretaceous, flowering plants appeared and diversified, adding new relationships through flowers, fruits, pollination, seed dispersal, and animal interaction (Morris et al., 2018; Tiffney, 1984; Wing & Tiffney, 1987). Together, these periods show the earth becoming increasingly varied and fertile through interacting plant and animal innovations.

This argument should remain modest. The Qurʾān does not mention dinosaurs, the Jurassic period, or the Cretaceous period, and it should not be made to predict paleontology. The stronger claim is one of compatibility and illustration: dinosaur-era ecosystems show that life on Earth unfolded through long phases in which vegetation, animals, climate, soil, and food webs developed together. This can enrich reflection on Qurʾānic themes of water, growth from the earth, provision, and stages while preserving the theological point that Allah is the ultimate Creator and Sustainer.

The extinction of the non-avian dinosaurs can also be handled cautiously. The Qurʾān does not name the Chicxulub impact or the Cretaceous–Paleogene extinction, so the event should not be presented as a direct scriptural prediction. Scientifically, the end-Cretaceous extinction about 66 million years ago is strongly associated with the Chicxulub impact and its global environmental effects, including darkness, cooling, reduced primary productivity, and the loss of many plant and animal lineages (Morgan et al., 2022; Pires, Rankin, et al., 2018). Theologically, it may be contemplated within broader Qurʾānic themes of succession, measure, disruption, and renewal after death, including Q.6:95 and Q.6:133. These verses should not be forced into paleontology, but they can help frame the disappearance of one dominant

biological order and the later diversification of mammals as part of a larger pattern of stages, loss, renewal, and divinely sustained transition.

11.4 Large Mammals: Ecological Maturation Before Human History

Following the discussion of dinosaur-era ecosystems, the argument moves into the Cenozoic era, often called the Age of Mammals. This movement continues the same pattern established in Chapter 10: plant foundations make animal worlds possible, and animal activity then feeds back into landscapes through grazing, browsing, trampling, seed dispersal, nutrient return, and predator-prey relationships. After the extinction of the non-avian dinosaurs, mammals radiated into many ecological roles, and later Cenozoic ecosystems included large herbivores and predators such as mammoths, mastodons, rhinoceroses, horses, bison, camels, saber-toothed cats, and ground sloths (Shupinski et al., 2024; Malhi et al., 2016). This shift brings the discussion closer to the human world while preserving the distinction between animal evolution and human origins. Large mammals show that Earth's ecosystems continued to mature after the dinosaur era, forming grasslands, forests, migration routes, predator-prey relationships, and climatic adaptations that increasingly resemble the living world familiar to humanity.

Against this Cenozoic backdrop, one major development was the spread of open grasslands and grazing ecosystems. As climates cooled and dried in many regions, forests thinned in some areas and grasslands expanded (Strömberg, 2011). In turn, these changing habitats favored herd-dwelling grazers, faster-running animals, and specialized predators. As a result, horses, antelope-like animals, bison, mammoths, and other large mammals became part of vast terrestrial food webs. From a theological perspective, this pattern can be read as another example of ordered preparation: the earth was not merely filled with living beings, but organized into ecological systems in which vegetation, soil, climate, movement, and animal behavior worked together. Seen in this way, the picture resonates with Qurʾānic themes of provision, measure, and purposeful arrangement, while remaining an illustration rather than a direct scientific prediction.

A particularly vivid example appears in the Pleistocene megafauna. Animals such as woolly mammoths, woolly rhinoceroses, musk oxen, reindeer, bison, horses, and large carnivores were adapted to cold, open, and shifting environments (Malhi et al., 2016). Their existence shows that large mammals were not random ornaments in nature; rather, they helped shape landscapes through grazing, trampling, seed dispersal, nutrient cycling, and predator-prey balance. Moreover, ecological studies emphasize that the disappearance of many large-bodied mammals left detectable legacies in ecosystems, because smaller animals could not fully replace the ecological roles of megafauna (Malhi et al., 2016). This strengthens the argument that animal life participated in the preparation and maintenance of the earth's habitable order.

In a similar way, mammalian megafauna provides observable analogues for some of the ecological roles inferred for extinct dinosaur ecosystems. Elephants, rhinoceroses, bison, deer, tapirs, mammoths, mastodons, gomphotheres, and giant ground sloths show how large animals can move seeds, deposit them in nutrient-rich dung, prune vegetation, maintain open habitats, and create mosaics of forest, grassland, and disturbed ground. Modern elephant studies are especially important because

elephants can carry viable seeds across long distances and deposit them in conditions that may improve germination. Taken together, these examples support the idea that large animals can act as "megagardeners," not because they consciously plant forests, but because their ordinary movement, feeding, and digestion help shape plant recruitment and landscape structure (Bunney et al., 2017; Campos-Arceiz & Blake, 2011; Poulsen et al., 2021).

The concept of megafaunal dispersal patterns, sometimes called ecological anachronisms, adds another layer to this section. Some fruits and large seeds appear poorly matched to surviving animals but may have evolved with extinct large herbivores capable of swallowing, carrying, and depositing them (Guimarães et al., 2008; Janzen & Martin, 1982; Pires, Guimarães, et al., 2018). This idea helps explain why the disappearance of large mammals could leave some plants with reduced dispersal, more clustered recruitment, or weaker genetic connectivity. Within the chapter's theological framework, this reinforces the idea that provision is relational: plants, animals, soils, climate, and movement form an interconnected system. When one major part of that system disappears, the pattern of vegetation can change even if the plant species themselves remain.

This terminology also needs one further clarification. Ecological anachronisms should not be understood as simple stories of collapse after the disappearance of a single main disperser. Many plants that once relied heavily on extinct megafauna, including gomphotheres, survived into the human era because other pathways partly replaced or supplemented the lost relationship. Some persisted through alternative smaller animal vectors, more local or less efficient dispersal, favorable habitats, or direct and indirect human cultivation, protection, and movement. Their persistence therefore shows not only loss, but also redundancy, overlap, and resilience within systems of provision: when one major ecological partner disappeared, other biological and cultural actors could sometimes take over parts of the dispersal role, allowing plant lineages to continue in altered landscapes (Janzen & Martin, 1982).

At this point, the large-mammal example also fits the book's discussion of Q.24:45, which speaks of every *dābbah* being created from water and then describes creatures by modes of movement: some crawl, some walk on two legs, and some walk on four. The Arabic term *dābbah* can mean a moving creature or beast, and in some contexts it may suggest a large or notable beast rather than only a small animal. This wider lexical range makes the verse suitable for a broad discussion of animal life, including the great mammals of the Cenozoic, while still requiring interpretive restraint. In the Qurʾānic interpretation used here, the verse functions primarily as a sign of God's power and the variety of living creatures, not as a technical evolutionary sequence. Nevertheless, the Cenozoic world of large mammals gives modern readers a concrete illustration of how four-legged life came to dominate many terrestrial ecosystems. The verse's emphasis on variety, water, and divine will can be read alongside the fossil record as a reminder that life appears in many forms and ecological roles, each dependent on the conditions God provides through the natural order (Muhammad Ali, 2002).

Even here, the argument must remain restrained. The Qurʾān does not mention mammoths, saber-toothed cats, or the Cenozoic era by name. The large-mammal example works illustratively rather than predictively: before human history, Earth passed through further stages of ecological formation. Grasslands expanded, large herbivores shaped vegetation, predators regulated populations, and climatic cycles

produced new migrations and adaptations. This section therefore strengthens the book's central claim that Qurʾānic creation language can harmonize with a long, ordered, and biologically complex history of life while preserving the distinction between scientific reconstruction and revealed guidance.

This point also clarifies the place of human origins in the sequence. Human beings could not originate, persist, or become morally and culturally active apart from the conditions prepared in earlier eras. The earth first had to acquire stable water, atmosphere, soils, vegetation, oxygen-rich air, food webs, climatic ranges, and ecological relationships capable of supporting large-bodied, socially complex life. Nor should human emergence be imagined as running parallel to the great dinosaur ecosystems or to earlier worlds dominated by large predatory animals. By the time human biological prehistory becomes relevant, the planet has already passed through those earlier forms of preparation, extinction, renewal, mammalian radiation, grassland expansion, and ecological maturation. Human history therefore stands late in the sequence: it depends on a world already furnished through previous cosmic, geological, microbial, plant, and animal stages.

Large predators should therefore be framed as ecological pressures within human emergence rather than as proof that humans could not coexist with danger. Predator pressure likely favored group living, keeping watch, reading tracks and alarm cues, choosing safer sleeping places, using caves, trees, cliffs, water edges, or open sightlines, carrying stones or wooden tools, coordinating defense, protecting young, and later using controlled fire as light, heat, deterrent, and social center (Antón & Snodgrass, 2012; Smith et al., 2012; Domínguez-Rodrigo et al., 2021). Examples include avoiding or confronting saber-toothed cats, hyenas, lions, leopards, crocodiles, and large birds of prey; scavenging or hunting near carnivore kills with caution; defending carcasses and camps in groups; and using firelit shelters or elevated refuge locations at night (Potts, 2003; Thompson et al., 2019; Domínguez-Rodrigo et al., 2021; Smith et al., 2012). Such pressures may have strengthened attention, communication, memory of dangerous places, cooperative care, planning, and cultural transmission within early human communities (Smith et al., 2012; Stringer, 2016; Antón & Snodgrass, 2012). In this sense, predators were not merely threats outside the human story; they were part of the prepared ecological world that helped shape the social, cognitive, technological, and moral setting in which human biological prehistory unfolded (Antón & Snodgrass, 2012; Stringer, 2016; Smith et al., 2012; Domínguez-Rodrigo et al., 2021).

11.5 Human Evolution Stages as a Contested but Relevant Final Example

Human evolution belongs at the end of this chapter because it is the final biological example in the book's natural-history sequence and the most theologically sensitive case. By this point the reader has followed the ordered sequence from cosmic and geological preparation, to water-based life and homeostasis, to microbial and plant foundations, and now to animal ecosystems. Human biological prehistory depends on all of these earlier layers: oxygen-rich air, water, soils, vegetation, food webs, animal communities, climate, and social ecology. The issue is not only anatomy or ancestry, but Adam, revelation, dignity, taught knowledge, expression, moral responsibility, and the point at which human beings are addressed by Allah. Scientifically, the

evidence points to a branching history of hominin populations rather than a simple ladder from "ape" to "human." Posture, hands, brains, tools, migration, social cooperation, communication, and culture developed across a long and complex prehistory. The Lahore Ahmadiyya interpretation followed here gives this section its discipline: Adam need not be treated as the first biological member of *Homo sapiens*; rather, Adam marks prophetic and morally accountable humanity—the community capable of knowing Allah, receiving guidance, keeping duty, and responding to revelation (Alemseged, 2023; Antón & Snodgrass, 2012; Stringer, 2016; Zeberg et al., 2024; Muhammad Ali, 2002).

Q.76:1 provides an important caution for this discussion: it asks whether there came upon the human being a period of time when he was not a thing mentioned. This verse should not be turned into proof of any particular fossil stage, but it helps distinguish biological prehistory from theological mention. Science may trace earlier hominins, archaic humans, and modern *Homo sapiens*; revelation addresses humanity as taught, dignified, morally responsible, and answerable. The verse therefore supports the book's careful distinction: there may be a long biological history before humanity becomes central in the Qurʾānic story as a morally addressed creature.

Q.55:1–4 deepens that distinction by placing revelation, human creation, and expression in one sequence: *"The Beneficent — taught the Quran. He created man, taught him expression."* Maulana Muhammad Ali's rendering of *al-bayān* as "expression" identifies human distinctiveness at the level of meaning rather than mere anatomy (Muhammad Ali, 2002). Evolutionary science may describe the development of bodies, brains, tools, social behavior, and communication; this verse asks a different theological question: what kind of creature can receive revelation, be taught meaning, and answer through articulate response? The point is not that animals lack communication. The point is that Qurʾānic humanity is addressed as capable of truth-bearing speech, worship, moral instruction, remembrance, repentance, warning, and response to Allah. Expression therefore stands at the boundary between biological continuity and Adamic responsibility.

Q.96:1–5 carries the argument further by joining creation, reading, the pen, and taught knowledge: "Read in the name of thy Lord Who creates — creates man from a clot. Read and thy Lord is most Generous, Who taught by the pen, taught man what he knew not." The passage holds together lowly bodily origin and the elevation of knowledge. In the context of human evolution, it should not be used to claim that writing alone defines biological humanity, since writing appears late in cultural history and many human societies preserved wisdom orally. Rather, the pen represents cumulative knowledge: symbolic communication, teaching across generations, scripture, law, record, correction, and moral memory. Together, Q.55:1–4 and Q.96:1–5 show that human uniqueness is not only biological or technological. It is the vocation of a creature who can receive guidance, preserve it, communicate it, be shaped by it, and become accountable for it (Muhammad Ali, 2002).

A terminological clarification is useful here because *qalam* and *kalām* sound similar but are not the same word. The word in Q.96:4 is *qalam*, meaning "the pen": Allah teaches by the pen. By contrast, *kalām* means speech, discourse, or, in Islamic intellectual history, systematic theological reasoning. The two are distinct, but they belong to the same wider human vocation described in this section. Q.55:1–4 emphasizes taught expression; Q.96:1–5 emphasizes the pen and taught knowledge;

and Islamic *kalām* later represents disciplined reflection on revelation, reason, and creation. Expression, writing, and theology should therefore not be confused, but all three show humanity as a creature capable of receiving, preserving, interpreting, and answering divine guidance.

Q.2:1–2 gives these verses their deepest epistemic frame. Maulana Muhammad Ali renders *Alif Lām Mīm* as *"I, Allah, am the Best Knower,"* and translates the next verse: *"This Book, in which there is no doubt, is a guide to those who keep their duty."* This sequence prevents the discussion from treating human knowledge as self-originating. Expression, reading, writing, symbolic culture, and scientific inquiry are affirmed as genuine human capacities, but their source and measure remain Allah's knowledge, and their proper orientation is trustworthy guidance. In the context of human evolution, biological ancestry can be studied scientifically, while humanity's vocation as a knowing, taught, expressive, record-making, duty-bearing, and morally accountable creature must be understood theologically. Human beings become answerable not simply because they make tools or preserve information, but because knowledge is received under divine authority and must be used with humility before the One who knows best and the Book that guides without doubt (Muhammad Ali, 2002).

The sequence that follows should therefore be read with one governing distinction in view: science reconstructs biological ancestry, anatomy, migration, ecology, tools, and culture, while revelation defines moral and prophetic responsibility. The fossil and genetic evidence can describe how human bodies and capacities developed over time, but Adamic responsibility concerns the moment humanity is addressed through knowledge, guidance, dignity, repentance, worship, and accountability before Allah.

The scientific sequence begins with early hominins after the human lineage diverged from the lineage leading to chimpanzees and bonobos. Fossils associated with forms such as *Sahelanthropus*, *Ardipithecus*, and related early hominins suggest early experiments in upright posture, altered dentition, and changing movement. This is not modern humanity and should not be forced into Adamic language. Its value here is preparatory: it shows that the human body has a deep natural history, and that the later theological question of Adamic responsibility arises within embodied creaturely development rather than outside it (Alemseged, 2023; Antón & Snodgrass, 2012).

The next stage is represented by australopiths, including species such as *Australopithecus afarensis* and *Australopithecus africanus*. These hominins were bipedal, though they retained features suited to climbing and had smaller brains than later members of the genus *Homo*. Bipedalism changed the relation between body and world: hands became increasingly available for carrying, gathering, tool use, protection, and social interaction. Theologically, this stage should be read modestly. It illustrates earthly dependence and gradual embodied preparation, not the full emergence of Qurʾānic moral personhood (Alemseged, 2023; Antón & Snodgrass, 2012).

Early *Homo*, including forms commonly associated with *Homo habilis*, marks another important transition. Larger brains, changes in teeth and jaws, and more consistent stone-tool use suggest increasing capacity to interact deliberately with the environment. Toolmaking matters because it shows intelligence, memory, planning, and adaptability. Yet tools alone do not define Adamic responsibility. Qurʾānic humanity is finally marked by moral address, taught knowledge, revelation, worship, and answerability before Allah (Antón & Snodgrass, 2012; Stringer, 2016).

Homo erectus and related populations show human prehistory becoming increasingly mobile, ecological, and cultural. These hominins had larger bodies, longer legs, more humanlike proportions, expanded ranges beyond Africa, improved tools, possible use of fire, endurance movement, and adaptation to varied environments. This stage reinforces the chapter's larger point: human emergence depends on a prepared world of climate, landscapes, food webs, water, fire, materials, and social learning. The biological story is never only about bodies; it also depends on the environments that make human life possible (Antón & Snodgrass, 2012; Stringer, 2016).

Later archaic humans and early modern humans bring the scientific timeline closer to the theological question. Populations such as *Homo heidelbergensis*, Neanderthals, Denisovans, and early *Homo sapiens* show larger brains, more complex tools, migration, care within groups, possible symbolic behavior, and genetic interaction among some populations. Modern *Homo sapiens* later developed increasingly complex language, art, ritual, long-distance exchange, agriculture, cities, writing, law, and religious traditions. At this point the question becomes unavoidable: when does biological humanity become morally addressed humanity? The book's answer remains methodological rather than speculative: science reconstructs ancestry and culture; revelation defines the moral vocation of humanity before Allah (Stringer, 2016; Zeberg et al., 2024).

Q.6:133 may be used here only with restraint. Maulana Muhammad Ali renders the verse as speaking of Allah's power to remove one people and make others successors after them, "even as He raised you up from the seed of other people." In its immediate setting, the verse concerns divine power over human communities and moral succession, not a scientific account of hominin ancestry. Still, its language of succession through prior seed can support a modest compatibility claim: later communities may arise through earlier biological and historical continuities while Allah remains the One who grants dignity, guidance, responsibility, and judgment. The verse should not be used to name pre-*Homo sapiens* populations, but it can help the reader think carefully about continuity, succession, and divine governance (Muhammad Ali, 2002).

The theological conclusion is clear but modest. Human biological origins may be studied through fossils, comparative anatomy, archaeology, genetics, and evolutionary theory. Adam's Qurʾānic significance lies at another level: prophetic address, knowledge, guidance, repentance, human dignity, and moral responsibility. Maulana Muhammad Ali notes that the Qurʾān does not state when or how Adam was born, nor does it state that he was the first man; he reads the Adam narrative as the story of human nature and of the prophet. This allows the book to distinguish biological firstness from prophetic firstness. Adam marks the beginning of conscious *tawḥīd*, revelation, accountable response, and the honored vocation of humanity, without requiring the Qurʾān to function as a fossil chronology. Q.2:1–2 strengthens this conclusion by placing Adamic knowledge under Allah, the Best Knower, and by identifying the Book as guidance without doubt for those who keep their duty (Muhammad Ali, 1996; Muhammad Ali, 2002).

This reading protects the discussion from two opposite errors. It avoids reducing human beings to biology alone, as if ancestry, anatomy, tools, and culture exhausted human meaning. It also avoids denying the scientific evidence for a long and complex human prehistory. The stronger synthesis is that human beings belong biologically within the natural history of life, while Qurʾānic humanity is defined by being taught,

addressed, guided, dignified, morally tested, and called to worship. Q.55:1–4 and Q.96:1–5 therefore belong naturally with the Adamic verses: expression, reading, the pen, and taught knowledge explain why Adamic responsibility is more than species membership. Q.2:1–2 adds the governing frame: Allah is the Best Knower, the Book is guidance without doubt, and the knowledge that makes humanity answerable is received under divine authority rather than grounded in human culture alone.

A final clarification concerns Eve, or *Ḥawwāʾ*. The Qurʾān refers to Adam's spouse, but it does not name her as Eve, does not make her the source of human fallenness, and does not require the later creation-from-rib narrative as part of its direct wording. For that reason, this book keeps its human-origins argument anchored in the Qurʾānic themes most explicit in the text: Adam, divine knowledge, the Book as guidance, teaching, expression, the pen, repentance, dignity, moral responsibility, and the beginning of prophetic address. Later traditions may be discussed elsewhere if needed, but section 11.5 remains focused on the Qurʾānic and Lahore Ahmadiyya boundary between biological continuity and morally accountable humanity (Muhammad Ali, 1996; Muhammad Ali, 2002).

Table 11.1 summarizes the Qurʾānic verses most directly connected with the discussion of plant evolution in Chapter 10 and animal and human evolution in this chapter:

Theme	Verse cluster	Qurʾānic emphasis	Use in the chapter
Large predators and human emergence	Q.24:45; Q.6:38; Q.42:29	Creatures move in varied forms, live in communities, and are dispersed within creation.	Clarifies that large predators were part of the ecological world into which human biological prehistory emerged. They shaped vigilance, cooperation, shelter use, tool use, fire use, movement, and social organization, but they should not be described as making human life impossible; rather, they formed one set of pressures within a prepared and changing environment (Antón & Snodgrass, 2012; Stringer, 2016; Smith et al., 2012).
Plant renewal and provision	Q.36:33–36; Q.50:7–11; Q.39:21; Q.6:99; Q.15:19–21	Water, revived earth, grain, gardens, fruits, pairs, vegetation, mountains, balanced growth, fruiting, ripening, similarity and difference, and measured provision.	Supports the discussion of plant evolution, soil preparation, fertility, reproduction, fruiting, ripening, and the vegetation base on which animal ecosystems, dinosaur-era food webs, and later mammalian habitats depend, without making the verses botanical or paleontological predictions.
Animal life from water	Q.24:45; Q.2:164	Living creatures are created from water and spread through water-dependent environments.	Frames the aquatic origin and continuing water dependence of animal life while leaving the scientific sequence to paleontology and evolutionary biology.
Creaturely diversity and communities	Q.42:29; Q.6:38; Q.16:68–69	Creatures are dispersed, live in communities, and display guided behavior and ecological roles.	Supports the chapter's emphasis on animal diversification, ecological distribution, pollination, migration, and interdependence.
Human stages and	Q.71:14; Q.71:17;	Human beings are formed through stages,	Allows cautious reflection on embodied development and deep biological

earthly dependence	Q.23:12–14; Q.22:5; Q.76:1	are materially connected to the earth, and have a period before being mentioned.	prehistory while distinguishing Qurʾānic theology from a technical evolutionary chart.
Adam, revelation, and responsibility	Q.2:1–2; Q.15:28–29; Q.38:71–72; Q.2:30–34; Q.17:70; Q.55:1–4; Q.96:1–5	Allah is the Best Knower; the Book contains no doubt and guides those who keep their duty; Adam is fashioned, honored, taught, spiritually addressed, granted expression, taught by the pen, and connected with responsibility, knowledge, and dignity.	Marks the theological boundary around human origins: in the Lahore Ahmadiyya reading, Adam begins prophetic and morally accountable humanity rather than necessarily biological firstness; Q.55:1–4 adds that human beings are taught expression, Q.96:1–5 adds reading, the pen, and taught knowledge, and Q.2:1–2 frames all human knowing under Allah, the Best Knower, and the Book as guidance without doubt. Together these verses present humanity as communicative, teachable, record-making, guided, duty-bearing, humble, and answerable before divine knowledge.

Summary: Chapter 11 completes the natural-history sequence that Chapter 10 prepared. Microbes made later animal life possible by transforming water, atmosphere, oxygen, nutrient cycles, energy flow, decomposition, and cellular complexity; plants then supplied photosynthetic food, soils, vegetation, seeds, fruits, grasses, habitats, and ecological structure. Within that prepared world, animal life diversified from aquatic beginnings into marine communities, land animals, dinosaur-era ecosystems, Cenozoic mammals, and finally human biological prehistory. Its theological conclusion remains deliberately bounded: biological continuity can be studied through fossils, ecology, genetics, and evolutionary theory, while Adamic responsibility belongs to revelation, taught knowledge, dignity, moral accountability, and guidance under Allah, the Best Knower.

Chapter 12: Islamic Intellectual Traditions and Evolutionary Interpretation

"Say: Travel in the earth, then see how He makes the first creation."
— Qurʾān 29:20, trans. Maulana Muhammad Ali

Key themes: Chapter 12 flows from Chapter 11's conclusion that biological continuity and Adamic responsibility must be distinguished. After tracing animal diversification, dinosaur-era ecosystems, Cenozoic mammals, and human biological prehistory, the book now turns from natural history to Islamic intellectual tradition and Qurʾānic hermeneutics. The question is no longer simply how life diversified, but how Muslims should interpret scientific evidence about life, ancestry, causality, and human origins under revelation. Early and medieval Muslim scholars provide models of observation, classification, causality, ethical disagreement, and theological restraint; contemporary Muslim scholars show the range of current approaches to evolution, especially human origins. The chapter groups Qurʾānic verses around observation, verification, divine command, measure, water, stages, signs, Adamic revelation, human dignity, taught expression, the pen, transmitted knowledge, divine knowledge, and creation's praise. Its main claim is disciplined compatibility: Muslims can welcome scientific inquiry as study of Allah's signs, but they must avoid careless prediction, preserve humility and justice in disagreement, and maintain the theological boundary around Adam, *tawḥīd*, dignity, expression, knowledge, and accountability.

Table 12.1 summarizes how key Qurʾānic verse clusters shape the interpretive approaches discussed in this chapter:

Verse cluster	Main principle	Interpretive role
Q.29:20; Q.10:101; Q.45:3–5	Observation of creation, heavens, earth, living creatures, and signs.	Supports science-friendly Muslim approaches that see empirical investigation as compatible with faith when guided by humility and theological care.
Q.36:82; Q.54:49; Q.25:2; Q.87:2–3	Divine command, measure, determination, completion, and guidance.	Supports theological approaches that allow natural causes to operate within divine command and measure rather than outside God's lordship.
Q.15:28–29; Q.38:71–72; Q.2:30–34	Adam's role as representative, recipient of spirit, possessor of knowledge, and bearer of moral responsibility.	Marks the theological boundary around human origins and explains why Muslim scholars treat human evolution more cautiously than non-human evolution; in the Lahore Ahmadiyya reading, this boundary concerns Adam's prophetic and moral role—revelation, spirit, knowledge, and responsibility—rather than a requirement that he be the first biological human.
Q.17:70; Q.95:4	Human dignity and the best form.	Protects the discussion from reducing human beings to biology alone; scientific ancestry questions must be distinguished from moral and spiritual status.
Q.6:38; Q.16:48–49; Q.17:44; Q.24:41	Creatures as communities, creation in submission, and beings glorifying God.	Supports sacred-ecological readings that resist scientism and treat nature as spiritually meaningful, not merely mechanical.

Q.42:15; Q.49:6; Q.17:36	Justice, verification, and responsibility in claims of knowledge.	Provides ethical discipline for scholarly disagreement: the evolution debate should be handled with fairness, evidence, and restraint.

12.1 Early and Medieval Islamic Scholars and Natural History

Chapter 11 completed the book's chronological movement through cosmic, geological, microbial, plant, animal, and human biological development, ending with the most sensitive boundary: biological ancestry can be studied scientifically, while Adamic responsibility belongs to revelation, taught knowledge, dignity, moral accountability, and guidance under Allah, the Best Knower. Chapter 12 now asks how Muslims should interpret that boundary. It turns from the sequence of natural history to the history of Islamic reasoning about nature, change, causality, scientific evidence, and divine wisdom. This shift prevents the discussion from becoming only a scientific survey. It also shows that divinely directed evolution depends not only on fossils, physiology, ecology, genetics, and biology, but on how revelation, reason, observation, and theological caution are held together.

Qurʾān 42:15 gives this interpretive turn an ethical foundation. The verse commands steadfast invitation, belief in all revealed books, and justice between communities, while declaring: "Allah is our Lord and your Lord. For us are our deeds and for you your deeds." In a chapter about evolution and Islam, this matters because disagreement over origins can easily become polemical. The Qurʾānic posture is not arrogance or dismissal, but justice, patience, clarity, and accountability before the same Lord. Muslim engagement with science should therefore remain intellectually serious, morally disciplined, and fair to those who differ (Muhammad Ali, 2002).

Before turning to Darwin and modern evolution debates, it is important to recognize that Muslim engagement with nature, animals, gradual development, and the order of creation did not begin in the modern period. Early Islamic scholars wrote in intellectual worlds very different from modern evolutionary biology, but several of them paid close attention to observation, classification, causality, environment, and the hierarchy of created beings. Their work is not Darwinian evolution and should not be forced into that category. It does show, however, that premodern Islamic thought could study nature as an ordered system governed by patterns, relationships, and divine wisdom.

Al-Jahiz is especially relevant. His *Kitāb al-Ḥayawān* was a major Arabic work on animals, literature, theology, language, and natural observation. In discussing animals, habitats, behavior, food chains, and relationships among organisms, al-Jahiz treated nature as interconnected rather than as a collection of isolated creatures. Some modern historians have compared his discussions of struggle, adaptation, and environmental influence to later evolutionary ideas, but the comparison must remain cautious: he did not formulate Darwin's theory of natural selection, common descent, or population genetics. His value for this book is different. He shows that an early Muslim scholar could observe animal life seriously, reflect on ecological relationships, and still place that study within a theological worldview in which God is the creator and sustainer of the natural order (Bayrakdar, 1983; Egerton, 2002).

Ibn Khaldun provides another useful model. In the *Muqaddimah*, he argued that historians must understand the laws, conditions, and transformations that shape human society. His method matters here because this book also resists isolated

claims and instead places creation, life, environment, and human history within larger patterns. Ibn Khaldun sought causes, contexts, stages, and change over time. Applied to creation and natural history, that habit supports disciplined interpretation: one should neither accept weak reports uncritically nor impose modern ideas onto earlier texts without method. This parallels the book's central caution against reading science into the Qurʾān too quickly (Ibn Khaldun, 2005).

Al-Biruni adds a model of disciplined observation and comparison. His *Kitāb al-Hind*, available in Edward C. Sachau's English translation as *Alberuni's India*, shows careful attention to measurement, language, sources, and cultural context. In studying India, he learned Sanskrit, consulted Indian sources, compared claims, and distinguished what reason could accept from what required criticism. For this book, al-Biruni represents inquiry that tests, documents, compares, and tries to understand another civilization on its own terms. This supports Q.29:20 as a call to investigate creation through travel, observation, and evidence. It also strengthens the book's wider method: Muslim scholars could study the earth, cultures, calendars, and natural phenomena rigorously while remaining within a religious worldview (Al-Biruni, 1910/2012; Mukhamedov & Turambetov, 2025).

Ibn Sina offers another point of reflection through his natural philosophy and psychology of the soul. In his framework, living beings were often understood through levels of activity: the vegetative soul associated with nutrition, growth, and reproduction; the animal soul associated with sensation and voluntary movement; and the rational soul associated with human reasoning. This is not Darwinian common descent, but it is a structured way of thinking about life in ordered degrees of capacity. The parallel with later physiology is suggestive: physiological teaching has often distinguished autonomic or vegetative regulation, somatic functions of sensation and movement, and higher intellectual activity. For this book, Ibn Sina helps show why premodern Muslim thought could speak about minerals, plants, animals, and humans in a layered hierarchy without reducing human beings to animals. Natural functions can be studied in levels, while human rationality and moral responsibility remain theologically significant (Ackerknecht, 1974; Barboi & Macefield, 2025; Gutas, 2014; Ibn Sina, 1952/2000).

Nasir al-Din al-Tusi is relevant because some discussions of his *Nasirean Ethics* identify a graduated hierarchy from elements to minerals, plants, animals, and human beings. This should be handled carefully: al-Tusi was not developing modern evolutionary biology, and his framework was metaphysical and teleological rather than Darwinian. Still, his writing shows that some Muslim philosophers could imagine nature as an ordered ascent of capacities, with forms of existence described in relation to increasing complexity and perfection. He therefore provides a premodern Islamic vocabulary for sequence, capacity, adaptation, and ascent without collapsing that vocabulary into modern science (al-Tusi, 1964; Hameed, 2023).

More broadly, Islamic philosophical traditions reflected on creation through ordered levels. Writers influenced by Greek philosophy, Islamic theology, and natural observation often described the world as a hierarchy of minerals, plants, animals, and humans. These schemes were not evolution in the modern biological sense, but they encouraged reflection on boundaries, transitions, capacities, and the relation between lower and higher forms of life. They help this book by showing that Muslim thinkers had conceptual tools for discussing continuity and gradation in creation long before modern paleontology or genetics. At the same time, their aims were usually moral,

metaphysical, and theological: they sought to show order, wisdom, and purpose, not random or purposeless development (Gutas, 2014; Hameed, 2023; al-Tusi, 1964).

The early Islamic scholarly tradition therefore helps the book in two ways. First, it shows that reflection on nature was part of Muslim intellectual life long before modern science. Scholars could discuss animals, plants, climate, geography, history, and human society as fields of inquiry without treating observation as a threat to faith. Second, it reminds modern readers that compatibility arguments must be humble. Early scholars interpreted verses such as Q.21:30, Q.41:11, and Q.24:45 through the knowledge and language of their own times. Their example cautions against claiming that every modern scientific meaning was explicitly present in classical Qurʾānic commentary.

For this reason, early Islamic scholars should be used neither as proof that Darwinism was already fully present in Islam nor as evidence that Islam rejected natural investigation. A balanced reading places them between those extremes. They represent curiosity, observation, rational analysis, and theological restraint. In this book, they serve as a bridge between classical Qurʾānic commentary and modern science by showing that Muslims have long asked how creation is ordered, how living beings relate to their environments, and how knowledge of the natural world can deepen reverence for God.

12.2 Contemporary Islamic Scholars, Evolution, and Qurʾānic Hermeneutics

Contemporary Islamic scholarship on evolution brings Chapter 11's human-origins discussion into the present. The issue is not simply whether Muslims accept or reject evolution in general, but how they interpret common ancestry, human biological prehistory, Adam, revelation, dignity, taught expression, the pen, and moral accountability together. Some scholars reject human common ancestry, some accept non-human evolution while drawing a theological boundary around Adam, and others explore broader compatibility between evolutionary science and Islamic theology. The Lahore Ahmadiyya tradition used in this book offers a distinctive reading: Adam is not necessarily the first biological human being, but the first divinely appointed representative or messenger in a morally awakened human community. This interpretation does not weaken the Adamic narrative; it sharpens its theological focus. Adam becomes the beginning of prophetic address, knowledge, *tawḥīd*, responsibility, and guidance rather than merely the first anatomical human. Several Qurʾānic themes shape this debate: creation by command and measure (Q.36:82; Q.54:49), life from water (Q.21:30; Q.24:45), human formation from earthly materials and through stages (Q.15:26; Q.23:12; Q.32:7; Q.22:5; Q.23:12–14; Q.71:14), Adam's teaching and moral responsibility (Q.2:30–34), human dignity (Q.17:70), and the invitation to observe how creation began (Q.29:20). In this reading, Adam marks prophetic and morally accountable humanity rather than biological firstness. Q.55:1–4, Q.96:1–5, and Q.2:1–2 further frame humanity as expressive, teachable, record-making, guided, duty-bearing, humble, and answerable before Allah, the Best Knower, and before the Book that guides without doubt (Muhammad Ali, 2002).

The popular question, "Do human beings come from apes or not?" is too simple to carry the religion-and-evolution discussion. Scientifically, evolutionary biology does

not claim that modern humans descend from modern apes; it speaks of shared ancestry, branching lineages, common descent, and long histories of biological change. Theologically, the deeper question is what makes human beings morally addressed by God: revelation, knowledge, accountability, dignity, and the capacity to recognize and proclaim the Unity of Allah. The Lahore Ahmadiyya reading makes that distinction explicit. Adam is not primarily a biological boundary marker but a prophetic and moral beginning. A serious Islamic treatment of evolution must therefore move beyond slogans and ask how biological continuity, divine guidance, Adamic responsibility, and human honor can be understood together without reducing either science or revelation to a caricature (Muhammad Ali, 2002; Muhammad Ali, 1996; Malik & Jalajel, 2024).

Lahore Ahmadiyya sources strengthen the chapter when treated as interpretive foundations rather than substitutes for scientific or historical scholarship. Maulana Muhammad Ali's *The Religion of Islam* supports broad theology, divine attributes, reason, revelation, and the rational presentation of Islam. His *Introduction to the Holy Quran* supports hermeneutics, Qurʾānic structure, and methodological caution. His treatment of Adam in *History of the Prophets* is especially important because it states that the Qurʾān does not say Adam was the first man and reads the Adam narrative as the story of human nature and of the prophet. Khwaja Kamal-ud-Din's *A Running Commentary on the Holy Quran* may serve as a second Lahore Ahmadiyya interpretive voice. These sources should be presented as tradition-specific theological supports, while scientific claims should continue to rely on relevant scientific literature (Kamal-ud-Din, 1947; Muhammad Ali, 1936/1990; Muhammad Ali, 1936/2022; Muhammad Ali, 1996).

A few additional Lahore Ahmadiyya sources may be used selectively for context. The official *Introducing the Lahore Ahmadiyya Movement* and Zahid Aziz's historical and introductory works can help explain the movement's reformist, rational, missionary, and Qurʾān-centered posture. Maulana Muhammad Ali's *The Living Thoughts of the Prophet Muhammad* may also support the Afterword's emphasis on dignity, service, moral reform, and practical embodiment of Qurʾānic guidance. These works should remain secondary contextual references so that the book's main evidentiary weight continues to rest on Qurʾānic interpretation, philosophy of religion, Islamic intellectual history, and peer-reviewed scientific scholarship.

Nidhal Guessoum represents a science-friendly approach that encourages Muslims to take modern science seriously while avoiding simplistic "scientific miracle" claims. He argues that many conflicts between Islam and evolution arise from weak philosophy of science, poor public understanding of evolution, and overly literal or selective readings of religious texts. In this framework, Q.29:20 is central because it encourages observation of the natural world; scientific investigation should not be treated as a threat to faith (Muhammad Ali, 2002; Guessoum, 2010). Q.3:190–191, Q.10:101, and Q.45:3–5 support the same posture by presenting the heavens, earth, living creatures, night and day, and provision from the sky as signs for reflection. Guessoum's strength is intellectual openness; the risk, from more traditional perspectives, is that this openness may understate the theological distinctiveness of Adam and revelation (Guessoum, 2010).

Shoaib Ahmed Malik offers a more explicitly theological and hermeneutical approach. Rather than asking only whether evolution is scientifically plausible, Malik asks how Islamic theology—especially through al-Ghazālī and Ashʿarite thought—can

address causality, chance, divine action, and scriptural interpretation. This is useful because evolution raises metaphysical as well as biological questions: does natural selection replace God, or can it be understood as part of the created order through which God acts? Qurʾānic verses such as Q.36:82, Q.54:49, Q.25:2, and Q.87:2–3 allow Muslims to speak of regular natural causes without treating those causes as independent of God. Malik's contribution is to show that Muslims need not choose between crude creationism and materialist naturalism; they can analyze evolution through theology, causality, and careful interpretation (Malik, 2021; Malik & Jalajel, 2024; Muhammad Ali, 2002).

More conservative contemporary Muslim approaches emphasize that the Qurʾānic account of Adam sets theological boundaries that cannot be dissolved into a purely naturalistic account of human origins. Q.15:28–29 and Q.38:71–72 describe Adam being fashioned and receiving the divine spirit; Q.2:30–34 presents Adam as a representative, as one taught by God, and as part of a moral drama involving the angels and Iblis; Q.7:11–12 and Q.20:115–123 connect Adam with command, covenant, error, guidance, and responsibility; Q.95:4 and Q.17:70 emphasize human form and dignity (Muhammad Ali, 2002). The Lahore Ahmadiyya interpretation adopted in this book preserves that caution while avoiding an unnecessary biological claim: it does not require Adam to be the first biological human being, but treats Adam as the first messenger or representative of morally responsible humanity. This keeps the theological weight on revelation, knowledge, accountability, and divine guidance while allowing biological prehistory to be discussed more openly (Malik & Jalajel, 2024; Muhammad Ali, 1996).

Seyyed Hossein Nasr offers a different critique. His concern is not only with scientific claims but with scientism, which can reduce nature to mechanism and strip creation of sacred meaning. His perspective helps interpret verses such as Q.17:44, where everything glorifies God; Q.24:41, where all beings know their prayer and glorification; Q.6:38, where creatures are described as communities; Q.55, with its repeated reflection on balance and mercy; and Q.30:41, where corruption on land and sea is linked to human action (Muhammad Ali, 2002). These verses suggest that nature is not spiritually mute. Even if biological mechanisms explain how forms change, the Qurʾān invites believers to see the natural world as sign, praise, community, trust, and disclosure of divine wisdom. Nasr's approach therefore cautions against treating evolution as a complete metaphysical explanation: it may explain biological change, but it cannot exhaust the meaning of creation (Nasr, 1996; Malik, 2022).

Contemporary Muslim thinkers occupy a wide range of positions. Some emphasize purpose in nature and resist treating randomness as ultimate, while others focus on philosophy of science, scriptural interpretation, and the limits of certainty in evolutionary inference. These concerns can be related to Q.67:3–4, which invites repeated observation of creation's coherence; Q.20:50, where Moses says that God gave everything its form and then guided it; Q.17:36, which warns against following what one has no knowledge of; and Q.49:6, which calls for verification of reports (Muhammad Ali, 2002). Recent scholarship shows that Islam-and-evolution debates differ across Sunni, Shiʿi, Indonesian, Iranian, Arab, South Asian, and Western Muslim contexts. There is therefore no single modern "Islamic view" of evolution, but a diverse field shaped by Qurʾānic interpretation, theology, philosophy, biology, epistemology, and religious authority (Malik & Jalajel, 2024).

Together, these contemporary reflections can be grouped into several Qurʾānic clusters. Q.21:30, Q.24:45, and Q.2:164 frame life through water, renewal, and living creatures, while leaving abiogenesis and diversification to science. Q.71:14, Q.39:6, Q.22:5, and Q.23:12–14 describe formation, stages, and embodied development. Q.35:27 and Q.57:25 connect Earth's preparation with geological variety, minerals, iron, strength, and benefit. Q.29:20, Q.10:101, and Q.45:3–5 encourage inquiry through travel, observation, and the study of creation. The Adamic passages—Q.15:28–29, Q.38:71–72, Q.2:30–34, Q.7:11–12, Q.17:70, and Q.95:4—mark revelation, dignity, responsibility, and humanity's honored status without requiring Adam to be the first biological human being. Q.55:1–4 and Q.96:1–5 further identify humanity through taught expression, reading, the pen, knowledge, communication, transmission, and accountability. Other passages emphasize divine command and measure (Q.36:82; Q.54:49; Q.25:2; Q.20:50; Q.87:2–3), creation as signs, praise, submission, balance, and communities (Q.3:190–191; Q.16:48–49; Q.17:44; Q.24:41; Q.6:38; Q.55), and justice in disagreement (Q.42:15). Together, these clusters guide Muslim engagement with evolution: investigate creation honestly, interpret it humbly, protect human dignity, and debate origins with justice and accountability before Allah (Muhammad Ali, 2002).

The value of contemporary scholarship, then, lies not in producing a single answer but in clarifying the questions. Guessoum presses Muslims to take science and Qur'anic interpretation seriously in light of verses that call for observation and reflection. Malik asks how theology can make room for natural causality without surrendering divine action, especially in light of verses about command, measure, proportion, and guidance. Khan and Qadhi insist on the theological boundary around Adam by foregrounding verses about Adam's creation, knowledge, spirit, honor, and responsibility. Nasr warns against reducing nature to mechanism by emphasizing verses about praise, signs, balance, and the moral meaning of creation. Together, these perspectives strengthen the book's balanced conclusion: the Qur'an provides a theological syntax of creation, while science investigates the mechanisms and history of the created world (Guessoum, 2010; Khan & Qadhi, 2018; Malik, 2021; Malik, 2022; Muhammad Ali, 2002).

Summary: Chapter 12 follows naturally from Chapter 11 by asking how Muslims should interpret the scientific history of life once the distinction between biological continuity and Adamic responsibility has been made. Early Muslim scholars provide models of observation, classification, causality, comparison, and restraint without being turned into modern evolutionists. Contemporary Muslim scholars show that the debate is not a single yes-or-no question, especially when human origins, Adam, dignity, revelation, taught expression, the pen, knowledge, and accountability are involved. The chapter's guiding conclusion is that Muslims may study natural history as Allah's signs while preserving the distinction between scientific reconstruction, philosophical interpretation, and Qurʾānic guidance. This prepares Chapter 13, where Darwin and natural selection are treated as scientific mechanisms that can be studied honestly without being made either rivals to Allah or substitutes for the theological meaning of creation.

Chapter 13: Darwin, Natural Selection, and Created Means

"Our Lord is He Who gives to everything its creation, then guides it."
— Qurʾān 20:50, trans. Maulana Muhammad Ali

Key themes: Chapter 13 flows from Chapter 12's conclusion that Muslims should distinguish scientific reconstruction, philosophical interpretation, and Qurʾānic guidance. After Chapter 12 surveys Islamic intellectual traditions and contemporary Muslim debates about evolution, this chapter turns to Darwin as the central scientific figure whose account of natural selection reshaped modern biology. Darwin's contribution is treated as a scientific account of biological evolution through inherited variation, natural selection, adaptation, descent with modification, ecological struggle, and common ancestry. Darwin is a major scientific voice, not a theological authority, and the Qurʾān is not made Darwinian. Q.20:50, Q.29:20, Q.67:3–4, Q.87:2–3, Q.6:38, and the Adamic verses provide the theological horizon for discussing form, guidance, observation, measure, creaturely communities, and human dignity. Evolutionary mechanisms can be real scientific explanations while remaining within Allah's sustaining order: they do not remove dependence on Rabb, and they do not exhaust the meaning of creation.

Table 13.1 shows how selected Qurʾānic principles guide the theological reading of Darwin's scientific contribution:

Darwinian theme	Relevant Qur'anic principle	Theological reading
Variation within populations	Q.30:22: diversity among human languages and colors as signs.	Variation is not spiritually meaningless; diversity in creation can be contemplated as a sign even when science studies its material causes.
Natural selection and adaptation	Q.20:50: God gives each thing its creation, then guides it.	Adaptation may be studied as a biological mechanism while divine guidance remains the deeper theological horizon in which organisms receive forms, capacities, and environmental fit.
Gradual change over time	Q.71:14 and Q.87:2–3: creation in stages; creation, measure, and guidance.	Gradual development need not imply purposelessness; it can be interpreted as one mode through which created capacities unfold under divine measure.
Descent with modification	Q.29:20: travel through the earth and observe how creation begins.	The fossil record, biogeography, comparative anatomy, and genetics belong to the empirical investigation of origins, while theology asks how such origins are meaningful before God.
Ecological struggle and interdependence	Q.6:38: creatures are communities like human beings.	Competition, cooperation, predation, migration, and community structure can be studied scientifically while still being placed within a moral vision of creaturely significance.
Human origins as the most sensitive case	Q.15:28–29; Q.38:71–72; Q.17:70: Adam, spirit, revelation, and human honor.	Darwinian mechanisms may explain biological continuity, while the Lahore Ahmadiyya reading treats Adam primarily as the first messenger or representative of morally responsible humanity. This preserves revelation, *tawḥīd*, dignity, and accountability without requiring Adam to be the first biological human.

13.1 Reflection on Darwin's *On the* Origin *of Species*

After Chapter 12's survey of Muslim approaches to natural history and evolution, Darwin enters as a different kind of authority: not a theologian, jurist, or Qurʾānic interpreter, but a scientist whose work clarified one of biology's central mechanisms. This transition matters because Chapter 12 established the interpretive discipline needed here. Darwin can explain how populations change through inherited variation, differential survival, reproduction, adaptation, and descent with modification, but he does not decide the ultimate theological meaning of creation. The question for this chapter is therefore not whether Darwin replaces revelation, but how Darwinian mechanism can be studied honestly as a created means under Allah as Rabb.

Darwin's *On the Origin of Species*, first published in 1859, is important for this book because it gave a coherent scientific mechanism for biological development: natural selection acting on inherited variation over long periods of time. Darwin argued that organisms vary, that some variations affect survival and reproduction, and that favorable traits can become more common across generations. This transformed the study of life from a largely static view of separately fixed species into a historical view of "descent with modification," where living forms are connected through branching relationships and gradual change (Darwin, 1859/2002; Mayr, 1982).

For the argument of this book, Darwin's contribution is not that he answered theological questions, but that he offered a disciplined way to explain biological diversity through observable natural processes. His method relied on evidence from artificial selection, variation in nature, geographical distribution, fossils, embryology, classification, and comparative anatomy (Darwin, 1859/2002; Mayr, 1982). This evidentiary method is relevant to Q.29:20, which invites people to travel through the earth and observe how creation began. A Qur'anic reflection on natural history can therefore value empirical investigation without collapsing scientific explanation and theological meaning into the same category.

Qur'an 20:50 offers a concise theological lens through which Darwin's account can be discussed without turning Darwin into a theologian. Moses says that his Lord is the One "Who gives to everything its creation, then guides it." This verse does not state a biological theory, but it joins form and guidance: created things have structures, capacities, limits, and paths appropriate to their existence. Read carefully, it allows a believer to study adaptation, inherited variation, and ecological fit without assuming that divine guidance must appear only as interruption from outside nature. Natural selection may describe one mechanism by which organisms become fitted to environments, while Q.20:50 frames created form and guidance as ultimately dependent on God.

Darwin's emphasis on gradual accumulation also fits the book's repeated theme of stages. Q.71:14 speaks of humans being created *aṭwāran*, or in stages, while the scientific story reviewed in this book moves from geological preparation to microbes, plants, animals, dinosaurs, mammals, and human origins. Darwin did not write about the Qur'an, and his theory should not be forced into the text. Still, his model helps explain why modern readers are interested in Qur'anic language about stages, water, growth, and the earth bringing forth life. The Qur'an gives a theological vocabulary of order and divine measure; Darwin gives a biological account of how variation, selection, adaptation, and branching descent can generate diversity within the created order (Darwin, 1859/2002; Mayr, 1982).

At the same time, Darwin's work raises the strongest interpretive challenges for Islamic thought when it comes to common descent and human origins. In the biological sciences, common ancestry is a central organizing idea, but Islamic theology treats Adam as a figure of revelation, knowledge, moral responsibility, and human dignity. The Lahore Ahmadiyya interpretation used in this book allows a more open discussion of biological continuity while preserving the theological point that humanity's moral and spiritual vocation cannot be reduced to biological ancestry alone. The book therefore presents Darwin as a major scientific framework, not as a theological authority.

Darwin's theory also strengthens the ecological sections of this book. Natural selection does not act on organisms in isolation; it operates within environments shaped by climate, geography, food webs, competition, predation, dispersal, and reproduction (Bascompte & Jordano, 2007; Darwin, 1859/2002; Mayr, 1982). This supports the book's discussion of dinosaurs and megafauna as ecosystem engineers. Seed dispersal, dung deposition, browsing, grazing, trampling, and predator-prey dynamics are not side issues; they are part of the ecological setting in which selection occurs and ecosystem function is maintained (Malhi et al., 2016; Schupp et al., 2010).

Qur'an 67:3–4 strengthens the Darwin chapter by reinforcing the discipline of repeated observation. The passage invites the reader to look again and again at creation and to see whether there is any flaw in it. This does not make the Qur'an a Darwinian text, but it does support the intellectual habit that Darwin practiced: careful observation, comparison, pattern recognition, and willingness to test appearances against evidence. Darwin's method depended on repeated attention to variation, fossils, geographical distribution, domestication, and comparative anatomy. A believer can therefore value the observational discipline of evolutionary biology while still understanding the coherence of nature as a sign of divine measure and guidance (Muhammad Ali, 2002; Darwin, 1859/2002; Mayr, 1982).

The most balanced reflection therefore neither rejects Darwin outright nor turns the Qur'an into a Darwinian textbook. Darwin's *Origin* helps explain the natural mechanisms by which biological diversity can arise over deep time, while the Qur'an speaks of meaning, purpose, dependence on God, and the moral place of human beings. The two levels should be brought into conversation without being collapsed. Darwin sharpens the scientific question of how life diversified; the Qur'an reframes the ultimate question of why creation exists, who sustains it, and how human beings should respond with humility, observation, gratitude, and responsibility.

Qur'an 87:2–3 also helps summarize the theological boundary around Darwinian explanation: God "creates, then makes complete," and "measures, then guides." The sequence of creating, completing, measuring, and guiding fits the book's larger claim that natural development need not be interpreted as purposeless. Darwinian mechanisms can be studied as real biological processes, but the believer may still see measure, completion, and guidance as the deeper theological horizon within which those processes unfold (Muhammad Ali, 2002).

Chapter 14: Measure, Balance, and Final Synthesis

"And the heaven, He raised it high, and He set up the measure, that you may not exceed the measure."
— Qurʾān 55:7–8, trans. Maulana Muhammad Ali

"Surely We have created everything according to a measure."
— Qurʾān 54:49, trans. Maulana Muhammad Ali

Key themes: The final synthesis defines *divinely directed evolution* as a theological framework for reading the ordered development and sustaining balance of creation under Allah as Rabb, while preserving the strict scientific meaning of biological evolution as descent with modification, inherited variation, adaptation, natural selection, and common ancestry. Cosmic development, Earth's preparation, biological evolution, physiological homeostasis, ecosystem balance, human moral awakening, and ecological responsibility are gathered under the Qur'anic grammar of creation, *mīzān*, *qadar*, signs, provision, guidance, dignity, worship, and accountability. The book's controlling method remains clear: readers should not reduce the Qur'an to a modern science textbook, and they should not turn science into a metaphysics of purposelessness.

14.1 Reading Science and Scripture with Methodological Caution

The conclusion must state the method clearly. This book has not argued that the Qur'an directly predicts modern cosmology, geology, microbiology, paleontology, genetics, physiology, ecology, or evolutionary theory. It makes a more restrained and, for that reason, stronger claim. The Qur'an gives a theological grammar for reading creation: water, stages, measure, balance, signs, provision, guidance, dignity, accountability, worship, and the lordship of Allah as Rabb. Science investigates mechanisms, histories, patterns, and evidence within the created order. Readers confuse the two when they force revelation into technical scientific categories or turn scientific method into a philosophy that denies meaning, purpose, or divine sustaining command.

This methodological distinction matters especially for the phrase *divinely directed evolution*. In the strict scientific sense, evolution refers to biological evolution: descent with modification, inherited variation, natural selection, adaptation, and common ancestry. In the broader theological sense used in this book, divinely directed evolution refers to the ordered unfolding, sustaining, adaptation, and guidance of creation under Allah's lordship. Cosmic formation, geological preparation, physiological homeostasis, ecosystems, and human moral awakening do not count as biological evolution in the technical sense; they form related levels of development, regulation, balance, and guidance that create the wider context in which biological evolution occurs and becomes theologically meaningful.

Modern scientific readings of Qur'anic verses must therefore remain careful. Q.21:30 may resonate with cosmic separation and with life's dependence on water, but readers should not reduce it to a technical statement of the Big Bang. Q.41:11 may invite reflection on an early smoke-like or diffuse condition, but readers should not treat it as a modern cosmology lesson. Q.51:47 may resonate with cosmic vastness and expansion, but its primary force remains the greatness and power of Allah. Likewise, readers should approach verses about animals from water, human stages, and the earth bringing forth vegetation first as theological signs. Their scientific resonance becomes valuable when it deepens reflection, not when it replaces careful interpretation (Muhammad Ali, 2002). The same caution applies to modern observatories such as Hubble and Webb: their discoveries make cosmic depth, early structure, and observational humility vivid, but the Qurʾān should not be made dependent on any current telescope result or changing cosmological model.

14.2 Allah as Rabb and the Theological Logic of Development

The strongest theological support for divinely directed evolution is the Qur'anic name Rabb. In Maulana Muhammad Ali's explanation, Rabb means the One who nourishes, regulates, completes, and guides creation through successive conditions toward fulfilment. Q.87:2–3 gives the same pattern in compressed form: Allah creates, completes, measures, and guides. The book's argument is that natural development can be read within this sustaining lordship rather than against it (Muhammad Ali, 2002).

Within this framework, natural causes do not compete with divine action. Rain nourishes vegetation, food nourishes the body, feedback restores physiological stability, ecosystems sustain livable conditions, parents bring children into the world, and natural selection can shape adaptation. These causes are real created means, but they are not self-sufficient. The Qur'an repeatedly draws attention to observable processes while returning them to Allah's command, measure, mercy, and guidance. The argument is therefore not a God-of-the-gaps claim, but a theology of created means under Rabb, *mīzān*, *qadar*, and signs (Muhammad Ali, 2002; Guessoum, 2010; Malik, 2021).

14.3 Biological Evolution, Homeostasis, and Ecosystems as One Sustained Life-Argument

The scientific support for the book's thesis is cumulative. The argument has moved through cosmic order, Earth's geological preparation, life from water, microbial transformation, plant evolution, animal diversification, mammalian ecosystems, and human biological prehistory. Biological evolution becomes possible only within this layered preparation: stars supply elements; planetary formation gives Earth structure; water, atmosphere, magnetic shielding, climate, minerals, and soils create habitable settings; microbes transform chemistry and atmosphere; plants build productive landscapes; and ecosystems provide the relational conditions in which organisms survive, reproduce, compete, cooperate, and adapt. Darwinian mechanisms explain biological diversification within this prepared history, but they do not by themselves explain why there is an ordered, intelligible, life-bearing creation at all.

Homeostasis and ecosystems strengthen the evolutionary argument by showing how life remains viable while it changes. Homeostasis regulates the internal conditions of the body; ecosystems sustain the external conditions of life. Evolution explains biological diversification, but survival and adaptation depend on both inner regulation and outer ecological support.

Here *mīzān* becomes an ethical principle. In the body, balance appears as homeostasis; in the environment, it appears as the ecological conditions that sustain air, water, food, habitat, climate stability, and biodiversity. To transgress environmental balance is therefore to endanger bodily health, public health, agriculture, and social stability. Climate change, pollution, water stress, soil degradation, food insecurity, and biodiversity loss show how damaged external balance returns to the human body as heat stress, dehydration, respiratory burden, malnutrition, infection risk, cardiovascular strain, and wider social harm (IPCC, 2022; WHO, 2023; Muhammad Ali, 2002).

14.4 Strong Support for Divinely Directed Evolution

Strong support for divinely directed evolution emerges from convergence rather than from any single verse, fossil, or analogy. The theological support is Allah as Rabb, who creates, nourishes, regulates, completes, measures, and guides. The scientific support is the layered history through which earlier conditions prepare later possibilities. The physiological and ecological support is that life is not merely produced once, but continually sustained through internal regulation and external balance. The hermeneutical support is the Qurʾānic grammar of water, stages, signs, measure, balance, provision, guidance, dignity, worship, and accountability. Together these strands form a disciplined synthesis without turning scripture into a science textbook or science into a metaphysics of purposelessness.

The conclusion also returns to the epistemic verses that frame the whole book. Q.2:1–2 places all knowledge under Allah, the Best Knower, and identifies the Book as guidance without doubt for those who keep their duty. Q.55:1–4 shows that the Beneficent teaches the Qurʾān, creates the human being, and teaches expression. Q.96:1–5 begins revelation with reading, creation, the pen, and knowledge previously unknown. Together these verses complete the book's final argument: human beings may observe the heavens, study the earth, trace biological history, practice medicine, write, teach, and reason, but their knowledge is not self-originating or morally neutral. It is taught, entrusted, guided, and answerable. Science therefore has dignity as disciplined inquiry into created order, while revelation gives that inquiry its highest orientation: humility before Allah, confidence in the guidance of the Book, gratitude for taught expression and the pen, and responsibility for how knowledge is used.

Table 14.1 summarizes the final synthesis of the book's main levels of argument:

Level	Scientific focus	Theological reading	Caution preserved
Cosmos	Matter, stars, elements, time, expansion, and cosmic order.	Creation is vast, intelligible, ordered, and not in vain.	Cosmic development is not biological evolution.
Earth	Water, atmosphere, minerals, iron, continents,	Earth is gradually furnished as a habitable	Geological preparation is not biological

	mountains, climate, and soils.	world through measured provision.	evolution, but it makes biological history possible.
Biological life	Microbes, plants, animals, inherited variation, adaptation, natural selection, descent with modification, and common ancestry.	Biological evolution is a real created mechanism through which life diversifies within Allah's sustaining order.	This is evolution in the strict scientific sense.
Body	Homeostasis, physiological regulation, feedback, correction, adaptation, and health.	Life is preserved inwardly through *mīzān*, *qadar*, and continuous nourishing regulation.	Homeostasis is physiological regulation, not biological evolution.
Ecosystems	Climate, water cycles, soils, vegetation, biodiversity, food webs, pollination, decomposition, and nutrient cycling.	The external environment sustains the conditions in which organisms live, reproduce, adapt, and maintain homeostasis.	Ecosystem balance is ecological context, not a substitute for evolutionary mechanism.
Humanity	Human biological prehistory, culture, language, knowledge, moral awareness, and religious life.	Adam marks prophetic and morally accountable humanity in the Lahore Ahmadiyya reading.	Biological continuity does not erase revelation, dignity, *tawḥīd*, or accountability.

The table clarifies the book's terminology. Only biological diversification is evolution in the strict scientific sense; cosmic development, geological preparation, homeostasis, and ecosystems are supporting levels of created order. The theological synthesis reads these levels together as dependent, measured, and sustained under Allah's lordship.

Table 14.2 summarizes how the book's main chapters contribute to the final synthesis:

Book section	Main focus	Contribution to the synthesis
Front matter and Introduction	Purpose, method, interpretive safeguards, and chapter roadmap.	Establishes the book as one argument: science investigates created mechanisms while Qurʾānic faith interprets meaning, measure, guidance, and accountability.
Chapters 1–3	Origin, order, Qurʾānic signs, method, evidence, and compatibility.	Shows that philosophical reasoning, scientific inquiry, and Qurʾānic reflection overlap in theme while differing in method and purpose.
Chapters 4–5	Natural causes, reflective trust, cumulative arguments, moral value, religious experience, origin of life, and interpretive discipline.	Explains how faith can remain intellectually responsible without rejecting scientific explanation or reducing meaning to mechanism.
Chapters 6–9	Divinely directed evolution, cosmic origins, Earth's preparation, water, homeostasis, and ecosystem balance.	Places biological evolution within the wider created conditions that make life possible and sustainable.
Chapters 10–11	Microbes, plants, animals, human biological prehistory, Adam, dignity, and moral responsibility.	Shows how biological continuity can be discussed while preserving the theological significance of Adamic revelation, tawḥīd, accountability, and human honor.
Chapters 12–13	Islamic intellectual traditions, contemporary evolution debates, Darwin, natural selection, and created means.	Clarifies that evolutionary mechanisms are real scientific explanations, but they do not become self-sufficient accounts of

		meaning, purpose, or divine sustaining action.
Chapter 14	Measure, balance, ecological responsibility, and final synthesis.	Concludes the main argument by reading the created order as dependent, measured, relational, adaptive, balanced, and accountable before Allah as *Rabb al-ʿālamīn*.
Chapter 15 and Afterword	Medicine, compassion, worship, lived responsibility, devotional reflection, and future inquiry.	Applies the completed argument to personal and medical vocation, then closes with humility, gratitude, ecological care, and openness to further inquiry.

14.5 Concluding Synthesis

After the analytical synthesis of the preceding tables, this final reflection gathers the book's argument into a closing theological posture. It does not introduce a new line of evidence, but draws together the method, scientific examples, Qurʾānic themes, and moral implications already developed throughout the book. The purpose is to end not only with conceptual clarity, but with the response that such clarity should produce: humility before Allah, gratitude for taught knowledge, and responsibility within the created order.

This book has argued that science and faith need not stand in rivalry when each is allowed to speak according to its proper task. Science investigates mechanisms, histories, causes, and patterns within the created order. Revelation gives those realities their highest meaning: creation is not self-sufficient, purposeless, or morally neutral. The heavens, the earth, water, life, bodies, ecosystems, and human consciousness are fields of signs through which Allah calls human beings to observe, reflect, remember, and respond.

The strongest conclusion is therefore not that the Qurʾān is a hidden textbook of modern science, nor that science has no need of philosophical or theological interpretation. The stronger conclusion is that the created world is intelligible, measured, fruitful, and morally significant. Cosmic order, Earth's preparation, life from water, biological evolution, homeostasis, ecological balance, medicine, and human responsibility can be read together as different levels of one sustained reality under Allah as Rabb.

This synthesis also gives human knowledge its proper humility. Q.2:1–2 places all knowing under Allah, the Best Knower, and identifies the Book as guidance without doubt for those who keep their duty. Q.55:1–4 teaches that human expression itself is a divine gift. Q.96:1–5 teaches that reading, the pen, and knowledge previously unknown are also gifts from Allah. Human beings are therefore not merely organisms who survive, nor merely thinkers who analyze. They are taught, expressive, record-making, morally addressed creatures who must answer for how knowledge is used.

For that reason, scientific inquiry becomes more, not less, serious within faith. To study creation carefully is to honor the order Allah has placed within it. To practice medicine compassionately is to serve life entrusted by Allah. To protect ecosystems is to preserve the external balance upon which bodily life depends. To accept biological evolution as a scientific account of diversification need not deny divine action, provided one remembers that natural causes are created means and not independent rivals to the Creator.

The book's final position is therefore one of disciplined confidence joined to worshipful humility. The believer may welcome evidence, study natural history, respect scientific method, and accept the reality of biological evolution, while still affirming that existence, order, measure, guidance, dignity, and accountability depend on Allah. Creation unfolds through means, but it does not explain itself. Life changes through history, but it remains sustained. Human beings arise within biological continuity, but they are called beyond biology into knowledge, duty, worship, repentance, compassion, and responsibility.

To read creation well is therefore to read it with both mind and conscience. The world is not a closed machine without meaning, nor a random theatre of purposeless change. It is a measured trust, a field of signs, a living order, and a test. The proper response to such a world is not arrogance, denial, or exploitation, but gratitude, inquiry, service, ecological care, and surrender to Allah, the Best Knower, the Creator, Sustainer, Guide, and Judge of all worlds.

The book can now state its conclusion directly. Divinely directed evolution does not mean that scripture states every scientific detail in advance. It means that created processes remain created processes: they depend on Allah, operate by measure, persist through balance, unfold through guidance, and carry moral significance for beings whom Allah commands to observe, understand, protect, and worship. Allah orders the universe, so it becomes intelligible; Allah furnishes Earth with water, atmosphere, minerals, climate, soils, and ecological relationships, so biological life has a world in which it can begin and diversify; Allah sustains created means, so populations change through biological mechanisms; Allah preserves bodies through homeostasis; ecosystems sustain the external environment of life; and knowledge brings human beings into accountability.

This synthesis also protects the book from two errors. It rejects materialism when materialism treats natural mechanisms as self-sufficient explanations of ultimate meaning. It also rejects a fragile religious argument that needs gaps in scientific knowledge to make room for God. The Qur'anic vision is deeper than both. Created means do not become independent of Allah simply because they can be described. Rain, embryological development, homeostasis, ecosystems, natural selection, and human culture can all be studied scientifically while still being received as signs of divine sustaining order.

The final conclusion is simple but demanding: deep study of creation should lead the believer not away from Allah, but toward humility before the One who originates, nourishes, measures, guides, and sustains all worlds. The long natural history of the cosmos, Earth, life, bodies, ecosystems, and morally responsible humanity reveals an ordered history of development under *Rabb al-ʿālamīn*. In that sense, divinely directed evolution neither replaces biological science nor denies natural causes. It reads the whole created order as dependent, measured, relational, adaptive, balanced, and accountable before Allah.

Chapter 15: Faith, Medicine, and Human Meaning

"And in yourselves; do you not see?"
— Qurʾān 51:21, trans. Maulana Muhammad Ali

Key themes: This chapter brings the book's completed argument into the human setting where science, faith, medicine, and moral responsibility meet most directly. Physiology reveals life as measured regulation; medicine reveals the patient as more than a biological mechanism; and Qurʾānic faith receives the body, the healer, and the world as signs entrusted to human care. The chapter therefore moves from explanation to vocation: knowledge must become compassion, observation must become humility, and belief in the Creator must become service, gratitude, worship, and responsibility.

The preceding chapters have argued that science and faith need not compete when each is allowed to speak at its proper level. Science investigates mechanisms, histories, causes, and evidence within creation; Islamic faith, grounded in the Qurʾān, interprets creation's intelligibility, balance, dependence, dignity, and moral meaning. Chapter 15 now gathers that argument in the most concrete place available to me: the body, the patient, the physician, and the daily responsibility of care. Here the book's central synthesis becomes personal and practical. If life is sustained through measure, balance, guidance, and mercy, then medical knowledge cannot remain merely technical. It must become a disciplined form of service before Allah as Rabb.

15.1 Personal Synthesis: Science, Faith, and the Physician's Vocation

My own vocation as a physician and professor of physiology has shaped the way I read both the body and the created world. In the clinic and classroom, the human being cannot be reduced to organs, measurements, laboratory values, or diagnoses, even though all of these matter deeply. A patient arrives as an embodied person: vulnerable, hopeful, fearful, responsible, relational, and in need of knowledge joined to mercy. Medicine therefore stands at the meeting point of scientific precision and moral care. It asks how the body works, but it also asks how knowledge should be used for healing, dignity, compassion, and service.

At this personal and medical level, my belonging to the Lahore Ahmadiyya Movement becomes more than an intellectual background; it becomes part of my vocation. It has given me a framework in which I can reason about the body, disease, healing, evolution, physiology, ecology, suffering, compassion, and death without separating inquiry from faith or faith from responsibility. As a physician, I cannot turn away from evidence; as a Muslim, I cannot treat evidence as spiritually empty. The Lahore Ahmadiyya approach has helped me hold these obligations together: to think freely, to read the Qurʾān with reverence and reason, to accept scientific knowledge without making it ultimate, and to serve patients as whole persons whose biological life, moral dignity, and spiritual meaning belong together under Allah as Rabb.

Simple bedside examples make this point vivid. A patient with dehydration may appear weak, dizzy, tachycardic, and confused until fluid balance is restored; a patient with uncontrolled diabetes shows how glucose regulation can no longer remain within safe limits; a patient with sepsis reveals how infection can disturb temperature, circulation, inflammation, oxygen delivery, kidney function, and mental clarity at the same time. In each case the physician is not merely correcting a number. The physician is helping a fragile living system return, as far as possible, to the measured balance through which life is sustained.

That physiological insight has shaped my faith rather than weakened it. Homeostasis makes *mīzān* and *qadar* visible within the body: life is preserved through measured limits, not through unlimited freedom. Medicine then adds a further lesson. A patient is never merely a set of laboratory values, organs, symptoms, or risks. A patient is a person who suffers, hopes, fears, trusts, remembers, prays, doubts, and seeks meaning. Scientific knowledge is indispensable for diagnosis and treatment, but it becomes humane only when joined to compassion, patience, careful listening, and respect for dignity.

The same lesson appears in ordinary clinical encounters. When a hypertensive patient improves after careful explanation, medication adjustment, salt reduction, exercise, and follow-up, the success is not only pharmacological; it is relational and educational. When a child with asthma learns to use an inhaler correctly, science becomes care through teaching. When an elderly patient with heart failure weighs himself daily, recognizes swelling, and returns early before severe breathlessness develops, physiology becomes practical wisdom. These examples show that medical knowledge is fulfilled when it becomes understandable, usable, and compassionate.

For this reason, the physician's vocation offers a living example of the book's thesis. To know mechanisms is necessary, but it is not enough. The clinician must also ask how knowledge should be used, how suffering should be approached, how uncertainty should be communicated, and how the vulnerable person before us should be honored. Qurʾānic faith strengthens that responsibility because it teaches that life is a trust from Allah, that the human being is honored, and that knowledge without mercy can become morally incomplete. In the clinic, science teaches me to examine evidence; faith teaches me to remember the person, the Creator, and the accountability attached to care (Muhammad Ali, 2002).

15.2 Medicine, Compassion, and the Meaning of Care

Medicine is where the limits of reductionism become plain. A disease may be described by pathology, physiology, imaging, laboratory results, and evidence-based treatment, but illness is lived by a person within family, memory, culture, belief, fear, and hope. The physician therefore stands at the meeting point of mechanism and meaning. To treat the disease while neglecting the person is to possess technical skill without full care. To honor the person while ignoring evidence is compassion without adequate responsibility. Good medicine requires both.

This balance is especially important in moments of vulnerability: serious diagnosis, chronic illness, disability, pain, aging, infertility, pregnancy, death, grief, and uncertainty. In such moments, the patient may ask questions that are not answered by biochemistry alone: What does this suffering mean? Am I still valuable? Can I trust? What remains of hope? Medicine cannot and should not pretend to answer

every spiritual question, but it must recognize that these questions belong to the reality of illness. A physician who listens respectfully, speaks truthfully, protects dignity, and acts with compassion serves the whole person without abandoning scientific rigor.

Consider the patient who receives a cancer diagnosis. The scan, biopsy, staging, and treatment plan are essential, but the moment also requires silence, clarity, time for questions, and respect for the patient's family and spiritual resources. Or consider a person with chronic kidney disease who must adjust diet, medication, dialysis planning, work, prayer routines, and family responsibilities. The disease is pathophysiological, but the illness is social, emotional, and spiritual as well. Good care therefore asks not only, "What is the diagnosis?" but also, "What does this diagnosis now require of this person's life?"

This is also where faith protects medicine from arrogance. The healer is never the ultimate giver of life; the physician is a servant who uses knowledge, skill, and available means while recognizing dependence on Allah. Treatment may succeed, fail, or remain uncertain. Human knowledge is real, but it is partial. The Qurʾānic posture—*Allah knows best*—does not excuse ignorance or passivity; it disciplines the physician to work carefully, remain humble, consult evidence, respect limits, and avoid claiming mastery over life.

Palliative and end-of-life care give another example. When cure is no longer possible, medicine does not become meaningless. Pain relief, breathlessness control, honest communication, family presence, prayer, forgiveness, and dignity at death all become forms of care. A physician may not be able to prevent death, but can still protect the patient from abandonment, unnecessary suffering, false promises, and loneliness. In such moments, science serves mercy by relieving distress, and faith gives language for humility before the limits of human power.

15.3 Worship, Gratitude, and Lived Responsibility

The final movement of the book is therefore devotional as well as intellectual. Worship is not a rejection of inquiry; it is the posture that receives inquiry as a trust. To pray, to give thanks, to seek forgiveness, and to serve others are ways of acknowledging that the order studied by science is not owned by the scientist. The body, the earth, knowledge, health, time, and human relationships are gifts for which human beings are accountable.

This can be practiced in small but serious ways. A physician can begin the day with the intention to serve rather than merely to complete tasks. A teacher of physiology can present the body not as a machine to be exploited, but as a trust to be understood and protected. A researcher can handle data honestly, admit uncertainty, and resist overstating conclusions. A clinician can pause before entering the consultation room and remember that the person inside is not an interruption to work, but the reason for the work.

This responsibility extends from the patient to the planet. If the body depends on homeostasis and communities depend on ecosystems, then ecological damage is also a medical and moral concern. Heat, polluted air, unsafe water, food insecurity, soil degradation, and biodiversity loss return to human beings as illness, vulnerability, and injustice. The same faith that teaches compassion at the bedside must therefore

teach restraint, stewardship, and care for the balances through which Allah sustains life.

Examples are easy to see, but they are deeper than a list of environmental problems. Ecological injury becomes medical injury because the body cannot remain healthy when the surrounding conditions of air, water, food, shelter, temperature, and disease ecology are damaged. The patient who arrives with breathlessness, dehydration, infection, malnutrition, kidney strain, anxiety, or pregnancy complications may carry in the body the consequences of damaged external balance. In this sense, the clinic becomes one of the places where ecological disorder is made visible.

Heat gives the clearest example. During heat waves, elderly patients, infants, pregnant women, outdoor workers, athletes, people with heart disease, and patients taking diuretics or other medications may lose the ability to keep temperature, blood volume, and electrolytes within safe limits. What begins as environmental heat can become dizziness, fainting, heat exhaustion, heat stroke, acute kidney injury, worsening heart failure, preterm labor, or confusion in a frail older person. The physiological lesson is direct: when external temperature exceeds the body's capacity for cooling, homeostasis becomes a struggle rather than a quiet background process.

Air pollution gives a second example. Smoke from fires, traffic emissions, industrial pollution, dust, and burning waste enter the body through the lungs but do not remain a lung problem only. A child with asthma may wheeze after smoke exposure; a patient with chronic obstructive pulmonary disease may decompensate during periods of poor air quality; a person with coronary artery disease may suffer increased cardiovascular strain when inflammation and oxygen delivery are disturbed. Polluted air therefore connects atmosphere, inflammation, oxygen exchange, blood vessels, and the heart. The external air becomes part of the internal burden.

Water and sanitation show the same relationship. When rainfall becomes unreliable, when floods contaminate wells, when drought concentrates pollutants, or when safe water systems fail, the consequences appear as diarrheal disease, dehydration, electrolyte disturbance, kidney stress, skin infection, maternal-child vulnerability, and outbreaks of water-borne illness. A dehydrated infant, a pregnant woman with infection, or an older patient with kidney disease is not only a medical case; each also reveals how health depends on clean water, functioning sanitation, and the measured circulation of water through land and community.

Food systems make ecological health still more concrete. Soil degradation, drought, floods, crop failure, declining fisheries, loss of pollinators, and disrupted supply chains can appear clinically as undernutrition, anemia, stunting, low birth weight, poor wound healing, weakened immunity, and worsening chronic disease. At the same time, cheap calorie-dense foods may increase obesity, diabetes, hypertension, and fatty liver disease when healthier foods become less available or less affordable. Thus food insecurity can injure the body in two directions: through deficiency and through unhealthy substitution.

Changing disease ecology gives another example. Temperature, rainfall, standing water, land use, migration, and biodiversity can influence mosquitoes, ticks, rodents, and other vectors. In some regions this may alter exposure to dengue, malaria, chikungunya, Zika, leptospirosis, or other infections. The physician may see fever,

dehydration, bleeding risk, pregnancy complications, neurologic symptoms, or post-infectious weakness, while the deeper ecology involves water storage, drainage, housing, waste management, animal reservoirs, and public-health surveillance. Infection is therefore not only a battle between microbe and host; it also reflects the ecological conditions that bring host, vector, and pathogen together.

Extreme weather and ecological loss also affect mental and social health. Floods, storms, wildfires, crop failure, coastal erosion, and displacement can leave people with grief, anxiety, trauma, sleep disturbance, family disruption, loss of livelihood, and spiritual distress. The injury is not always measured by oxygen saturation, creatinine, or glucose. Sometimes it is seen in the patient who has lost a home, a farm, a neighborhood, a graveyard, a sense of safety, or the expectation that tomorrow will be stable. Medicine must therefore recognize that ecological harm can wound memory, identity, community, and hope.

These examples also change how medicine should understand prevention. A prescription may treat asthma, hypertension, diarrhea, diabetes, heat illness, or infection, but prevention often requires cleaner air, shaded streets, safe housing, reliable water, healthy soils, protected wetlands, resilient food systems, early-warning systems, and trustworthy public-health communication. Clinical care and ecological care are therefore not separate moral worlds. One works at the bedside; the other works on the conditions that determine who arrives at the bedside and how vulnerable they are when they come.

For a Muslim physician, this widens the meaning of compassion. Mercy is not only gentleness in the consultation room; it is also concern for the air the child breathes, the water the family drinks, the food the mother can obtain, the heat the laborer must endure, and the disease risks faced by the poor. Ecological responsibility becomes a form of neighborly care, public-health duty, and worshipful restraint before Allah's *mīzān*. To protect creation is also to protect the vulnerable bodies that depend on creation.

The Lahore Ahmadiyya Movement helps me hold these responsibilities together. It has allowed me to think openly about science, medicine, evolution, ecology, and human origins while remaining anchored in the Qurʾān, the Unity of Allah, the finality of prophethood, and the moral vocation of human life. It has taught me that reason is not an enemy of faith when reason knows its limits, and that faith is not weakened by evidence when faith is rooted in trust, guidance, and worship. This framework has allowed me to ask difficult questions without surrendering reverence, and to accept scientific inquiry without making science ultimate.

The final lesson is therefore not conflict, but responsibility. If creation is ordered, then knowledge should become humility. If life is sustained through balance, then power should become restraint. If the body is fragile, then medicine should become compassion. If ecosystems sustain life, then stewardship should become duty. If human beings are taught and addressed by Allah, then inquiry should become worshipful responsibility. The believer who studies creation deeply should not become less grateful, but more grateful; not less careful, but more careful; not less aware of Allah, but more aware of the mercy, measure, and trust through which life is sustained.

My closing conviction is simple. To study creation deeply is not to move away from the Creator, but to become more answerable before Him. Science teaches me to

observe carefully; medicine teaches me to serve the vulnerable; faith teaches me to worship, give thanks, and act justly. The created order is intelligible, fragile, relational, and morally demanding. In the body, in the patient, in the ecosystem, and in the search for truth, I find one continuous call: to know with humility, to care with mercy, and to live responsibly before *Rabb al-ʿālamīn*.

Afterword

"And to Allah makes obeisance every living creature that is in the heavens and that is in the earth."
— Qurʾān 16:49, trans. Maulana Muhammad Ali

"And in the earth are signs for those who are sure, and in yourselves; do you not see?"
— Qurʾān 51:20–21, trans. Maulana Muhammad Ali

The Afterword returns the book from argument to posture. The preceding chapters have spoken through philosophy, science, Qurʾānic interpretation, biology, physiology, ecology, medicine, and Islamic intellectual history. What remains is the inward result such study should produce: humility before Allah's knowledge, gratitude for the measured order of creation, compassion toward living beings, and responsibility for the balances through which life is sustained.

Qurʾān 16:48–49 gives this closing reflection its wide horizon. Created things, their shadows, every living creature in the heavens and the earth, and the angels submit to Allah without pride. In light of this book's argument, natural order should not be treated as spiritually silent. Science studies regularities: the motion of the heavens, the circulation of water and nutrients, the feedback systems of the body, the interdependence of ecosystems, and the adaptive capacities of living populations. The believer may contemplate those regularities as signs of created submission. The more lawful creation appears, the more deeply one may recognize the Lord who sustains its lawfulness (Muhammad Ali, 2002).

The divine name Rabb remains the book's unifying theological center. Allah originates, nourishes, regulates, completes, and guides; science studies the created processes through which those realities become visible to us. Cosmology, geology, biology, physiology, ecology, human origins, medicine, and ethics therefore belong together not because they are the same discipline, but because each discloses a dimension of created dependence.

This perspective avoids both reductionism and fragile apologetics. Natural mechanisms do not become self-sufficient because science can describe them, and faith need not depend on gaps in scientific knowledge. Created means remain real means, but they remain dependent on the Creator. Rain, embryological development, homeostasis, ecosystems, natural selection, and medical healing can be studied carefully while still being received as signs of Allah's sustaining order.

Mīzān gives the closing reflection its ethical force. Balance is not only a cosmic, ecological, or physiological idea; it is a trust. In the body, balance appears as homeostasis. In the environment, it appears as the life-supporting order of climate, water, soils, food systems, biodiversity, and public health. When these balances are damaged, the consequences return to human bodies as heat stress, dehydration, respiratory burden, malnutrition, infection, displacement, anxiety, and injustice. To care for creation is therefore also to care for the vulnerable bodies that depend on creation.

The human question remains the most delicate. Biological continuity need not erase human dignity, and human dignity need not require denial of biological history. In the Lahore Ahmadiyya reading followed here, Adam marks the beginning of prophetic and morally accountable humanity: revelation, knowledge, *tawḥīd*, repentance, responsibility, and honor. This distinction allows the believer to take scientific evidence seriously while preserving the Qurʾān's central concern with guidance and accountability. The final lesson is simple but demanding: the deeper we study creation, the more fully we should bow in humility before Allah, give thanks for His sustaining order, guard the balances entrusted to us, serve living beings with mercy, and live as morally responsible servants of *Rabb al-ʿālamīn*—the Lord and Nourisher of all worlds.

Future inquiry

Future inquiry will refine many parts of this discussion. Cosmology may clarify early-universe models, inflation, spacetime, and multiverse proposals; origin-of-life research may identify more plausible pathways from chemistry to self-replication; evolutionary biology and genetics will continue to illuminate common ancestry, adaptation, and human prehistory; neuroscience and philosophy of mind may deepen debates about consciousness; and physiology, ecology, climate science, and medicine will continue to show how life depends on regulation, relationship, and balance. The enduring value of this conversation lies in its interdisciplinary character. It asks not only how the world works, but why there is an intelligible, life-bearing, morally demanding world at all—and how human beings should live responsibly within it before Allah.

Final Invocation

Rabbanā taqabbal minnā; innaka Anta al-Samīʿ al-ʿAlīm.
"Our Lord, accept from us; surely Thou art the Hearing, the Knowing."
— Qurʾān 2:127

O Allah, Best Knower, Creator, Sustainer, Guide, and Lord of all worlds: accept this reflection if it contains truth, forgive its limits and shortcomings, and make every search for knowledge a path toward humility, gratitude, service, and worship. Teach us to read Your signs with clear minds and sincere hearts; guide our use of science, medicine, language, and the pen toward mercy and justice; protect us from arrogance, carelessness, and harm; and make us responsible guardians of the life, balance, and trust You have placed within creation. Āmīn.

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About the Author

Robbert Bipat (born February 13, 1969) is a Surinamese physician, physiologist, professor, author, and socially engaged scientist. He has been affiliated with the Faculty of Medical Sciences at the Anton de Kom University of Suriname since 1997. There, he has guided and inspired generations of students while advancing his own academic career from lecturer to professor of physiology. At the heart of his teaching and research is the human being: how the body maintains balance, what happens when that balance is disrupted, and how knowledge can contribute to better healthcare, prevention, and public health.

Bipat studied medicine at the Anton de Kom University of Suriname and obtained his PhD in 2004 from Hasselt University in Belgium, focusing his doctoral research on kidney function. His scientific interests are broad and touch upon themes closely related to daily life, such as diabetes, hypertension, nutrition, stroke, non-communicable diseases, and medicinal plants. With over a hundred international scientific publications and contributions to national health protocols—including guidelines for hypertension and diabetes—he applies his expertise not only to advance science but also to create practical solutions that improve people's health.

Alongside his academic work, Bipat has consistently dedicated himself to educational governance, community engagement, and interfaith dialogue. He served as the Dean of the Faculty of Medical Sciences from 2017 to 2021 and has been the Chairman of the Research Council at the Anton de Kom University of Suriname since 2024. He has also contributed for many years to the Surinaamse Islamitische Vereniging (Surinamese Islamic Association), serving as its chairman from April 2010 to April 2025. Since 2010, he has been a member of the Inter-Religious Council in Suriname (IRIS), an involvement stemming from his dedication to interfaith cooperation.

Furthermore, he regularly shares his insights through articles on religious themes in The Light magazine, published by the Lahore Ahmadiyya Movement in the United Kingdom. He is also working on books exploring the relationship between Islam—specifically Ahmadiyya—and areas such as science. In July 2025, he was honored with a presidential decoration by the President of Suriname for his social and civic contributions. His life's work reflects an enduring commitment to knowledge, faith, health, and building connections between people.