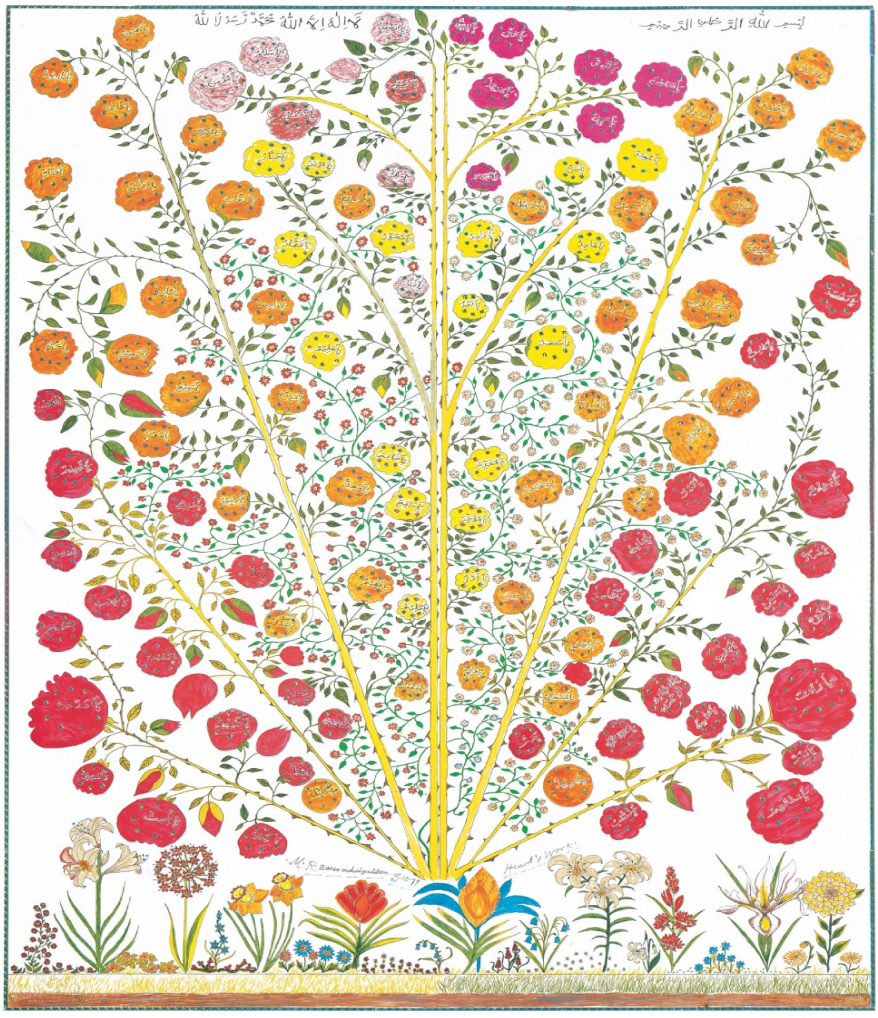
TRADITIONAL ISLAMIC ENVIRONMENTALISM

THE VISION OF SEYYED HOSSEIN NASR



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To the memory of my affectionate and wise father Anwarul Quadir
and my kind and gentle elder sister Monju

*I call to witness the sunset's afterglow, and the night, and what it unfolds, and the moon, as it grows to its fullness: Even thus are you bound to move, onward from stage to stage. What, then, is amiss with them that they will not believe and, when the Qur'ān is read unto them, they do not fall down in prostration? (Qur'ān 84:16-21)**

*Corruption has appeared on the land and in the sea as an outcome of what men's hands have wrought: and so He will let them taste some of their doings, so that they might return [to the path of God] (Qur'ān 30:41)**

*Henceforth, in the text, Qur'ānic verses will be indicated just by italics and the verse numbers. In the endnotes, they will be indicated by a 'Q' followed by the verse numbers.

Acknowledgments

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As for the motivation for this study, the single most important event was my attendance of a course about man's relationship to nature offered by Dr. Seyyed Hossein Nasr at the George Washington University in the Spring of 2004. The course was a profound eye-opener to the connection between the environmental crisis and modern man's spiritual regression. On another level, I am most indebted to my mother Shireen Quadir for being the first to instil in me a sense of wonder about the natural world as a grace from God. On nearly every dawn of my childhood in the small town of Jessore, Bangladesh, she recited the *sūrah ar-Raḥman* from the Quran (*sūrah* 55). Its refrain after every description of nature — *Then which of the favors of your Lord will you deny?* — turned my child's mind to contemplate on God's touch in the world of nature that I encountered every day around our house, on the way to my school a mile away, and in the star-filled night skies of the almost completely unindustrialized Jessore of the 1970s. Likewsie, the natural beauty of Bangladeshi countryside, its rivers, trees, fields of crops, birds, fish and fauna, and the lifestyles of devout Muslims and Hindus who lived in a responsible and intimate relationship with this bounty of nature, made a lasting impression on my consciousness and were never far from my mind as I reflected on the many issues in this study.

Much of this work was written in Konya, Turkey. I am grateful to the people of Konya for their kind hospitality and inspiration, particularly Mawlānā Jālāl al-Dīn Rūmī (1207-1273), whose life and vision inspires me everyday to look at the world with wonder.

Two people in particular, without whom this undertaking would be impossible, deserve special mention. My brother Iqbal Quadir provided much of the necessary financial support; my beautiful and brilliant wife Seher was a constant source of encouragement, and very patiently put up with my inability to focus on many household responsibilities while the work was in progress.

Finally, I must thank my young friends Arish Sadakat Ali of the College of William and Mary and Usayd Casewit of the George Washington University for their help in proofreading the work and offering some valuable insights.

Tarik Quadir
Konya
January 2013

Introduction

> For a humanity turned towards outwardness by the very process of modernization, it is not easy to see that the blight wrought upon the environment is in reality an externalization of the destitution of the inner state of the soul of that humanity whose actions are responsible for the ecological crisis.[1]
> Seyyed Hossein Nasr

0.1 THE ENVIRONMENTAL CRISIS IS CAUSED BY MODERN TECHNOLOGY-BASED LIFESTYLES

In the Gulf of Mexico at 9:49 PM on the 20th of April 2010, a Deepwater Horizon drilling rig, one of the most technologically advanced specimens of deep sea petroleum technology, blew out. Leaking at the rate of nearly 3 million gallons of crude oil *a day*, the total spill quickly far exceeded the last biggest oil spill in American history by the supertanker Exxon Valdez totalling 11 million gallons off the coast of Alaska in 1989.[2] The Valdez spill devastated the ecology of a whole coastal region that is still paying a heavy price twenty years later.[3] After 86 days of continuous oil leak from the blow out of the Deepwater Horizon rig, the environmental damage to the marine ecosystem and the nearby coastal regions is expected to be more severe than that caused by the Valdez spill.[4] The blame for this disaster has mainly been pinned on the lack of sufficient precaution on the part of British Petroleum (BP) who had hired Deepwater Horizon for the operation. Notwithstanding BP's negligence, such criticisms miss the underlying problem of the science and technology-based modern lifestyle which relies on advanced technology to relentlessly exploit the earth's resources in ways that it cannot always control.[5] Moreover, as we will see next, the environmental/ecological[6] damage by this explosion pales in comparison to the cumulative effect on nature of our outwardly peaceful industrialized lifestyle worldwide year after year.

There appears to be a near total consensus among climate scientists that the current environmental/ecological crisis — pollution of the air by emissions from the burning of fossil fuels (coal, oil and gas), of the land and water by industrial chemical waste, and the consequent climate change, ocean acidification, deforestations, desertifications, and threat to the survival of numerous species — is caused by modern science and technology-based modern economies and lifestyles.[7] In other words, the environmental crisis refers to the growing disequilibrium of conditions in the biosphere resulting mostly, according to the vast majority of climate scientists, from modern technology-based human activities.

Recent scepticism about one aspect of the environmental crisis, namely global warming, is based on the discovery of erroneous reporting about the rate of melting

of the Himalayan glaciers by scientists associated with Intergovernmental Panel on Climate Change (IPCC).[8] However, most climate scientists insist that this should not be taken as evidence that the crisis is not real or is not due to human activities. They argue, “The Intergovernmental Panel on Climate Change (IPCC) and other scientific assessments of climate change, which involve thousands of scientists producing massive and comprehensive reports, have, quite expectedly and normally, made some mistakes. When errors are pointed out, they are corrected. But there is nothing remotely identified in the recent events that changes the fundamental conclusions about climate change.”[9]

In 2007 essay, Will Stephen and colleagues including the Nobel laureate Paul Crutzen cogently argued that relentless industrialization has brought about the current state of the environmental crisis.[10] They argue that pre-industrial societies had minimal impact on the environment,[11] and that the modern economy and lifestyles driven by modern science and technology are responsible for the environmental crisis. Stephen *et al* demonstrate that it was only after the onset of the industrial revolution that the atmospheric CO2 concentration increased steadily to the extent that by 1900, it exceeded the upper limit reached of the previous 250 thousand years.[12] Furthermore, they found that as the rate of technological and economic growth accelerated so did the concentration of atmospheric CO2 which is now about 33% higher than the pre-industrial level.[13] The six-fold increase in the world’s population since the Industrial Revolution, so often blamed for the environmental crisis, was itself a direct result of harnessing the power of fossil fuels, to make synthetic fertilizers containing reactive nitrogen compounds from atmospheric nitrogen to boost food production, and to develop other services which made the modern population boom possible.[14]

The urgency for a veritable solution to the crisis can be argued based on numerous recent claims by scientific investigations. Johann Rockstrom, the director of the Stockholm Resilience Centre, and twenty six other eminent scientists have, for the first time, provided an estimate of the boundaries within which human civilization is viable.[15] They have identified nine critical planetary systems whose conditions they claim are precariously worsening due to impact of modern lifestyles, namely atmospheric CO2 concentration, ocean acidification, stratospheric ozone depletion, nitrogen and phosphorous cycles, global freshwater use, change in land use, biodiversity loss, atmospheric aerosol loading, and other chemical pollution. Among these, CO2 concentration, balance of nitrogen cycle, and biodiversity loss, have already far exceeded the safe boundaries. One of the major conclusions of the scientific investigations is as follows: “We do not have the luxury of concentrating our efforts on any one of [the planetary systems] in isolation from others. If one boundary is transgressed, then other boundaries are also under serious risk.”[16]

According to the latest findings of the IPCC, by the end of this century the global temperature may rise by 5.2 degrees Centigrade instead of the previous estimate of 2.4 degrees.[17] By 2050, the ocean acidification resulting from absorption of CO2 by

ocean water “may render most regions chemically inhospitable to coral reefs” eliminating the habitats of large segments of the marine population.[18] The quantity of nitrogen compounds introduced to the ecosystem through the use of synthetic fertilizers is already greater than that by all the natural processes combined, and is now a major source of greenhouse gases and pollution of water systems.[19] Pollution affects human and other lives in ways that are often not obvious to us. Biodiversity loss per year is estimated to be at least one hundred times higher than the pre-industrial level which in itself is bound to have a devastating effect on the ecology in the coming decades.[20] As for humans, according to recent research conducted by David Pimentel, a renowned Cornell University chemist, already each year forty percent of all deaths worldwide are caused by water, air and soil pollution.[21] However, these findings about the environment apparently related to the modern economic system, has been largely ignored by many distinguished economists. As one of them has asserted recently, “In fifty years, if things go as they have since 1800…The environment will be improving.”[22] Such assertions make greater discussion of the issue all the more necessary. However, our present work sides with the conclusions of the vast majority of climate scientists that the environmental crisis is caused by human activities enabled by modern science and technology.

In the last few decades, especially since the early 1970s, numerous environmental movements as well as economic policies at both national and international levels have tried to address this growing crisis. In order to understand Seyyed Hossein Nasr’s particular religious and metaphysical approach to the crisis, at the outset we ought to consider his background and his immense scholarly output as well as his historic role in environmentalism of the West and of the Islamic world.

0.2 SEYYED HOSSEIN NASR

Seyyed Hossein Nasr was born in Tehran in a family of well-known scholars in 1933. His father Seyyed Valīullāh Khan Nasr was an eminent philosopher of ethics with a mastery of Arabic and Persian languages. In 1950, Nasr began his undergraduate studies in physics at MIT because he was interested “in the nature of physical reality.”[23] At the end of his first year of study he participated in a group discussion with the famous philosopher Bertrand Russell who, when asked to remark on the nature of physics, answered, in Nasr’s words, that “physics did not concern itself with the *nature* of physical reality *per se* but with mathematical structures related to pointer readings.”[24] Russell’s answer along with his own growing unease with “the implicit positivism of the atmosphere”[25] at MIT caused Nasr to seriously reconsider his chosen field of study, and hence began seeking a discipline that could better fulfil his initial quest. Having graduated from MIT with honors in 1954, he went on to earn his PhD from Harvard University in a more philosophically-oriented discipline, the history of science. Over the last fifty years, Nasr has had a remarkably productive career as an academic and as an administrator in Iran, Lebanon and in the United

States. Since 1984, he has been a University Professor in the Department of Religion at the George Washington University in Washington D.C

Recognized as one of the most important Islamic intellectuals of our time, Nasr is the author of nearly fifty books and hundreds of articles on Islamic philosophy, Sufism, Islamic science, Islamic art, the environmental crisis, and the school of perennial philosophy expounded by René Guénon (1886–1951) and Frithjof Schuon (1907–98). Among the numerous accolades he has received throughout his long career, perhaps the most notable are the honors of being chosen as the prestigious Gifford Lecturer at the University of Edinburgh in 1981 and of being included in the Library of Living Philosophers in 2001.[26] Huston Smith, the eminent scholar of world religions, has called him "one of the major intellects of our day."[27] While Keith Critchlow, the foremost scholar of sacred art and architecture in the world, has dubbed him "the most important living philosopher on the planet today."[28]

In addition to being the first Muslim and Islamic intellectual to address the environmental crisis,[29] Nasr is also the first person ever to write *extensively* about the philosophical and religious dimension of the crisis.[30] By the same token, he was also the first person to lay out a comprehensive, far-reaching religious response that goes beyond proposing ethical measures. Also, as the foremost living representative of the perennial school of philosophy, Nasr has given the most extensive and detailed response to the environmental crisis out of all other Perennialists as yet.[31] Embedded in his environmentalism is a call for the revival of religiously purposeful lifestyles across the world as alternatives to the technology and economic-interest-driven modern lifestyles, which, he believes, are behind the ecological/environmental crisis.[32] This ecumenical aspect of Nasr's vision is a reflection, as we will see, of both the school of perennial philosophy and of the inner dimension of Islam.

Three key terms crucial for understanding Nasr's approach to the environmental crisis are the religious worldview, the scientific worldview, and scientism. In the most basic sense, these terms can be defined as follows: The religious worldview refers to the nature of reality of the universe as envisioned by a religion, i.e. the universe consists of signs of God.[33] The scientific worldview refers to the nature of reality of the universe as seen by modern science, i.e. the universe consists of ontologically unrelated material entities with no reference to any supra-natural source of their existence.[34] Finally, scientism is the ideology that modern science is, if not the only, the most reliable means to true knowledge.[35] According to Nasr, since the Scientific Revolution of the seventeenth century, the scientific worldview gradually started replacing the religious worldview, and scientism came to be the prevalent underlying ideology in the West and Westernized parts of the world.[36] This situation, according to Nasr, is the underlying cause of the environmental crisis and must be reversed. If there is to be a long term solution to the environmental crisis, the religious worldview must be re-established.

If our reliance on scientific investigations in section 0.1 seems at odds with holding modern science responsible for the environmental crisis, it is because Nasr's

perspective does *not* deny modern science's ability to know much about the material dimension of reality.[37] For him, the problem with modern science is that it ignores or denies the existence of any reality other than that of the material aspect of nature.[38]

In spite of Nasr's historic role, the depth of his message, and its great relevance today, there is no single work that presents his approach to the environmental crisis in a systematic and comprehensive manner. His major works on the subject *The Encounter of Man and Nature* and *Religion and the Order of Nature* trace the philosophical roots of this crisis to rationalism and modern science. Nasr's books and articles recommend spiritual renewal that would revive a religious worldview and encourage the eventual replacement of modern science with a sacred science that would uphold the metaphysical principles inherent in all religious traditions.

An adequate response in any civilization, he argues, would require the help of that civilization's traditional intellectual resources. However, Nasr's above-mentioned books do not provide any extensive and specific strategy for the response that he envisions for any civilization. That strategy can be found in his several articles and interviews dealing with the way the Muslim world should respond to the environmental crisis in the context of the prevalent intellectual climate in that world today. The full appreciation of his strategy in the Islamic world also requires an appreciation of the different aspects of Islamic intellectual tradition that he refers to. The situation calls for a single volume that gives due attention to each aspect of Nasr's vision on the environmental crisis. The present work promises to fill that gap.

A systematic and comprehensive treatment of Nasr's environmentalism for the Islamic world would require 1) A discussion of Nasr's thesis on the root of the environmental crisis and the essential response necessary for all religious traditions, 2) An examination of the traditional Islamic worldview and the impact of modern science has had on Muslim thought since the nineteenth century, which Nasr addresses when he discusses his Islamic response, 3) An analysis of Nasr's strategy for the Islamic world in light of the Islamic intellectual tradition which most reflects his arguments and thereby demonstrate the traditional Islamic character of his response, 4) A brief discussion of other comparable visions in the Islamic world and in the West as well as a response to direct or indirect criticisms of Nasr's approach, situating him in the context of other major environmentalist visions today. The purpose of the present work is to fulfil these objectives without presuming to be exhaustive.

Throughout this book, we will emphasize that Nasr argues his case on the basis of the *knowledge* of the spiritual reality of nature and its relevance to human purpose as defined by religion, and not merely on the basis of consideration for physical survival as is the case of mainstream environmentalism, or merely on the basis of ethical teachings which religiously oriented environmentalism generally emphasizes. The foundation in *knowledge* is important for Nasr, because modern science, which he holds primarily responsible for the crisis, challenges religions with the *knowledge* that it professes.

In bringing together the arguments that are relevant to the current intellectual climate we hope to facilitate greater understanding of this eminent thinker who, since

the 1960s, has been advocating spiritual renewal as the most effective means for facing the environmental crisis in the long term, something that many of the leading environmentalists are recognizing today.

In order to understand the significance of Nasr's vision for today, it is necessary to see how mainstream environmentalism has failed in ways that only a religious/metaphysical approach can correct. To this end, we will consider the merits and drawbacks of mainstream environmentalism over the last forty years through the eyes of a few of the most influential scholars and activists who have been involved with environmentalism for most of this period, namely Donella Meadows, Wolfgang Sachs, and James Gustave Speth. Their most noted works over the last decade will be discussed extensively because of their well-documented arguments and because each work in its own way reveals the need of a spiritual revival in order to escape from the current impasse in the struggle against the crisis.

0.3 FAILURES OF MAINSTREAM ENVIRONMENTALISM

The awareness of environmental crisis, at least at the local level, began in earnest in the early 1960s in America, the country that was most industrialized and therefore most likely to notice the pollution resulting from it. By the early 1970s, especially after Club of Rome's *Limits to Growth*[39] was published in 1972, it was widely accepted that the modern industrial culture was the primary cause of environmental degradation that had to be taken care of. By 1976, a series of legislations were passed to help to protect the environment in America. Ironically, the positive effects from these legislations had a negative effect on the environmental movements themselves: "people forgot that the conditions they enjoined were the result of earlier gains won by the environmental movement."[40] This created the opportunity for a confluence of business interests and socio-political movements to paint the environmentalists as alarmists. Throughout the 1980s and 90s, the proponents of economic progress formulated new policies for subsuming environmentalist concerns as the global nature of the crisis became more evident.

One of the most revealing analyses of these policies designed to tackle the environmental crisis and of their effects has been carried out by Wolfgang Sachs in his widely acclaimed book *Planet Dialectics*.[41] Sachs is the former chairman of the Greenpeace movement in Germany and currently a senior research fellow of the Wuppertal Institute for Climate in Berlin as well as a lead author in Intergovernmental Panel on Climate Change (IPCC). Sachs has shown how these policies have focused on pursuing greater efficiency in the *management* of the world's remaining natural resources without questioning the fundamental modern economic goal of continuous growth.

According to Sachs, there have been two major components of these policies. First, the idea that the ever more efficient technology would optimize the amount of resource input necessary for a given output of performance such that increased efficiency would offset negative effects of economic growth.[42] Second, the idea that

the poverty of the poor in mostly Third World countries cause them to exploit the already dwindling natural resources, has lead policy makers to argue for further economic growth to lift the poor out of poverty.[43]

In the name of saving the environment from the poor, the economic policy makers have expanded developmental activities with the stated goal of eliminating their poverty while ignoring that such activities themselves are often the cause of scarcity of nature and that those who have always depended on nature "have no choice other than to pursue the last remaining fragments of its bounty."[44] Thus, "development has come to be seen as the therapy for the injuries caused by development."[45] In fact, as Andrea Cornwall has observed, the word 'development' and the phrase 'poverty reduction' have been hallowed in the economic jargon to make their meanings "beyond reproach."[46] Project proposals needing funding are often sprinkled with such words and expressions to make them attractive leaving out serious questioning of "what is actually *done*."[47]

With regards to technological efficiency as a means for lessening the damage to the environment, Sachs argues that while pursuing this path has some positive impact, in the long run, it helps to perpetuate the economic goal of continuous growth of production and consumption in a finite world. Ironically, the saving effects of greater efficiency are negated by the faster growth in demand created by an expanded economy.[48] Indeed, many studies over the last decade have concluded that the increased efficiency in technology has generally not resulted in decreased resource use or pollution.[49] Increased efficiency has generally resulted in further growth in output and industrial waste. Thus, the pursuit of efficiency cannot be effective in lessening the consumption of resources so long as economic growth continues. Sachs points out that pursuing efficiency can work best only in places that have already achieved a certain degree of industrialization.[50] Otherwise, increased efficiency can only be an argument for the introduction of modern technologies. On the other hand, the focus on efficiency in just *material production* disregards non-material goals and values associated with the 'less efficient' traditional means of production.[51]

The authors of the immensely influential 1972 classic *Limits to Growth* have observed in their 30-year update[52] that in the real world, "technologies we see are highly specific to particular problems; they cost money and take a long time to develop. Once they are proven in the lab there are further delays to develop the capital, labour, sales and service staff, marketing and finance mechanisms necessary to bring them into widespread use."[53] However, when we are racing against time, as it is the case with the environmental crisis, the usual many years of delay in the implementation of more efficient technologies can seriously diminish the effectiveness of such technological solutions, even with favourable market forces, and political and social will.

Using their *World3.3* computer simulation and 2002 as the base year, Meadows *et al* show that if the world continues to carry on with its usual economic activities

without taking any *major* steps to reduce its ecological footprint, industrial production, food available per person, life expectancy and human welfare, all may continue to rise until about 2025 before beginning a sharp decline across all measures due to "increasingly inaccessible non-renewable resources."[54] More importantly, in contrast to the efficiency argument, the simulation programme has shown that even with the very optimistic assumptions that availability of non-renewable resources would increase by 100 percent and technologies to reduce pollution would improve in efficiency by an annual rate of 4 percent — between 1970 and 2000 the rate of growth in efficiency was 2 percent[55] — the decline in the indexes are delayed by only about 50 years more.[56] Their most significant finding that leaves no choice but to seek ways and means to limit economic growth is as follows: "the more successfully society puts off its limits through economic and technical adaptations, the more likely it is to run into several [limits] at the same time."[57]

Sachs argues that this predilection for technical solutions to the environmental crisis is partly due to a mechanical view of ecology. He points out that early in the twentieth century, the term ecology was redefined under the scientific empiricist influence, as a self-regulating eco*system*. The sense of wholeness once associated with the interrelatedness of all elements of nature has been reduced to the technical term of 'homoeostasis'[58] maintained "in the tradition of mechanical engineering, as 'self-regulatory feedback mechanism.'"[59] Ever since, it has been difficult for mainstream environmentalists to think of ecology outside the mechanical scientific paradigm.[60] As long as the ecology is seen as a mechanical system, it can be conceived as something that can be managed scientifically; and like a machine, it is something that performs functions but has no ultimate purpose. As the distinguished political theorist Jane Bennett has noted, today's mainstream environmentalist "deploys techniques to rationalize nature and to render it predictable, to replace its self-sustaining, "wild" state with well-managed industrial, commercial, residential, and recreational sites."[61] According to Sachs, the task for the modern ecologists or the environmentalists has been to scientifically determine how much damage an ecosystem could take before collapse, and how to maintain that balance at "the edge of abyss"[62] by technological manipulations without challenging developmental aspirations that cause the damage in the first place. As Bennett observes, generally today's environmental management is about "how much of each pollutant could be safely discharged into the environment and to ensure that these 'threshold values' were not exceeded."[63] But, as we will see next, for the environmentalists, the predilection for technological solutions is partly motivated by opposition they face from industries and corporations against pursuing broader or more fundamental environmental agendas.

James Gustave Speth was the principal environmental adviser to President Carter and thereafter founded the World Resources Institute; he also headed the United Nations Development Program(UNDP) in the 1990s, and served as the dean of the Yale school of Forestry and Environmental Studies. Speth has also concluded that

mainstream environmentalism has failed “in far too many ways” to protect the planet.[64] As James Halteman has put it, given his reputation as a “highly seasoned leader of environmental reform in both the academic and policy arenas” Speth’s book *The Bridge at the Edge of the World* is a “confession.”[65] Speth argues that “the methods and styles of today’s environmentalism are not wrongheaded, just far too restricted”[66] because the mainstream environmentalists try to work from within the system to salvage what they can.

Speth has identified several major limitations for environmentalists working within the system: first and foremost, the very nature of the modern economic culture driven by modern science and technology: “Today’s capitalist culture serves up an ever increasing volume of environmentalist insults. That is its nature, born of powerful technology in the hands of powerful corporations with little transparency, weak oversight, and overriding commitments to profits and growth.”[67] Other major limitations clearly follow from this principle obstacle. On the one hand, environmentalism faces very powerful opposition from businesses and industries as it runs against their economic interests. On the other hand, the science involved in either identifying an ongoing pollution process or that of restoring an already polluted environment is quite complex. Thus, in the face of the opposition of the business and industry forces and the daunting complexity of the science involved, “a huge and impenetrable regulatory and management apparatus”[68] has come into being that is difficult to comprehend not only for the public, but also for the experts.[69] The same opposition also generally forces environmentalists to try to eliminate the most obvious of symptoms by pursuing greater technological efficiency rather than trying to address the underlying causes of environmental degradation.[70]

0.3.1 The Need for Spiritual Values

The environmentalists we discussed above, and many more, see the revival of what we might call spiritual values as a necessary foundation for any potential strategy that may enable humanity to retreat from the progressively worsening condition of the environmental crisis.

While Speth cites technological advancement as one of the major tools necessary to face the crisis,[71] he acknowledges that choosing the modern technological fixes to meet our material needs brought us to the environmental predicament we face today: “we created a powerful technology and forged an organization of economy and society to deploy that technology extensively, rapidly, and, if need be, ruthlessly. And we succeeded in subduing nature and creating wealth far beyond our ancestors’ imaginings. So successful were these systems and accomplishments that we were swept up in them, mesmerized by them, captivated, even addicted. There were warning signs along the way, …: being, not having; giving, not getting; needs, not wants; better, not richer.”[72] Given that all religions have consistently emphasized being, giving, and simplicity in living, not surprisingly, Speth

admits that to bring about the necessary change of consciousness “the potential of faith communities is enormous.” For him, the need of our time is to follow in the footsteps of someone like Dr. Martin Luther King, Jr., the Christian preacher whose courage to seek change in the racial status quo was grounded in faith in the Christian promise of God’s justice.[73]

With more than three decades of experience in seeking solutions to the crisis, the authors of *Limits to Growth* have come to very similar conclusions. Like Speth, they also believe in the necessity of advanced technology along with great transformation of consciousness that can redirect resources to produce such technologies: “Impressive — and even sufficient — technological advance is conceivable, but only as a consequence of determined societal decisions and willingness to follow up such decisions with action and money.”[74] For them, such decisions and willingness are only possible through a “structural change” of the dominant consciousness of today that consists of “deeply held beliefs and practices … that make people see themselves primarily as consumers and producers, that associate social status with material or financial accumulation, and that define goals in terms of getting more rather than giving more or having enough.”[75] Without that necessary change of consciousness “society will develop technologies and markets that destroy the environment.”[76] That necessary change, as they point out, “is a change advocated in nearly every religious text, a change not in the physical or political world, but in people’s heads and hearts — in their goals, in their understanding of their purpose in life.”[77]

Sachs faults contemporary environmentalism for treating the crisis “as a technical problem what in fact amounts to no less than a civilizational impasse — namely, that the level of productive performance already achieved turns out to be not viable in the North, let alone for rest of the globe.”[78] He repeatedly calls for the need for “enlightened restraint”[79] or “intelligent self-limitation”[80] of production and consumption as the crucial missing element in all the strategies to contain the environmental crisis. He recommends listening to the “Teachers of wisdom in the East and the West … [who] almost unanimously recommended adherence to the principle of simplicity in the conduct of life … [which] demands a limited but skilful use of material objects.”[81] Again, the truth is that teachers of wisdom who have recommended simplicity for the most part have been devoted followers of one religion or the other. In our time, we can cite examples of Mahatma Gandhi (1869–1948), Mother Teresa (1910–1997), the Dalai Lama (b. 1935) and Sufi Masters such as Shaykh Ahmad al-‘Alawī (1869–1934) or Shaykh Muhammad Rahim Bawa Muhaiyaddeen (d.1986) who have done the same.

0.4 THE ROLE FOR RELIGIONS AND THE SIGNIFICANCE OF NASR

In stressing the role of religion in our approach to the environmental crisis, Max Oelschlaeger, an authority on religion and ecology, has observed that “certain social

preferences — for example, sustainability, for preservation of endangered species and wild places — are incapable in principle of being realized through the market."[82] They can be realized only through religion which is "the primary form of cultural conversation outside the modern story of economic growth and technological fixes."[83] In the same vein, Mary Evelyn Tucker, a leading authority on religion and ecology has observed "no other group of institutions can wield the particular moral authority of the religions."[84]

Mainstream environmentalism may be said to lack a certain persuasive power because of its strictly secular nature. Bryan Appleyard, one of the most penetrating critics of modern science and its applications in recent decades, has noted that mainstream environmentalism at the end offers no more than a mechanical vision of the universe and by the same token offers "no transcendent rationale" for the transformation of the soul our veteran environmentalists believe is necessary for decisive change in human behaviour to avoid the continued worsening of the environmental crisis:

> The environmentalist may enthuse about peace of mind he may attain through correctly green behaviour. But, at base, his reasons for that behaviour is purely practical. *There is no transcendental rationale.* It is a religion of catastrophe. We can only undo the harm we have done; we can aspire to nothing higher. All that we have achieved is as nothing before the mute, alien landscape of nature. And that remains, as in the bleak vision of mechanical determinism, all that we can ever have, even in the Green paradise.[85]

Today, it is in the context of the sense of the lack of a more persuasive rationale in the mainstream environmentalism or a search for a way to revive spiritual or religious values that the significance of Seyyed Hossein Nasr's approach to environmentalism becomes apparent. With regards to the environmental crisis, Nasr observes, "We all know … that outwardly (I do not say inwardly) this crisis is driven by the modern economic system appealing to human passions, especially the passion of greed intensified by the creation of false needs, which are not really needs but wants."[86] He asks, "How are we going to stop people from wanting more and more if not through the power of the Spirit accessible through religion? …. No force in the world today, except religion, has the power to do that unless it be by sheer force."[87] Most importantly, for Nasr, religion should not be seen just as a source of ethics but also knowledge: "Every religion provides … not only principles for ethical action, but also knowledge, knowledge in the deepest sense of the term, of God, of the human state, and also of nature."[88]

Nasr's environmentalism can be traced to an intense love for virgin nature that he felt as a child at the foothills of Mt. Damavand in Iran: "It was at the foothills of this peak … that I first encountered virgin nature in her awesome majesty and developed an intense love for her which has accompanied me throughout my life."[89] This love

for nature accompanied him in the Boston area where he lived while studying at M.I.T. and Harvard. By the mid-1950's, the cost to the local nature as a result of technological and economic progress in the area brought home to him "the imminence of the environmental crisis."[90]

His direct involvement with environmentalism began in May 1966 with his Rockefeller Foundation Lectures at the University of Chicago. These lectures, first published in 1968 as the book *The Encounter of Man and Nature: The Spiritual Crisis of Modern Man,*[91] argue that "the ecological crisis is only an externalization of an inner malaise and cannot be solved without spiritual rebirth of Western man."[92] According to Nasr, the "inner malaise" is caused to a large extent by the "various applications of modern science."[93] In his Rockefeller Lectures, Nasr traced the intellectual and historical roots of the crisis to renaissance humanism and its fruit, modern science, which eventually replaced the medieval Christian worldview with modern scientific worldview. In summarizing Nasr's thesis in Chapter 1, we discuss two terms in particular which are crucial for understanding Nasr's approach to the crisis, namely 'scientism' and 'scientific progressivism.' As discussed in Chapter 1, scientism is the conviction that modern science provides if not the *only*, at least the *mos*t reliable means to true knowledge.[94] For Nasr, scientism led to the widespread acceptance of the ideology that modern science and scientific rationality constitute the most reliable means of human progress. In Chapter 1, we have termed this ideology of human progress through the pursuit of modern science and scientific rationality, 'scientific progressivism.'[95] In addition, Chapter 1 adds recent research by economic historians that confirms the critical importance of modern scientific worldview, and not just the presence of energy resources like coal and the Protestant work ethics, in ushering in the Industrial Revolution and the accompanying economic system based on continuous progress.

0.4.1 Nasr Rejects Lynn White, Jr.'s Thesis Against Christianity

At this point, it is important to outline the difference between the position of Nasr and that of historian Lynn White, Jr. with regards to the environmental crisis because White's seminal article "The Historical Roots of our Ecological Crisis"[96] and Christian refutation of White's position has come to shape, to a large extent, the discourse on the role that religions can play in human response to the environmental crisis.[97]

Published ten months after Nasr's Rockefeller Lectures in May 1966, White's thesis was that the root of the environmental crisis lay in the Biblical axiom that humans "have dominion" over the earth.[98] On the other hand, White reiterated a number of themes of Nasr's Rockefeller Lectures although without as much philosophical justification as Nasr had done. Most importantly, White concurred with Nasr's view that our outlook on nature determines how we interact with it and that there could be no technological solution to the environmental crisis.[99] For Nasr, glorification of human reason during the Renaissance followed by the Scientific

Revolution and modern scientific worldview, and *not* Biblical teachings, were at the root of the idea of domination in the modern sense. After all, the environmental crisis did not begin prior to the Industrial Revolution which can hardly be imagined without the Scientific Revolution.[100] Rejecting White's hypothesis against Christian theology, Nasr has observed that "neither Christian Armenia nor Ethiopia nor even Christian Eastern Europe gave rise to the science and technology which in the hands of secular man has led to the devastation of the globe, and that therefore other factors must have been involved."[101] He reminds his audience that "Only rarely has any voice been raised to show that the current belief in the domination of nature is the usurpation, from the religious point of view, of man's role as the custodian and guardian of nature."[102] Indeed, Peter Harrison has demonstrated that in the Genesis the Hebrew term *rada* which has been translated as "have dominion"[103] did not convey this meaning but "the ideal of just and peaceful governance."[104] In addition, White had ignored that human dominion over nature could not have implied exploitation of nature, for as Genesis 2:15 states: "God took the human person and put him in the garden to cultivate and *care for* (Hebrew: *shamar*) it."[105] In the same vein, Nasr and other Islamic environmentalists have argued against those Muslims today who seek to justify exploitation of nature on the basis of Qur'ānic verses that declare that God has made the natural world subject to human beings.[106] He argues that such an interpretation only applies to those "who remains God's *'abd* (servant) and not the man who declares his independence of God's Will. That is why in another verse referring to animals the Qur'ān says, *Thus have We made them subject unto you that ye may magnify Allah* (22:37)."[107]

Even though White's thesis against the Christian conception of human dominion over nature has been characterized by many as simplistic, it's incrimination of the Christian scripture for the environmental crisis provoked a series of refutations from many Christian intellectuals.[108] Compared to the attention generated by White's article, Nasr's *The Encounter of Man and Nature* went relatively unnoticed, except in few works that followed in its wake such as Theodore Roszak's *Where the Wasteland Ends*[109] first published in 1972, followed by Phillip Sherrard's *The Rape of Man and Nature*[110] both of which argue in essence that the environmental crisis is an outer reflection of modern human's spiritual crisis, or alternatively, as Nasr put it, "He who is at peace with God is also at peace with His creation, both with nature and with man."[111]

But, as we have seen, more than forty years after Nasr's Rockefeller Lectures leading environmentalists are finally pointing at the need for a spiritual renewal to be the essential foundation for any truly effective answer to the environmental crisis. In the mean time, Nasr has elaborated his thesis extensively in his *Religion and the Order of Nature*. Moreover, in many articles, speeches, and especially in a series of interviews published over the last decade, he has provided an outline of a specifically Islamic response to the crisis in the context of current intellectual challenges and in

light of not only Islamic ethics but also of Islamic philosophical, metaphysical and scientific traditions of which he is one of the greatest living authorities. One might say that Nasr's elaborations of traditional Islamic philosophy, metaphysics and scientific tradition alone can enable one to *fully* appreciate his response to the environmental crisis.

However, it is important to note that Nasr, like the veteran Western environmentalists we have discussed, does not discount mainstream technological solutions to the environmental crisis. As such, it is important to spell out Nasr's position in this regard at the outset to dispel any notion that he does not acknowledge modern technology's ability to help alleviate the crisis.

0.5 NASR ON TECHNOLOGICAL SOLUTIONS

Nasr rejects the possibility of any *long-term* technological solution for a number of reasons. First, as in the case of developmental activities, it is the application of modern science and technology which has led to the crisis to begin with. Reliance on technological solutions can only perpetuate the mentality responsible for the current state of things.[112] For Nasr, most importantly, this mentality relates to the way reliance on modern technology undermines the vision of unity of reality.[113]

Second, Nasr argues that it is not possible for modern science to know how the innumerable elements in a real ecology interact with each other even at the material level. For instance, Nasr points out that while we can calculate the force of gravitation between two objects in hypothetical isolation easily, to do so in the presence of a third object is immensely complicated, and to do so in the presence of the fourth is nearly impossible.[114] Likewise, Max Oelschlaeger notes that "Chaos theory, among other scientific developments, offers a new language through which nature is viewed as a dynamic system so complex as to defy definitive scientific description and theoretical elucidation."[115] If modern science cannot identify the actual interrelationships among the innumerable variables in nature, we have no reason to believe that there could be a technological solution even in the remote future. Yet, given the critical state of the environmental crisis, Nasr is not against technological or economic fixes if they will *slow the pace* of destruction:

> It is true that we have to take some immediate practical measures such as having more public transportation, using natural gas rather than petroleum, and so forth .... Such actions are all well and fine, and one should do what one can along these lines .... *Such actions are going to give us more time* in which to really solve the problem. So I am in favour of all immediate solutions on a technological or economic level ... less polluting technologies will help .... What people like Al Gore and others are saying is correct to a large extent ... but *I do not believe those technologies alone will save us from the crisis*. We have to have an inner transformation. We have to have another way of looking at ourselves, at the purpose of human life, what makes us happy, and not turn over

to consumption as the only way to be happy.[116]

Thus, Nasr's overall objective is not fundamentally different from what Meadows et al., Sachs and Speth are advocating. However, as we will see, his approach goes much deeper than theirs in questioning, in light of Islamic metaphysics, philosophy, and theology, the merits of modern science and technology, the worldview associated with it, and especially, in arguing for an alternative science altogether.[117] But to make sense of how his arguments from Islamic intellectual perspective relate to the environmental crisis for people of different faiths worldwide, we need an overview of the other major intellectual influence on Nasr, namely the perennial philosophy and its perspective on traditional epistemology, metaphysics and cosmology in diverse religious traditions.

0.6 NASR AND THE PERENNIAL PHILOSOPHY

Nasr has been deeply influenced by the school of perennial philosophy that arose in the 1920s with René Guénon (1886–1951) and whose foremost expositor in the twentieth century came to be Frithjof Schuon (1907–1998).[118] What has distinguished this school of perennial philosophy from any other school bearing the same name in the past has been its emphasis on following one religious tradition or another in its totality. Hence, followers of the school of perennial philosophy beginning with Guénon generally refer to themselves as Traditionalists,[119] the term we will use henceforth to refer to them. Nasr's thoughts resonate with those who have been deeply influenced by Guénon and Schuon such as Ananda Coomaraswamy (1877–1947), Titus Burckhardt(1908–1984), Lord Northbourne (1896–1982), Martin Lings (1909–2005), Hasan Gai Eaton (1921–2010), Marco Pallis (1895–1989), William Stoddart (b. 1925) and Huston Smith (b. 1919). Nasr's role as both an Islamic philosopher and a Traditionalist becomes understandable seeing what the fundamental principles of the perennial philosophy are.

Nasr's views on the perennial philosophy are almost identical to those of Frithjof Schuon.[120] According to this philosophy, there are certain metaphysical principles in each religion which are universal in their essential reality. The most important and foundational of these principles of reality is described as the Supreme Reality, which is Absolute, and Infinite in the sense of containing all possibilities such that any existence outside It is incomprehensible.[121] Second, the existence of a multiplicity of entities within this infinite Single reality necessarily implies a hierarchic structure of being and consciousness issued from this same Supreme Reality.[122] These two principles exist in some form or another in all authentic religious traditions, even in their outward dimension.[123] Only in the inner dimension of the religion, however, are the full implications of these principles discussed.[124]

According to the perennial philosophy, a religion is authentic as long as it is based on a revelation from the Supreme Reality; in other words, an authentic religion

cannot be founded by purely human efforts.[125] Having been based on guidance from the Supreme Reality, *only* an authentic religion can guide human beings in "understanding the universe"[126] and traversing the various levels of being and awareness to reach back to that Source.[127] As such, the perennial philosophy considers Hinduism, Buddhism, Judaism, Christianity, Islam and any other tradition that agrees with the three fundamental principles mentioned above as authentic religious traditions.[128]

Clearly, the existence of any religion implies that the human being has a purpose. Since his purpose necessitates "understanding the universe" or making sense of what he encounters beside himself, everything in the cosmos must have a meaning and therefore a purpose. Thus, for reality as such, and not just with regards to human beings alone, the perennial philosophy believes in the presence of at least three principles at the foundation of each authentic religion: 1) Unity of the Supreme Principle; 2) Hierarchic structure of Reality; 3) Ultimate meaningfulness or purposefulness of all things in the universe (i.e. there is a meaning for each entity beyond its utilitarian value to the human being). Not surprisingly, these principles are reflected in Islam's outer dimension and in their fullest elaboration in its inner dimension or metaphysics as we will see in Chapter 2. This essential identity between the principles of Islamic metaphysics and those of the perennial philosophy, with regards to the principles of reality as such, is what supports Nasr's stance as a Traditionalist as well as a traditional Islamic philosopher.[129] For Nasr, as we will see, these three perennial principles and their implications form the basis of his entire analysis of the root of the environmental crisis and its solution.

As to the question of why we should believe in the truth of these principles, Nasr and other Traditionalists point to their inclusion of revelation and of knowledge accessed by a faculty of perception more penetrating than reason. This brings us to the heart of Nasr's epistemology, which includes this other faculty of perception present within human beings.

0.6.1 Reason, Intellect and Revelation

Nasr claims that nowadays the words 'intellect' and 'intellectual' have come to mean "analytical function of the mind" and "hardly bear any relation to the contemplative"[130] and have thus deviated from their traditional sense. Along with other traditionalists, Nasr insists on the existence of a human faculty of perception that is more penetrating and inclusive than the faculty of reason. Traditionalists refer to this faculty of perception as the Intellect,[131] and the act of perception through this faculty as 'Intellection.'

The existence of this faculty of perception is affirmed by both the eastern and western religious traditions.[132] Traditional philosophies from both the East and West make a clear distinction between reason and Intellect. Plato, for example, highlights how the eternal unchanging Truth is apprehensible by an intelligence beyond the

faculty of reason.[133] Abū Hāmid al-Ghazzālī (d.1111), the celebrated Islamic theologian, asserted that there is "a light that appears in the heart" through which the vision "that all proceeds from one source and that there is no more than one Agent" — a verification (*tahqīq*) of the *tawhīd* (Unity of God) — is obtained.[134] Al-Ghazzālī refers to the power of perception of that light as the "prophetic power" beyond the reach of ordinary reason.[135]

Nasr contends that the Arabic term *al-'aql* is used in the Qur'ān to denote both reason and Intellect. If that can be misleading, in Islamic philosophy and Sufism, "the distinction between the two as well as their interrelation and the dependence of reason upon the Intellect is always kept in mind."[136] Indeed, in the Islamic peripatetic philosophy of al-Fārābī (870–950) and Ibn Sīnā (980–1037) there is a clear distinction between ordinary rationality and a rational power in the human actualized by an intelligence beyond the human level.[137] The Illuminationist philosophers following Shihāb al-Dīn Suhrawardī (1155–1191) and those connected with the school of Ibn 'Arabī, including Mullā Sadrā, also make a clear distinction between ordinary rationality and a faculty of perception which perceives spiritual realities.[138] Additionally, as we will see in Chapter 3, in Sufism, the Intellect is referred to as the pure heart or the 'eye of the heart,' a faculty of perception beyond ordinary rationality which "witnesses" spiritual verities.

Likewise, for Schuon, the Intellect is that light of God within the human being which the famous Christian gnostic Meister Eckhart (1260–1327) described as "something in the soul that is uncreated and uncreatable."[139] As such, it is through this divine spark within us, and not by any power that is purely human, that we can know God. In the same vein, the Intellect is like the inner revelation of the Qur'ān which is also a direct guidance from God. [140]

Being an integral element of the human condition, the Intellect is never totally inoperative in any human being. The Intellect, when "subject to the contingencies"[141] of individual consciousness,[142] works like reason, whose function is "division and analysis" that can provide "peripheral knowledge" alone.[143] Thus, carrying out the "analytical function of the mind"[144] , the faculty of reason is like a reflection of the Intellect on the ordinary human plane.[145] But, how can the Intellect function free of the contingencies of the human condition?

As we shall see in Chapter 3, the goal of the seekers of God on the Sufi path is to purify the heart in order to attain the 'eye of the heart,' or the Intellect. As Schuon asserts, the Intellect can manifest only in proportion to the cultivation of virtue which "is conscious and permanent striving after perfection" implying "self-effacement, generosity and love of truth."[146] Nasr concurs with Schuon's assessment and relates it to Qur'ānic suggestion that "human reason … when healthy and balanced leads naturally to [the realization of] *tawhīd* rather than to the denial of the Divine and can be misled only when the passions destroy its balance and obscure its vision."[147] With the cultivation of virtues[148] according to the religious tradition that any particular

Revelation has given rise to,[149] the contingencies of individual consciousness can be gradually overcome to render the Intellect increasingly more free to perceive without constraints. In other words, for the Traditionalists, knowledge by the Intellect is much more "concrete" than what is accessible by reason. Rational knowledge, being discursive by nature, is "abstract" in the sense that it is not knowledge realized at depth of one's heart, at the depth of one's being.[150] The stages of attainment of virtues or of self-purification also suggest a hierarchy in the functioning of the Intellect, sometimes referred to as the hierarchy of Intellects.[151]

Nasr and other Traditionalists base their certitude of the perennial principles and their implications on the Revelations, as well as on sapiential interpretations of these Revelations (which is necessarily achieved through the use of the Intellect), and finally on their own Intellection. As for those who doubt the truth of Intellection, "the only possible reply is that such proof is given by the expressions of Intellection themselves; just as it is impossible to prove the validity of a given religion to every soul … so also is it impossible to prove the reality of the Intellect to every understanding."[152] Schuon argues that "in every manifestation of liberating truth there is something self-evident, to which we may or may not be sensitive but which we grasp to the extent that our mind recognizes in this manifestation some latent content of its own substance."[153] And this is what "compels faith."[154] Thus, the main criterion of the perennial principles is the direct perception by the Intellect, and not the mere intellectual discovery of an essential identity of metaphysical principles across diverse religious traditions. However, as Nasr points out, the ubiquity of the principles simply confirms the Intellect's universal function.[155]

0.6.2 Metaphysics, Cosmology and Religious Worldview

The Traditionalist understanding of such terms as metaphysics and cosmology are keys to grasping Nasr's thought, and therefore, in order to avoid confusion, it is important to note the distinction between the Traditionalist and the modern philosophical or scientific understanding of these same terms. According to Nasr and other Traditionalists, metaphysics is the science of the Real, "the primary and fundamental science or wisdom which comes before and contains the principles of all other sciences."[156] In this sense, Nasr notes that the Traditionalist understanding of metaphysics is the same as what has been understood by *m'arifah, jñāna* and other such terms from various religious traditions.[157] As understood by these traditional terms, metaphysics is concerned with the knowledge of God in the ultimate sense and it is thereby at the heart of every religion. Thus, in the traditional sense Shankara (788–821), Ibn Arabī (1165–1240) and Meister Eckhart (1260–1327) were among the most eminent metaphysicians of Hindu, Islamic and Christian traditions respectively.

In light of the discussion above, the perennial philosophy is an exposition of any traditional metaphysics in the most universal terms. According to Nasr, there is no

distinction between the perennial philosophy and Islamic metaphysics in its essence.[158] A Traditionalist adheres to the traditional metaphysics of the religious tradition he follows and makes sense of the diversity of religions by the perennial philosophy. Since the metaphysics in every religion is concerned with the knowledge of God or the ultimate reality, the Intellect as the faculty of perception that 'sees' the true nature of things beyond appearances is the essential means of metaphysical knowledge or certitude.[159]

The Traditionalist definition of metaphysics stands in sharp contrast to the modern philosophical understanding of the term. The contemporary philosopher Peter Godfrey-Smith of Harvard University describes metaphysics as "a subfield of philosophy."[160] As for what metaphysics deals with, Godfrey-Smith states that "Standard questions here include the nature of causation, the reality of the 'external world' .... The term is sometimes seen as referring to an investigation that goes beyond what can be addressed using science. Constructed that way, metaphysics is regarded by many as a mistaken enterprise."[161] Metaphysics in this modern sense does not look beyond the material or sensible universe.[162]

Likewise, there is a sharp distinction between traditional understanding of cosmology and modern scientific understanding of the term. As with metaphysics, the Traditionalist understanding of cosmology coincides with the way cosmology has been understood in various religious traditions which seek to describe the cosmos in its totality, including material and non-material realities including God or the Highest Reality.[163] They depict a hierarchic structure of being, authority and reality wherein all material and nonmaterial beings and entities originate from and depend on God at various levels of the cosmos. Traditionally, metaphysics is the science of the Real or the science of the way everything in the cosmos is related to what is ultimately Real, that is, God.[164] Hence, traditional cosmology is a picture of the cosmos viewed through the metaphysical principles.[165] As Titus Burckhardt notes, traditional cosmology is "the science of the world inasmuch as this reflects its unique cause, Being."[166]

A traditional Christian or Islamic cosmology can be depicted as levels of heavens and angelic beings, with the earth being at the lowest plane, and God being beyond the furthest heavenly plane. Interpreted symbolically, however, the various elements of any cosmology depict a relationship between God and universe which reflects the principles of unity and hierarchy of reality such that the cosmos is an ordered whole reflecting God's power, glory, will and wisdom from 'above' at all levels, including the earth. And as such, everything in the worldly plane has a meaning and therefore a purpose. Modern cosmologies, on the other hand, are really cosmographies that depict *only* the material aspect of the cosmos according to modern scientific findings and speculations.[167] As such, from the traditional perspective there is no such thing as a modern scientific cosmology, no matter how much we know of the material dimension of the cosmos.[168]

Traditional cosmology is therefore a religious cosmology and the term religious

worldview is synonymous with traditional cosmology. Since the same metaphysical relationship between God and the creation can be depicted through a variety of symbols, outwardly even within the same religious community there can exist different cosmologies. Likewise, in different religious traditions, different symbols and terms have been used outwardly to depict their cosmologies.[169] Hence, in speaking of a religious worldview, Traditionalists underline the overarching metaphysical principles. In that sense, a religious worldview is an articulation of reality as such, because in every religion God is ultimately synonymous with that which is most Real. Thus, for a Traditionalist, any religious worldview *fundamentally* refers to the view that the totality of reality is characterized by unity of reality, hierarchy of reality and meaningfulness or purposefulness of the cosmos.

The significance of cosmology or worldview in Nasr's approach to the environmental crisis lies in the fact that no conscious human decision or action takes place in a metaphysical vacuum, that is to say, without a sense of what is real within and without him.[170] Gestalt psychologists have also concluded that one's worldview determines one's perception.[171] For instance, we don't jump from the top of a mountain because we know that the nature of reality is such that we will hurt ourselves badly if we do so. When someone prays, he does so because for that person the nature of reality is such that there is a God in the universe who listens and responds, so on and so forth. Accordingly, Nasr contends that the human activities that has led to the environmental crisis was caused by a shift from the religious worldview prevalent before the Scientific Revolution to one determined by modern science after the Revolution.

0.7 NASR AND TRADITIONAL ISLAM

According to Nasr, if one looked at the Islamic world two hundred years ago, "all that he could have observed, from the esoteric utterances of a Sufi saint to the juridical injunctions of an*'ālīm*, from the strict theological views of a Hanbalite doctor from Damascus to the unbalanced assertions of some extreme form of Shi'ism, would have belonged in one degree or another to the Islamic tradition; that is to the single tree of Divine Origin whose roots are the Qur'ān and the *Hadīth*, and whose trunk and branches constitute that body of tradition that has grown from those roots over some fourteen centuries in nearly every inhabited quarter of the globe."[172] In other words, all these divergent claims were fundamentally determined by the Qur'ān and the *Hadīth,* at least with regard to the fundamental principles including *tawhīd* (unity of God)*,* hierarchy of reality, and of the origin and end of the universe in God*.* Indeed, for Nasr, "tradition" is primarily its principles:

> By "tradition" we do not mean habit or custom or the automatic transmission of ideas and motifs from one generation to another, but rather a set of principles which have descended from Heaven and which are identified at their origin with a particular manifestation of the Divine, along with the application and deployment

of these principles at different moments of time and in different conditions of a particular humanity.[173]

Even if the various groups in Islamic history differed from each other, they agreed on certain fundamental principles and also practiced many of the same customs of the Prophet Muhammad (peace be upon him). Nasr contrasts this situation with the modern one in which many Muslims' worldviews are significantly shaped by what is 'modern' which for him "means that which is cut off from the Transcendent, from the immutable principles which in reality govern all things and which are made known to man through revelation…"[174] As the social critic Gerard Kelly has observed, "Central to th[e] ideas [of modernism] is the supremacy of reason, expressed in scientific enquiry and giving birth to technological progress."[175] Indeed, for Nasr, the 'modern' had its beginning in the rationalistic tendencies of "the European Renaissance"[176] and culminated with modern science which in turn led to the Enlightenment, scientism, and Industrial Revolution.[177] Hence, we may say that for Nasr, modernism today consists of ideas which are based, directly or indirectly, on the transcendent-denying worldview of modern science and the associated rationalism.[178]

For Nasr, the very presence of modernism, along with numerous current 'fundamentalist' movements which share many counter-traditional ideas with roots in modernism,[179] has necessitated the need to distinguish tradition from the effects of modernism in the society.[180] Thus, for Nasr, 'traditional' Islam is not a *new* category of Islam; rather, it is the understanding of Islam unaffected by modern scientific worldview, directly or indirectly, through various modern ideologies rooted in that worldview. Traditional Islam, as defined by Nasr, differs from other contemporary forms of Islam in that the latter largely rejects the inner dimension of Islam, namely Sufism, though Sufism "not a teaching meant to be followed by *all* members of the community."[181] Thus, Nasr's understanding of traditional Islam, as that which embraces both the outer and the inner dimension of Islam, is in accord with the opinions of grand authorities namely "al-Ghazzālī (d.1111) in the Sunni world, and Shaykh Bahā' al-Dīn 'Amilī (1546–1621), in the Shi'ite world."[182]

According to Nasr, the fundamental difference alluded to above between the traditional perspective and those of other current movements also comes from the former's acceptance of the sapiential commentaries of the Qur'ān and *Hadīth,*[183] espousal of Islamic art,[184] emphasis on religious ethics in economics,[185] insistence on non-coercive political administration,[186] and opposition to scientific worldview in support of the religious/metaphysical view of nature.[187] The last point, that is, the role of Sufism and the associated metaphysical knowledge in traditional Islam in upholding a religious/metaphysical view of nature and in providing a foundation for Islamic ethics, in the face of challenges by modern scientific views on nature, is the main subject of our discussion in Chapter 3.[188]

Nasr points out the traditional nature of his own early upbringing in Iran:

> The greatest care was taken in my education in a home in which there was constant talk of cultural and religious matters and where [Sufi] poetry flowed freely like the morning breeze. I was tutored from the earliest age by both parents who spent many hours a week teaching me verses of the Qur'ān, Persian poetry and even history, especially sacred history even when I was at the pre-schooling stage."[189] He continues, "Although Tehran was becoming gradually modernized, we still lived in a more or less 'medieval' Islamic town. The early experience of our house, the narrow streets leading to it, the small mosque, the religiously decorated water fountain (*saqā-khānah*) nearby, the kind and pious neighbors, the sounds of the Qur'ān and the chants of vendors passing by are all indelibly marked in my memory and represent in a concrete manner the experience of the pre-modern world which I was to rediscover later intellectually. [190]

This earlier traditional Islamic upbringing was complemented in two principle ways since his mid-twenties. From twenty four years of age he joined the 'Alawī branch of the Shadhili Sufi order.[191] In addition, for two decades thereafter he studied with the most renowned traditional teachers in Iran, namely Sayyid Muhammad Kāzim 'Assār, 'Allāmah Sayyid Muhammad Ṭabāṭabā'ī (1892–1981) who wrote the most voluminous commentary of the Qur'ān in the twentieth century, *Tafsīr al-mīzān* ("The Commentary of the Balance"), Sayyid Abu'l-Hasan Qazwīnī, and Hādī Ha'irī, a great authority on Rūmī and Sufism who was "like a second father"[192] to Nasr. With the first three teachers, he studied traditional philosophy and metaphysics, especially Ibn 'Arabī, Suhrawardī and Mullā Sadrā, and with Hadi Ha'iri he studied Sufi literature.[193] Commenting on his immersion into Sufism and the study of Islamic philosophers after a long study of Western thought, Nasr's speaks with wonder at the depth of Islamic wisdom and his abiding commitment to it ever since: "The writings of Sufi masters and Islamic philosophers began to regain the profoundest meaning for me after this long journey through various schools of Western philosophy and science…It was based upon personal rediscovery after a long search and one might add suffering, Islamic wisdom became a most intense living reality…because I had been guided by the grace of Heaven to the eternal Sophia of which Islamic wisdom is one of the most universal and vital embodiments. Henceforth, I was set upon the intellectual path I have followed ever since… "[194] His turn to Islam was not just confined to academic interest. As Dr. Mohammad Faghfoory recalls his student days at the University of Tehran when Nasr was a member of the faculty in the university, "It was hard for many students at the University of Tehran in the 1960s to comprehend that a young Harvard-educated professor prays five times a day and fasts regularly during Ramadan and almost every Thursday."[195]

A word must be said about Nasr's views on the Sunni/Shi'ite division within the Muslim world because some scholars have portrayed him as one having a Shite

intellectual perspective.[196] First, while his traditional teachers in Iran were all Shi'ite, he has been part of a Sunni Sufi order for over fifty years. Second, the intellectual issue which concerns his view on nature, namely, the nature of reality as such, is the same both in the Sunni and the Shi'ite worlds in their inner dimensions. As Nasr has observed, the differences between Sunnism and Shi'ism lie mainly "on the formal and legal level" and Sufism transcends these outer differences without rejecting them.[197] Nasr points out that the first eight of the Shi'ite Imams also "appear in the initiatic chain of nearly every Sufi order."[198] Also, Ibn 'Arabī has been as influential in the Shi'ite as in the Sunni world. The distinguished Iraqi Sunni Islamic scholar Haifaa Jawad dismisses any criticism of Nasr's pro-Shi'ite bias to be without any foundation. [199] It is not surprising that in addition to his native Iran, his writings have been very influential in the mostly Sunni countries of Indonesia, Malaysia, Pakistan and Turkey. [200]

Nasr's articulation of traditional Islam has found support among some of the foremost Islamic scholars today. According to John Voll, a leading contemporary historian of the Muslim world, from early in his career Nasr has articulated an "Islamic perspective that reflected the main lines of the majority consensus within the framework of the historic traditions of Islam"[201] and from the 1970s onward became the most visible spokesperson of the Muslim intelligentsia who were *traditional* and yet fully cognizant of the modern world.[202] William Chittick, one of the foremost scholars of Islamic intellectual history today, has stated categorically that Nasr's "interpretation of the contemporary implications of Islamic thought are firmly grounded in the tradition, much more so than many of his critics would like to acknowledge."[203] Chittick argues that if Nasr quotes Schuon and other Traditionalist authors frequently that "cannot be taken as evidence that his views do not have the Islamic support that he claims. He is not speaking as a preacher interested in bolstering his arguments by quoting the revered names, but rather as a philosopher who has found some of the clearest expositions of his intellectual vision in contemporary authors." [204] However, in addition to the Qur'ān and *Hadīth*, Nasr quotes Ibn Sīnā, al-Ghazzālī, Ibn 'Arabī, Mullā Sadrā, Rūmī and many other great authorities of Islamic tradition frequently. Indeed, Jawad has stated categorically that "Seyyed Hossein Nasr is one of the main proponents of…the traditional Islamic point of view."[205] Jane Smith, another distinguished Islamic scholar, adds that "Nasr persuasively makes the case for the absolute necessity of reappropriating the traditional Islamic perspective."[206]

0.8 ENVIRONMENTALISM IN THE MUSLIM WORLD AND NASR

Based on the several country reports in *Environmentalism in the Muslim World,*[207] the most comprehensive study done yet of Muslim environmentalism across the world, one can draw a few conclusions about environmentalism in the Muslim world today. As in the West, developmental activities in Muslim countries have been the primary cause of environmental degradation. The limitations of conventional Western

environmentalism we discussed earlier are confirmed by studies on many major Muslim countries where environmental movements, more often than not, are modelled after their secular counterparts in the West and try to follow similar methods in raising environmental awareness and in "managing" the natural "resources" through secular or scientific means. Ali Ahmad, a Nigerian Islamic legal expert, laments about methods used by most Muslim environmentalists in Nigeria, "their strategies and plans of action completely adopt the Western framework, with little consideration for an Islamic input that will readily address local sensibilities."[208] Even Saudi Arabia, the country which is home to the birth-place of Islam, has a National Commission for Wildlife Conservation and Development (NCWCD) that is run as a secular institution. Not surprisingly, "There has been a steady decline of *himā*[209] system in Saudi Arabia over a number of years, much of it giving way to unsuitable economic development projects."[210]

As in the West, business and industrial sectors have been most resistant to environmentalism and governments themselves have been, except in the case of Iran[211] and possibly Malaysia,[212] often at odds with agendas of environmental movements. The whole agenda of 'sustainable development' — a kind of development which does not endanger future availability of resources — pushed for and often partially funded by Western nations, the UNDP and international environmental organizations, generally is not accompanied by any serious effort on the ground to ensure sustainability of the environment.[213] Most often, development activities are carried out with little concern for their impact on the environment. Existing government regulations are weak and rarely enforced. The lack of greater active interest can be attributed to a variety of factors. Often, among the general population, there is little awareness that the environmental crisis is not simply about garbage piling up in their neighborhoods or confined to some Western countries, but threatens the environment/ecology of the whole planet in a way that will make human life on earth progressively more difficult in the years and decades ahead. But, the most important factors driving the environmental degradation, are developmental activities fuelled by the ideals of material progress related to scientific progressivism.

As an intellectual, Nasr sees his function to be one to affect change directly at the level of ideas not at the level of actions.[214] Hence, the intellectual support of Muslim modernists and many 'fundamentalists' that legitimizes and encourages scientific progressivism is the subject of our discussion in Chapter 4. As we will see, Muslim modernist reformists beginning with Jamāl al-Dīn al-Afghānī (1838–1897), later followed by many 'fundamentalists,' saw no fundamental difference between Islamic science of the middle ages and modern science. Accordingly, the reformists saw modern science and technology as value-neutral and the central means of progress of human society. Nasr points out that this lack of distinction between traditional and modern science, and blindness to the secular cultural baggage that comes with scientific progressivism, stand in the way of a spiritual view of nature essential to bring back the attitude of respect and care for nature.

In Chapters 5–7, we see how Nasr's arguments based on Islamic metaphysical principles delegitimize the arguments of the proponents of scientific progressivism. First, Chapter 5 implicitly rejects the claim that modern science is simply an advanced version of traditional science. Nasr demonstrates that Islamic traditional sciences had developed in harmony with the fundamental metaphysical principles which were later to be ignored completely in modern science. Second, Nasr rejects the view that either modern science or modern technology is value-neutral. We present Nasr's arguments to that effect in Chapters 6 and 7. In Chapter 6, we discuss how modern scientific knowledge creates a worldview wherein God is irrelevant. Instead of helping to realize *tawhīd,* modern scientific knowledge portrays a cosmos of distinct, ontologically unrelated material entities. Here we include Nasr's critique of modern science whose immediate significance becomes clear in light of the strong opposition to his kind of environmentalism voiced by Western secular environmentalists who are inspired by the theory of evolution. Chapter 7 discusses how a modern technology-based lifestyle forces one to think quantitatively and ultimately has the same effect on human thought as scientific knowledge does — it takes one's consciousness away from the realities of unity and hierarchy of reality as well as from any sense of an ultimate purpose beyond the material domain. In summary, Chapters 6 and 7 warn of continuous undermining of Islamic values in the milieu of modern science and technology.

The discussions in Chapters 6 and 7 also underline the importance of the discussion in Chapter 3 about metaphysical knowledge as the foundation of ethics and of Sufism as the means of realizing it. It is the basis of Nasr's argument that a merely ethical approach to the environmental crisis, while helpful, cannot succeed in the long run if modern science is allowed a free reign. Though an ethical approach can be effective, especially in projects which are relatively isolated from larger economic activities such as the Misali Ethics Project in Zanzibar led by Fazlun Khalid, [215] Othman Llewellyn's Jabal Aja' project in Saudi Arabia,[216] tree-planting campaigns in Northern Nigeria[217] and Ayman Awhal's efforts to save forests in Malaysia and Indonesia.[218] But the deteriorating environmental situation in Iran illustrates that for a nation at large unless collective ambition of continuous technological and economic growth is not curbed,[219] preaching on environmental ethics of Islam (which Iranian government has done well),[220] while helpful, cannot effectively contain or reverse the environmental degradation.

Nasr is much in agreement with most other prominent Muslim environmentalists with regards to the need to revive existing Islamic ethics regarding the environment as well as to expand their scope to face the challenge of today's environmental degradation.[221] We have in mind most prominent Islamic environmentalists like Mawil Izzi Dien, Fazlun Khaled, S. Nomanul Haq, Othman Abd-ar Rahman Llewellyn, Ibrahim Ozdemir and several others whose views can be easily traced to the Qur'ān or the Hadīth, and by the same token are traditional by nature.[222] Almost all of them have been, in one degree or another, influenced by Nasr's exposition of the relationship

between God, the human being and the natural world since the publication in the early 1960s of his *Introduction to Islamic Cosmological Doctrines*. Where they differ from Nasr is in their attitude, in varying degrees, towards modern science and the role that Islam's inner dimension can play in addressing the environmental crisis. For instance, Fazlun Khalid, who is perhaps the most active Islamic environmentalist on the ground, relies mainly on appealing people to Islamic ethics.[223] Yet, he owes much to Nasr's vision on environmentalism and still consults him.[224] Nasr attempts to bring together both the outer dimension of Islam in the form of Islamic ethics which includes the *Sharī'ā*, and the inner dimension of Islam — Sufism, traditional sciences and later Islamic philosophy which have integrated Sufi metaphysics, all of which uphold the metaphysical principles of Islam — to address the crisis. For this reason, we think Nasr's approach to the environmental crisis is *more fully* traditional Islamic than those of other Islamic environmentalists.

Many of the aforementioned Islamic environmentalists also recognize the folly of the modern scientific worldview as that which stands in the way of a viable solution to the environmental crisis.[225] But unlike Nasr, they have neither criticized modern science, scientism or scientific progressivism extensively, nor suggested comprehensive alternatives, however improbable in the short term, to enable Muslims to deal with the problem of scientism and scientific progressivism in the Muslim world in the long run. At the same time, the scientific progressivist attitude of modernist reformists can be found among some of the Islamic environmentalists such as Mawil Izzi Dien, who believes that "[Western] civilisation … utilizes empirical methodology and organisation to harness natural phenomena in the service of human needs. By combining this instrumental civilisation with the Islamic notion of value, significant advances may be made in the Muslim world in particular, and possibly extended to the wider world."[226] This statement is particularly surprising in light of his awareness of the horrendous social disruption and ecological disaster that has been caused by the rapid industrialization of the Middle East in the last few decades.[227]

0.8.1 Criticisms of the Idea of Islamic Environmentalism

Nasr and other Islamic environmentalists have also faced criticisms for their insistence that Islam itself is highly eco-friendly and Muslims need only to become aware of this aspect of their religion. Foremost among these critics of Nasr and other Islamic environmentalists are Richard Foltz and Kaveh Afrasiabi.[228] While Afrasiabi's critique of the Islamic attitude towards the environment runs along the same line as Foltz's, his is particularly polemical in tone. Hence, my rebuttal of the more nuanced critique by Foltz should serve for both.

Given the limited scope, I will point out only a few of many unconvincing arguments Foltz makes to suggest that Islam is not originally as eco-freindly as Islamic environmentalists, including Nasr, insist. In interpreting the Qur'ānic verse *In Whose Hand is the dominion (malakūt) of all things* (23:88), Nasr states, in

reference to the natural order, “This verse not only implies the governance of all things by God but also the existence of metaphysical root of all things in God’s ‘Hand.’”[229] For Foltz, Nasr’s interpretation of the term ‘nature’ contrasts with the way the term has been used by Ibn Sīnā or *Ikhwān al- Safā*, and this difference serves as an evidence of self-styled interpretations of Islamic environmentalists.[230] On the other hand, Nasr’s comment clearly relates to the doctrine of immutable archetypes (*al-a‘yān al-thābita*) attributed to Ibn ‘Arabī’s interpretation of certain Qur’ānic verses and the principle of hierarchy of reality.[231]

Foltz dismisses, without evidence, the way Islamic environmentalists understand the Qur’ānic doctrine of the human being as the *khalīfah* (vicegerent) of God to mean, among other things, that humans bear the responsibility to care for nature according to God’s will, that is, as stewards following God’s will on earth.[232] On the other hand, we find classical exegetes of the Qur’ān such as Abū Ja‘far al-Tabarī (d. 923) and Abū ‘Abdallah al-Qurtubī (d. 1273) interpreting the term *khalīfah* as one who follows the will of God.[233] In the same vein, from an inner perspective, we find Sufis like Ibn ‘Arabī and Nizām al-Dīn Nishaburi (d. 1327) see *khalīfah* as the human being who can judge God’s creation with the qualities of God Himself.[234]

Foltz’s dismissal of the interpretation of Islamic sacred texts by contemporary Muslim environmentalists, early commentators of the Qur’ān, or by mystics like Ibn ‘Arabī, as unauthentically Islamic no matter how enormously influential, belies his own argument that only one interpretation of the sacred texts should not be seen as true in exclusion of the rest, while insisting that only “non-hierarchical” interpretation of the sacred texts are needed today.[235] Foltz’s stance is particularly puzzling with regards to the interpretation of the term *khalīfah* when there appears to be a consensus among Islamic environmentalists in understanding the term in the sense mentioned earlier. According to Foltz, the term *khalīfah* suggests a hierarchical relationship between the human being and rest of creation which, for him, is problematic for the environment.[236] Such an interpretation is, in fact, more in line with those of Muslim reformists and many fundamentalists who wrote, according to Othman Llewellyn, “under the influence of European Humanism, and in response to allegations that Islam gives too little value to the human being.”[237] Furthermore, in light of our earlier discussion, only in the state of surrender to God’s will does one have any right over the created order.[238] Exploitation of nature has no place in this relationship between the human being and nature.

Foltz’s dismissal of the environmentalists’ understanding of the term *khalīfah* goes along with his contention that Islam is anthropocentric “like Christianity and Judaism.” Foltz explains, “Islam … emphasizes the relationship between humans and God above all else and has, by comparison, little to say about the importance of our myriad fellow creatures.”[239] In other words, for Foltz, the focus on the “relationship between humans and God” proves Islam’s anthropocentrism. What Foltz misses, sadly, is that in Islam, much like in the other two Abrahamic faiths, cultivating the virtues of justice, compassion, contentment, simplicity, etc., which strengthen the

relationship between God and humanity, can also guarantee protection of the natural world from human exploitation, as noted by the veteran environmentalists Sachs, Speth and Meadows *et al*.[240] Moreover, the Qur'ān and the *Hadīth* have much to say about the value of the natural world and the need to treat every entity with compassion.[241] Beyond that, in the absence of the industrialization, the traditional world had no need for a more extensive theology with regards to the environment. As Ali Ahmad has observed, in the Northern Nigeria "It is widely accepted that Islam played a significant role in engendering consciousness about natural elements, their beauty, their precise and delicate order, and how everything is interrelated and connected."[242] If the Islamic faith intrinsically has been less caring about the natural world than the Hindu or the Buddhist world, as Foltz has implied,[243] there would be evidence that these other civilizations had preserved their natural world better in the pre-modern age. Moreover, there is no evidence now that Hindu India or Buddhist Sri Lanka are any less active in polluting their contemporary environment than their geographical and cultural neighbors Muslim Bangladesh and Pakistan.[244]

Foltz asserts, without evidence, that the Qur'ānic doctrine of *tawhīd* has not been understood historically "as meaning 'all-inclusive'"[245] contrary to assertions of contemporary Islamic environmentalists, such as Nasr. Indeed, the understanding of *tawhīd* as the all-inclusive unity of reality is crucial to Nasr's thesis against modern science's fragmented view of reality.[246] Hence the flaws of Foltz's assertion deserve clarification.

Foltz believes that the doctrine of the unity of Being (*wahdat al-wujūd*), attributed to the teachings of Ibn 'Arabī, is the only basis of understanding *tawhīd* as an all-inclusive reality. He believes that *wahdat al-wujūd* is based solely on one Qur'ānic verse *Wherever you turn, there is God's countenance* (2:115),[247] although there are other verses pointing to that meaning and numerous Sufis have spoken of very similar experiences of their own long before Ibn 'Arabī.[248] In addition, *wahdat al-wujūd* is intertwined with the doctrine of immutable archetype (*al-a'yān al-thābita*) which refutes Foltz's suggestion that Ibn 'Arabī was a monist.[249] Moreover, there is precedence of very similar views held by the great theologian and Sufi, al-Ghazzālī who Foltz quotes elsewhere to bolster his own argument for Islamic support of birth control.[250] Al-Ghazzālī states categorically, "The gnostics, after having ascended to the heaven of reality, agree that they see nothing in existence save the One, the Real. Some of them possess this state as a cognitive gnosis. Others, however, attain this through a state of tasting. Plurality is totally banished from them, and they become immersed in sheer singularity .... Nothing is with them but God."[251] This assertion by al-Ghazzālī certainly vindicates Ibn 'Arabī's exposition of *tawhīd* to be in line with that of his uncontroversial great predecessor.

Foltz acknowledges Ibn 'Arabī's enormous influence on Sufism but tries to dismiss his metaphysics as unorthodox [252] and "highly controversial"[253] seemingly unaware of the fact that until the middle of the nineteenth century Sufism could hardly

be distinguished from orthodox Islam for most of the Muslim world.[254] William Chittick, the foremost expositor of Ibn ‘Arabī’s thought in the West, explains how Ibn ‘Arabī has been the most influential Islamic intellectual since al-Ghazzālī[255] and why his influence has been in sharp decline since the second half of the nineteenth century:

> After his death in 1240, Ibn ‘Arabī’s teachings quickly spread throughout the Islamic world .... The reason for this spread was certainly not that the masters of various forms of rational discourse that shaped the Muslim elite were overawed by his mystical credentials. Quite the contrary, they were convinced by the soundness of his arguments and the breadth of his learning. They paid attention to him because he offered powerful proofs, drawn from the whole repertoire of Islamic knowledge, to demonstrate the correctness of his views. Many of these scholars adopted his basic perspectives and a good deal of his terminology, and many also criticized his teachings or made sweeping condemnations. But no reputable scholar could simply ignore him. Ibn ‘Arabī’s doctrines and perspectives did not have the limited, elite audience that one might expect. They also seeped down into nooks and crannies of Islamic culture .... Ibn ‘Arabī’s popularity among Sufis should not be understood to mean that he was widely read by them ... however, those with an intellectual calling, who often ended up as guides and teachers, spoke a language that was largely fashioned by him and his immediate followers .... Partly because of his pervasive influence and widespread recognition, Ibn ‘Arabī came to be targeted by reformers and modernists from the second half of the 19th century.[256]

Hence, James Morris, one of the leading scholars of Ibn ‘Arabī and Islamic intellectual tradition, suggests, “Paraphrasing Whitehead’s famous remark about Plato ... one could say that the history of Islamic thought subsequent to Ibn ‘Arabī (at least down to the 18th century and the radically new encounter with the modern West) might largely be construed as a series of footnotes to his work.”[257] Likewise, what has often been ignored since the nineteenth century is that Ibn ‘Arabī has provided some of the most cogent arguments to emphasize that the observance of the *Sharī‘ā* was an essential means of spiritual perfection for Muslims.[258] In the same vein, Nasr argues that Ibn ‘Arabī has been a great force for the preservation of the Islamic tradition by providing superior reasoning: “Through Ibn ‘Arabī, Islamic esotericism provided the doctrines which alone could guarantee the preservation of the Tradition among men who were always in the danger of being led astray by incorrect reasoning and in most of whom the power of intellectual intuition was not strong enough to reign supreme over other human tendencies and to prevent the mind from falling into error.”[259]

0.9 THE NEED FOR A SACRED SCIENCE

Nasr is not content with drawing attention to modern science's effects on the human mind and consequently upon nature as elaborated in chapters 6 and 7. His traditional response aspires to transform modern science itself traditional by reinterpreting its observational data through the lens of traditional metaphysical principles. For Nasr, this does not necessarily mean reverting back to the traditional Islamic sciences of the middle ages discussed in Chapter 5, but to take them as inspiring models and adopt the natural philosophy of Mullā Sadrā which provides the most systematic treatments in Islam of the parameters of natural sciences as yet, namely cause, effect, space, time, matter, growth and change and how they relate to the being or the self while upholding the principles of unity and hierarchy of reality as well as of the purposefulness of all entities. Chapter 8 summarizes Sadrā's view of the aforementioned parameters of science and how that leads to profound answers to questions relevant today. In addition, Chapter 8 provides a summary of the educational reforms Nasr has in mind to enable Muslims to establish the Islamic sacred science he envisions for the future.

0.10 INTRODUCTION SUMMARY

The environmental crisis has been the result of modern science and technology-based lifestyles and economies. Mainstream environmentalism is at an impasse because it works from within this paradigm of the technology-driven modern economic system without being able to alter that very system which is at the root of environmental degradation. Thus, Nasr and many leading environmentalists agree that there is an urgent need for a religious approach to the environmental crisis.

In the summaries we have provided for each of the chapters, we have outlined Nasr's approach to the environmental crisis; namely that the foundation of Islamic environmentalism must be based on the religious view of nature, that is, on knowledge of nature as given in Islamic sacred texts, their sapiential commentaries and the Intellection of Islamic sages. This approach cannot be successful without undoing the hold of the scientific worldview on people's consciousness. This undoing would involve a re-appreciation of Islamic metaphysics, Sufism and philosophy, and a critique of modern science and technology from the Islamic philosophical or metaphysical perspective. Eventually, this strategy involves replacing modern science with an Islamic science founded on its own metaphysical principles. However, since the environmental crisis confronts the whole of humanity and not just Muslims, Nasr often speaks in the universal terms of the perennial philosophy so as to relate the environmental challenges facing the whole humanity and to point towards long-term solutions.

In order to focus on the main objective of our present study, which is to present Nasr's vision and strategy systematically and comprehensively in rest of the book, this Introducion has also attempted to highlight the similarities and differences between him and other prominent Islamic environmentalists. After a systematic presentation of Nasr's whole strategy over the next eight chapters, in the final

chapter, we will recapitulate his whole strategy and provide our final reflections.

However, for a comprehensive understanding of Nasr's Islamic approach to the environmental crisis, our journey must begin by first identifying what Nasr considers to be the root causes of the current environmental crisis in the intellectual history of Western Europe where Renaissance humanism, followed by the Scientific Revolution, the Enlightenment and the Industrial Revolution were born. It is to these deep philosophical causes that we now turn to in Chapter 1.

NOTES

1. Seyyed Hossein Nasr, *Man and Nature: The Spiritual Crisis in Modern Man* (Chicago: ABC International Group, 1997), p. 3.
2. "Gulf of Mexico Oil Spill(2010): Overview," *New York Times*, 6 August 2010; available.
3. See William Yardley, "Recovery Still Incomplete After Valdez Spill," *New York Times*, 5 May 2010; available from http://www.nytimes.com/2010/05/06/us/06alaska.html?ref=exxon_valdez_oil_spill_1989 Internet; accessed 23 August 2010.
4. See Justin Gillis and Leslie Kaufman, "After Oil Spills Hidden Damage Can Last for Years," *New York Times*, 17 July 2010; available from http://www.nytimes.com/2010/07/18/science/earth/18enviro.html Internet; accessed 23 August 2010.
5. Increasing inability to control our ever more complicated technology was made even more evident with the meltdown of nuclear plants in Japan only a few months after the drilling rig explosion in the Gulf of Mexico.
6. Throughout this book we will make no distinction between the environmental and ecological damage because they are inseparable in our context.
7. According to a recent survey conducted by the University of Illinois (USA) from 3146 participating *earth scientists* 82% believed that the climate is changing because of human activities. Among the *climate scientists* alone that figure rose to 97.4%. See Peter Doran and Maggie Kendall Zimmerman, "Examining the Scientific Concensus on Climate Change," *EOS publication of American Geophysical Union,* Vol. 90 No.3 20 January 2009, p.22. Also, see Naomi Oreskes, "The Scientific Consensus on Climate Change: How Do We Know We're Not Wrong?" in *Climate Change: What it Means for Us, Our Children, and Our Grandchildren,* eds. Joseph Dimento and Pamela Doughman (Cambridge, MA: The MIT Press, 2007), pp. 65–99. Oreskes states that only a handful of scientists many of whom are not even climate scientists, reject the opinion among vast majority of scientists that the environmental crisis is not only real, but also, that it has been caused by the technology dependent modern lifestyle. Oreskes claims that the conclusions of these contrarians have been so flawed scientifically that they have not been able to publish their findings in peer-reviewed journals but only in "books and pamphlets issued by politically motivated think-tanks." See, Oreskes, "Scientific Consensus on Climate Change," p. 75. For a more recent

and detailed study of the same phenomenon, see Naomi Oreskes and Erik Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (London: Bloomsbury Press, 2010).
8. See Elizabeth Rosenthal, “U.N. Panel’s Glacier Warning is Criticized As Exagerrated” *New York Times*, 18 January, 2010; available from http://www.nytimes.com/2010/01/19/science/earth/19climate.html Internet; accessed 18 August 2010.
9. See Peter Gleick *et al.,*”Climate Change and the Integrity of Science,” *Science*, 7 May 2010, vol. 328. No. 5979, pp. 689–690. It is an open letter from about 250 scientists belonging to US National Academy of Sciences which reaffirms the claim of the vast majority of climate scientists that indeed human activities are driving the current environmental crisis. Available from http://www.sciencemag.org/content/328/5979/689.full; Internet; accessed 2 September 2010.
10. See Will Stephen, Paul J. Crutzen and John R. McNeill, “The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature,” *Ambio* Vol. 36, No.8, December 2007, pp. 614–621.
In the same vein, *The Earth Charter* states, “The dominant patterns of production and consumption are causing environmental devastation, the depletion of resources, and a massive extinction of species.” *The Earth Charter*, p. 1. The *Earth Charter*, created by the independent Earth Charter Commission, was produced following the Earth Summit of 1992. Since then it has been endorsed by UNESCO, World Conservation Union (IUCN) and thousands of organizations world wide. Available from: www.EarthCharter.org Internet; accessed 10 June 2010.
11. Stephen *et al,* “The Anthropocene,” p. 615.
12. Ibid., 617.
13. Ibid., 618.
14. Ibid., 616.
15. See Johan Rockstrom *et al*, “A Safe Operating Space for Humanity,” *Nature,* Vol 461 24 September 2009, pp. 472–475.
16. Rockstrom *et al*, “A Safe Operating Space for Humanity,” p. 474.
17. See the *The Key Scientific Developmen ts Since The IPCC Fourth Assessment Report* of June 2009 prepared by the Intergovernmental Panel on Climate Change (IPCC) in *Science Brief* 2, June 2009, p. 5; available from www.pewclimate.org; Internet; accessed 10 June 2010.
18. Ibid., 1.
19. Rockstrom *et al*, “A Safe Operating Space,” p. 474.
20. Ibid.
21. Andrea Thompson, “Pollution May Cause 40 Percent of Global Deaths,” *LiveScience*, 10 September 2007; Available from: http://www.livescience.com/environment/070910_pollution_deaths.html Internet; accessed 9 December 2010.
22. Deirdre N. McCloskey, *Bourgeois Dignity: Why Economics Can’t Explain the*

Modern World (Chicago: University of Chicago Press, 2010), p. 12.
23. Seyyed Hossein Nasr, “An Intellectual Autobiography,” in *The Philosophy of Seyyed Hossein Nasr,* The Library of Living Philosophers, Volume XXVII, eds. Lewis Edwin Hahn, Randall E. Auxier, Lucian W. Stone, Jr. (Chicago and La Salle: Open Court Publishing Company, 2001), p. 16.
24. Ibid.
25. Ibid.
26. Every couple of years since 1939, one living philosopher has been chosen for this library by a distinguished board of contemporary philosophers. The philosophers chosen include such prominent philosophers of the twentieth century as John Dewey, Alfred North Whitehead, Bertrand Russell, Karl Popper, Martin Buber, A.J. Ayer and Hans-Geroge Gadamar. Nasr is one of only two non-European philosophers who are part of the list, the other being the Indian philosopher Sarvepalli Radhakrishnan. See the introductory pages of *The Philosophy of Seyyed Hossein Nasr,* The Library of Living Philosophers, Volume XXVII, eds. Lewis Edwin Hahn, Randall E. Auxier, Lucian W. Stone, Jr. (Chicago and La Salle: Open Court Publishing Company, 2001).
27. Huston Smith quoted on the dust jacket of Seyyed Hossein Nasr, *Religion and the Order of Nature* (New York and Oxford: Oxford University Press, 1996).
28. Keith Critchlow, “Keyonte Speech” in *The Beacon of Knowledge: Essays in Honor of Seyyed Hossein Nasr*, ed. Mohammad H. Faghfoory (Louisville, Kentucky: Fons Vitae, 2003), p. xlvii.
29. See Richard Foltz, Introduction to *Islam and Ecology: A Bestowed Trust,* eds. Richard C. Foltz, Frederick M. Denny, and Azizan Baharuddin (Cambridge, MA: Harvard University Press, 2003), p. xxxviii.
30. This assessment is based on our inability to find any comparable scholarly work prior to Nasr’s *The Encounter of Man and Nature: The Spiritual Crisis of Modern Man* (London: George Allen and Unwin, 1968) dealing with the religious and philosophical roots of the contemporary environmental crisis at length. (Subsequent editions of the same book have left out the words ‘the encounter’ from the title). In this connection, also see Giovanni Monastra, “Seyyed Hossein Nasr: Religion, Nature, and Science,” in *The Philosophy of Seyyed Hossein Nasr,* The Library of Living Philosophers, Volume XXVII, eds. Lewis Edwin Hahn, Randall E. Auxier, Lucian W. Stone, Jr. (Chicago and La Salle: Open Court Publishing Company, 2001), pp. 496–497.
31. Lord Northbourne (1896–1982), another prominent Perennialist, wrote eloquently about the land, organic farming and spirituality. However, his writings were relatively limited on the impact of scientific worldview and did not deal with traditional metaphysics of nature nearly as extensively as Nasr has done. See *Of the Land and the Spirit: The Essential Lord Northbourne on Ecology*, eds. Christopher James, the 5th Lord Northbourne and Joseph Fitzgerald (Bloomington, IN: World Wisdom, 2008).
32. Seyyed Hossein Nasr, *The Need for a Sacred Science,* (New York: State University of New York, 1993), Chapter 6: 71–94. Also, see Seyyed Hossein Nasr, “The Ecological Problem in the Light of Sufism: The Conquest of Nature and the

Teachings of Eastern Science," in Sufi Essays, 3d ed. (Chicago: ABC International Group, 1999), pp. 152–163.
33. For further elaboration of religious worldview, see section 0.6.2 and see Chapters 1–3 for the meaning in the Christian and the Islamic context. Speaking of pre-modern human beings at large, Mircea Eliade observed, "For religious man, nature is never only 'natural'; it is always fraught with a religious value. This is easy to understand, for the Cosmos is a divine creation…the world is impregnated with sacredness." Mircea Eliade, *The Sacred and the Profane: The Nature of Religion*, trans. Willard Trask (New York: Hartcourt, 1987), p. 116.
34. For an overview of the scientific worldview, see John J. Carvalho IV, "Overview of the Structure of a Scientific Worldview," *Zygon,* vol. 41, no. 1 (March 2006), pp. 113–124.
35. We have paraphrased Huston Smith's definition of 'scientism.' See Huston Smith, "Scientism: The Bedrock of the Modern Worldview," in *Science and the Myth of Progress,* ed. Mehrdad M. Zarandi (Bloomington, IN: World Wisdom, 2003), 233. For a brief discussion of the nature and consequences of the modern scientific worldview and scientism, see Chapter 1.4–1.5. For an extended discussion, especially from the Islamic metaphysical perspective, see Chapter 6.
36. As Huston Smith has asserted, "Until the rise of modern science, all the peoples of the world believed not only in this world, but also in another world, which although invisible, is more real and more important than this one — the world presented in Plato's allegory of the cave, which depicts this world as only the shadows cast by a transcendent world." Huston Smith, *Beyond the Postmodern Mind : The Place of Meaning in a Global Civilization* (Wheaton, IL: Theosophical Publishing House, 2003), p. 244.
37. Seyyed Hossein Nasr, "Islam and the Problem of Modern Science," in *An Early Crescent: The Future Knowledge and Environment in Islam,* ed. Ziauddin Sardar *(*London: Mansell, 1998), p. 133.
38. Nasr does not criticize modern science "if it is kept within the boundaries defined by the limitations of its own philosophical premises concerning the nature of physical reality as well as its epistemologies and methodologies." Seyyed Hossein Nasr, *Need for a Sacred Science*, p. 4. Also, see our Chapter 6.
39. See Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, and William W. Behrens III, *The Limits to Growth* (New York: Universe Books, 1972). This book had a seminal effect on arousing awareness of a crisis with the environmental condition. For the same reason it provoked many criticisms especially by economic growth advocates who did not, like Herman Kahn, want to believe that technology or resources could have limits. See Elodie Vielle Blanchard, "Modelling the Future: An Overview of the 'Limits to Growth' Debate," Centaurus 2010: 52: pp.91–116.
40. Frederick Buell, *From Apocalypse to Way of Life* (New York and London: Routledge, 2003), p. 11.
41. See Wolfgang Sachs, *Planet Dialectics: Explorations in Environment and Development* (Halifax, Nova Scotia: Fernwood Publishing, 2001).

42. Ibid., pp. 47–48, 59.
43. Ibid., 60. Also, see Lloyd Timberlake, “The Emergence of the Environmental Awareness in the West,” in *The Touch of Midas*, ed. Z. Sardar (Manchester Univ. Press, 1984), p. 127.
44. Sachs, *Planet Dialectics ,* p. 35.
45. Ibid., 34. See for instance the predicament of the people who live near Kerinci Sebalat National Park in Western Sumatra. Fazlun Khalid, “Applying Islamic Environmental Ethics,” in *Environmentalism in the Muslim World*, ed. Richard C. Foltz (New York: Nova Science Publishers, 2005), 108–09. Also see Vandana Shiva, “Soil not Oil” *Alternatives Journal*, 35:3, 2009, pp. 19–23.
46. Andrea Cornwall, “Buzzwords and fuzzwords: deconstructing development discourse,” *Development in Practice*, Volume 17, Numbers 4–5, August 2007, p. 472.
47. Ibid., p. 471.
48. Sachs, *Planet Dialectics,* pp. 41–42**.**
49. James Gustave Speth, *The Bridge at the Edge of the World* (New Haven: Yale University Press, 2008), 56–57.
50. Sachs, *Planet Dialectics,* p. 41.
51. Ibid., pp. 51, 53–54. Ali Ahmad notes that “under-development or the simplicity of agrarian lifestyle” was not the only reason for a harmonious relationship humans and nature in pre-modern Northern Nigeria, “there were clear manifestation of an Islamic pedigree” for this harmony: “Although a sizeable number of the people were nomadic pastoralists, they seldom encroached upon designated *harīms* and *himās.*” See Ali Ahmad, “Nigeria,” in *Environmentalism in the Muslim World*, ed. Richard C. Foltz (New York: Nova Science Publishers, 2005), pp. 76–77. A *harīm* in Islamic law is a public space prohibited from dirtying or loitering, and a *himā* is a designated as an area where any harm to nature is strictly prohibited.
52. Donella Meadows, Jorgen Randers and Dennis Meadows, *Limits to Growth: The 30-Year Update* (White River Junction, Vermont: Chelsea Green, 2004). This is a second update of their seminal work by the same title thirty years earlier and has received wide acclaim by environmentalists. This book based its projections on much more optimistic assumptions about technological efficiency and resource availability than it was done previously. However, the outcome did not change significantly.
53. Ibid., p. 212.
54. Meadows et al, Ibid., pp. 168–169. In response to critics who have pointed out that predictions of economic collapse made by the first edition of *Limits to Growth* have not quite materialized in the same way yet, Jun Abraham of Johns Hopkins University has remarked that “modelling sheds light on making an informed decision among possible scenarios” and not to make exact predictions which would be impossible anyway. See Jun Abraham, rev. of *Limits to Growth: 30-Year Update,* by Donella Meadows, Jorgen Randers and Dennis Meadows, *Natural Resources Forum* 29(2005), p. 180.
55. Speth, *Bridge at the Edge*, p. 114.
56. Meadows et al, *Limits to Growth: 30-Year Update*, pp. 210–211. As the authors

of another notable recent study have concluded, “It is wishful thinking to believe that technology — whether in the form of renewable and nuclear energy sources or improved fuel efficiency — will deliver more than a fraction of the reductions needed.” See Mayer Hillman with Tina Fawcett and Sudhir Chella Rajan, *How Can We Save the Planet* (New York: St. Martin’s Press, 2008), p. 239.
57. Meadows et al, *Limits to Growth,* p. 223.
58. Sachs, *Planet Dialectics,* pp. 62–63.
59. Ibid., p. 63.
60. Ibid., p. 62.
61. Jane Bennett, *Unthinking Faith and Enlightenment: Nature and the State in a Post-Hegelian Era* (New York: New York University Press, 1987), p. 47.
62. Sachs, *Planet Dialectics,* p. 36.
63. Bennett,*Unthinking Faith and Enlightenment*, p. 47.
64. Speth, *Bridge at the Edge,p.* 78**.**
65. James Halteman, “A Sustainable world,” *Christian Century*, December 16, 2008, p. 38.
66. Speth, *Bridge at the Edge,* p. 81.
67. Ibid., p.82.
68. Ibid., p.83.
69. Ibid., p.84.
70. Ibid., p.85.
71. Ibid., p.113.
72. Ibid., p. 236.
73. Ibid., p. 232.
74. Meadows et al, *Limits to Growth,* p. 204.
75. Ibid., p. 238.
76. Ibid., pp. 223–224.
77. Ibid., p. 240.
78. Sachs, *Planet Dialectics,* p. 68.
79. Ibid., pp. 41, 48.
80. Ibid., pp. 49, 67.
81. Ibid., p. 212.
82. Max Oelschlaeger, *Caring for Creation: An Ecumenical Approach to the Environmental Crisis* (New Haven: Yale University Press, 1994), p. 48.
83. Ibid., p. 47.
84. Mary Evelyn Tucker, *Wolrdly Wonder: Religions Enter Their Ecological Phase* (Chicago: Open Court, 2003), p. 9.
85. Bryan Appleyard,*Understanding The Present: An Alternative History of Science* (London: Tauris Parke Paperbacks, 2004), p. 137.
86. Seyyed Hossein Nasr, “Religion and the Environmental Crisis,” in *The Essential Seyyed Hossein Nasr*, ed. William C. Chittick (Bloomington, IN: World Wisdom, 2007), pp. 31–32.
87. Nasr, “Religion and the Environmental Crisis,” pp. 32–33.

88. Ibid., p. 36.
89. Nasr, “An Intellectual Autobiography,” pp. 6–7.
90. Ibid., p.29.
91. See n30.
92. Nasr, *Man and Nature*, p. 9.
93. Ibid., p. 13.
94. See Chapter 1.5.
95. Ibid.
96. Lynn White, Jr., “The historical roots of Our Ecological Crisis,” *Science* Vol 155 (10 March 1967): 1203–1207.
97. See Willis Jenkins, “After Lynn White: Religious Ethics and Environmental Problems” *Journal of Religious Ethics,* 37.2, 2009, p. 283.
98. White, “The Historical Roots,” p. 1205.
99. Ibid., pp. 1205–1206.
100. See Chapter 1.5–1.5.1.
101. Nasr, *Need for a Sacred Science,* p. 137.
102. Nasr, *Man and Nature,* p. 19.
103. Genesis 1:26; 1:28.
104. Lloyd H. Steffen quoted in Peter Harrison, “Subduing the Earth: Genesis 1, Early Modern Science, and the Exploitation of Nature” *The Journal of Religion,* 1999, p.88.
105. Quoted in Duncan Roper, “The earth as a “garden” for all creatures: Lynn White forty years on,” in *Stimulus* Vol 15 No 4 November, 2007, p. 20.
106. Q 14:32–33.
107. Seyyed Hossein Nasr, “The Islamic View of the Universe,” in *Islamic Culture, vol. I*, *Foundation of Islam,* ed. Z. Ansari, Paris: UNESCO (in Press), manuscript p. 27. Likewise, in his interpretations of Qur’ānic verses 14:32–34, Ibn Taymiyya (1263–1328) the influential Islamic theologian stated, “God in His great wisdom created [the] creatures for reasons other than merely serving man.” Ibn Taymiyya quoted in Mawil Izzi Dien, *The Environmental Dimension of Islam* (Cambridge, England: The Lutterworth Press, 200), p. 99.
108. For a summary of the debate over White’s contention until the early 1990s see Max Oelschlaeger, *Caring for Creation: An Ecumenical Approach to the Environmental Crisis* (New Haven: Yale University Press, 1994), 22–27. For more recent refutations of White’s thesis see Peter Harrison, “Subduing the Earth: Genesis 1, Early Modern Science, and the Exploitation of Nature” *The Journal of Religion,* 1999, pp. 86–109; Roper, “The earth as a “garden” for all creatures,” pp. 12–20.
109. Theodore Roszak, *Where the Wasteland Ends: Politics and Transcendence in Postindustrial Society* (Berkeley, CA: Celestial Arts, 1989). Roszak had read Nasr’s *The Encounter of Man and Nature* (1968) and dubbed it “a brilliant and important book” and admitted that his own thinking on the need for a “rhapsodic” science for the future “echoe[d] that of Seyyed Hossein Nasr.” Ibid., pp. 406, 489.
110. Philip Sherrard, *The Rape of Man and Nature* (Ipswich, UK: Golgonooza Press, 1987).

111. Nasr, *Man and Nature,* 136. As the distinguished philosopher Ernest Wolf-Gazo asserts, Nasr was “among the foremost spokesmen in the late 1960s and early 1970s who sensed the danger to our environment, due to the senseless quest for domination of nature by Baconian minds — in the West as well as in the East.” Ernest Wolf-Gazo, “Nasr and the Quest for the sacred,” in *The Philosophy of Seyyed Hossein Nasr,* The Library of Living Philosophers, Volume XXVII, eds. Lewis Edwin Hahn, Randall E. Auxier, Lucian W. Stone, Jr. (Chicago and La Salle: Open Court Publishing Company, 2001), p. 278.
112. Seyyed Hossein Nasr, *Islam and the Plight of Modern Man,* 2d ed. (Chicago: ABC International, 2001), pp. 4 and 17.
113. See Chapter 7.2.3.
114. Based on class notes from the graduate level course titled *Man and Nature* taught by S.H.Nasr at the George Washington University (USA), 20 April 2004.
115. Oelschlaeger, *Caring for Creation*, p. 40.
116. Seyyed Hossein Nasr, “On the Environmental Crisis,” interview by Muzaffar Iqbal, in *Islam, Science, Muslims, and Technology: Seyyed Hossein Nasr in Conversation with Muzaffar Iqbal* (Alberta, Canada: Al-Qalam Publishing, 2007), pp. 128–129 and 131.
117. See chapters 6, 7 and 8.
118. See Kenneth Oldmeadow, *Traditionalism: Religion in the Light of the Perennial Philosophy* (SriLanka Institute of Traditional Studies, 2000), p. 144.
119. See Huston Smith, “Nasr’s Defense of the Perennial Philosophy” in *The Philosophy of Seyyed Hossein Nasr,* The Library of Living Philosophers, Volume XXVII, eds. Lewis Edwin Hahn, Randall E. Auxier, Lucian W. Stone, Jr. (Chicago and La Salle: Open Court Publishing Company, 2001), p. 141.
120. Patrick Laude, “Seyyed Hossein Nasr in the Context of the Perennialist School,” in *Beacon of Knowledge: Essays in Honor of Seyyed Hossein Nasr*, ed. Mohammad Faghfoory (Louiseville, KY: Fons Vitae, 2003), p. 246.
121. Seyyed Hossein Nasr, “Traditionalist Approach to Religion,” in *The Essential Seyyed Hossein Nasr*, ed. William C. Chittick (Bloomington, IN: World Wisdom, 2007), p. 21. Schuon explains the Supreme Reality as Absolute in the sense of being unchanging, and Infinite, in the sense of possessing all possibilities. See Frithjof Schuon, *Survey of Metaphysics and Esotericism,* trans. Gustavo Polit (Bloomington, IN: World Wisdom Books, 1986), p. 15. Also see Seyyed Hossein Nasr, *An Introduction to Islamic Cosmological Doctrines: Conceptions of Nature and Methods Used for the Ikhwan al-Safa, Al-Biruni,and Ibn Sīnā,* (Cambridge, Massachusetts: Harvard University Press, 1964), pp. 3–4.
122. Nasr, “Traditionalist Approach to Religion,” in *The Essential Seyyed Hossein Nasr*, p. 21. Schuon, *Survey of Metaphysics and Esotericism,* pp. 19–20.
123. All religions accept that ultimately there is only one God or Reality and that there are a hierarchy of beings less perfect than God or the ultimate Reality.
124. Huston Smith provides a comprehensive presentation of the principles of unity and hierarchy of reality in the inner dimensions of various religious traditions to draw

attention to their essential identity in spite of varied expressions. See Huston Smith, “Nasr’s Defense of the Perennial Philosophy,” p. 148.
125. Nasr, “Traditionalist Approach to Religion,” in *The Essential Seyyed Hossein Nasr*, pp. 22–23. As Lord Northbourne (1896–1982), one of the prominent Traditionalists, stated, “In its original and only valid sense the word “religion” applies only to something which is, above all, not a construction of the human mind, but is, on the contrary, of divine origin, so that it can be said to be supernatural, revealed, or mysterious.” Lord Northbourne, “Religion and Tradition,” in The *Underlying Religion: An Introduction to the Perennial Philosophy*, eds. Martin Lings and Clinton Minnaar (Bloomington, IN: World Wisdom, 2007), p. 3.
126. “Religion is not only key to the understanding of this universe, but also the central means whereby man is able to journey through the lower stages of existence to the Divine Presence.” see Nasr, “Traditionalist Approach to Religion,” p. 21. Also, in this context the term “universe” should not be taken to mean the totality of the universe that only scholars or mystics may know about, but that which one encounters beside oneself. Confirmed in a conversation with Nasr at the George Washington University (USA), 13 August 2009.
127. The logic being that only that which generated the multiplicity in the first place, can guide one through it properly.
128. Some may argue that since Buddhism does not believe in any God or Revelation, a common ground among religions cannot be explained in the language of God and Revelation. Nasr has two main answers to this objection: 1) A Revelation need not be seen as only coming from ‘above’ but also from ‘within’ as in the case of the Buddha. 2). In every theistic religion, there is a personal and an impersonal aspect of God. However, Buddhism is based solely on the impersonal aspect of God. See Seyyed Hossein Nasr, “Reply to Sallie King,” in in *The Philosophy of Seyyed Hossein Nasr,* The Library of Living Philosophers, Volume XXVII, eds. Lewis Edwin Hahn, Randall E. Auxier, Lucian W. Stone, Jr. (Chicago and La Salle: Open Court Publishing Company, 2001), pp. 226 and 229.
129. This is true especially for Islamic philosophers beginning with Shihāb al-Dīn Suhrawardī (d. 1191).
130. Seyyed Hossein Nasr, *Science and Civilization in Islam*, 2d ed. (Cambridge, UK: The Islamic Texts Society, 2007), p. 24.
131. Henceforth, in order to indicate the traditional sense of the term, we will capitalize the letter ‘i’ in the term ‘intellect’ except where it occurs within quotes.
132. For an overview of this conviction of a faculty of perception beyond that of ordinary reason as seen in different religious traditions, see Martin Lings, *Ancient Beliefs and Modern Superstitions,* 2d ed. (London and Boston: Unwin Paperbacks, 1980), pp. 27–30.
133. Plato, *Timaeus* 3:28.
134. Abū Hāmid al-Ghazzālī, *Al-Ghazzali On Trust and the Unity of God,* trans. Muhammad Nur Abdus Salam (Chicago: Great Books of the Islamic World, 2002), p. 22.

135. Abū Hāmid al-Ghazzālī, *Al-Ghazzali's Path to Sufism: His Deliverance from Error*, trans. R.J. Mccarthy, S.J. (Louiseville, KY: Fons Vitae, 2000), 61. That light could also be seen as being directly from God Who is "the Light of the heavens and the earth" and Who "guides to His Light whom He wills." See Q. 24:35.
136. Seyyed Hossein Nasr, *Islamic Philosophy from its Origin to the Present: Philosophy in the Land of Prophecy* (Albany: State Univesity of New York, 2006), p. 94.
137. For a summary of al-Farabi's view on the hierarchy of faculties of perception, see Osman Bakar, *Classification of Knowledge in Islam: A Study in Islamic Philosophies of Science* (Cambridge, UK: Islamic Texts Society, 1998), p. 62. For a similar view of Ibn Sīnā, see Chapter 5.
138. Regarding the Illuminationists see Nasr, *Islamic Philosophy from its Origin to the Present*, 99. For an account of Mullā Sadrā's views on the hierarchy of the faculties of perception, see Sadr al-Dīn Shīrāzī (Mullā Sadrā), *The Wisdom of the Throne: An Introduction to the Philosophy of Mullā Sadrā,* trans. James Morris (Princeton:Princeton University Press, 1981), p. 132; Ibrahim Kalin, *Knowledge in Later Islamic Philosophy: Mullā Sadrā on Existence, Intellect, and Intuition* (Oxford and New York: Oxford University Press, 2010), p. 139.
139. Frithjof Schuon, *The Transcendent Unity of Religions,* 2d Quest ed. (Wheaton, IL: Quest Books, 2005), p. xxix.
140. "Revelation is none other than the objective and symbolic manifestation of the Light which man carries in himself, in the depths of his being." See Schuon, *Survey of Metaphysics and Esotericism,* 81–82. Also, see Nasr, *Need for a Sacred Science,* p. 10.
141. "The Intellect is infallible in itself, but this does not prevent the human receptacle from being subject to contingencies which, though they cannot modify the intrinsic nature of intelligence, can nonetheless be opposed to its full actualization and to the purity of its radiance." See Frithjof Schuon, "In the Wake of the Fall," in *Science and the Myth of Progress*, ed. Mehrdad M. Zarandi (Bloomington, IN: World Wisdom, 2003), p. 24.
142. "Intelligence is either individual or universal; it is either reason or Intellect; if it is individual, it must find its inspiration in its universal root to the extent that it seeks to go beyond the domain of material facts." Schuon, *The Transcendent Unity of Religions,* p. 152.
143. Seyyed Hossein Nasr, "Contemporary Man between the Rim and the Axis," in *Science and the Myth of Progress*, ed. Mehrdad M. Zandi (Bloomington, IN: World Wisdom, 2003), p. 103.
144. Nasr, *Need for a Sacred Science,* 65n3.
145. At times, we will refer to the faculty of reason as 'ordinary reason' to emphasize its distinction from the Intellect.
146. Schuon, "In the Wake of the Fall," pp. 23–24.
147. Nasr, *An Introduction to Islamic Cosmological Doctrines*, p. 7. For Qur'ānic verses, see Chapter 3.4–3.4.1. "Soundness of intellect and the vision of divine signs

[are] a means to *ma'rifah* (experiential knowledge of God or the Supreme Reality)…" 'Alī ibn 'Uthmān Hujwīrī (990–1077), "The Revelation of Realities Veiled," quoted in *Knowledge of God in Classical Sufism,* trans. John Renard (New York: Paulist Press, 2004), p. 275.
148. Schuon, *The Transcendent Unity of Religions,* p. 151.
149. Nasr, *Need for a Sacred Science*, p. 54.
150. Nasr, *Science and Civilization in Islam,* p. 24
151. Seyyed Hossein Nasr, "Reply to Huston Smith," in *The Philosophy of Seyyed Hossein Nasr,* The Library of Living Philosophers, Volume XXVII, eds. Lewis Edwin Hahn, Randall E. Auxier, Lucian W. Stone, Jr. (Chicago and La Salle: Open Court Publishing Company, 2001), p. 160.
152. Frithjof Schuon, *Logic and Transcendence,* trans. Mark Perry, Jean-Pierre Lafouge, and James Cutsinger, ed. James Cutsinger (Bloomington, IN: World Wisdom, 2009), p. 27.
153. Ibid.
154. Ibid.
155. See Nasr, "Reply to Huston Smith," p. 159.
156. Seyyed Hossein Nasr, *Knowledge and the Sacred* (Albany: State University of New York, 1989), p. 132. Also, see René Guénon, "Oriental Metaphysi cs," in *The Underlying Religion: An Introduction to the Perennial Philosophy*, eds. Martin Lings and Clinton Minnaar (Bloomington, IN: World Wisdom, 2007), pp. 95–109 and Frithjof Schuon, "Understanding and Believing," in *The Underlying Religion: An Introduction to the Perennial Philosophy*, eds. Martin Lings and Clinton Minnaar (Bloomington, IN: World Wisdom, 2007), pp. 141–150.
157. Nasr, *Knowledge and the Sacred*, p. 132. The terms *m'arifa* in Arabic and *jñāna* in Sanskrit, connote the term gnosis. In Islam, the term *m'arifah* refers to the experiential knowledge of God. See John Renard, introduction to *Knowledge of God in Classical Sufism: Foundations of Islamic Mystical Theology* (New York: Paulist Press, 2004), pp. 11–63. It is important to note that both the terms *m'arifah* in Islam and *jñāna* in Hinduism mean "knowledge" in the highest sense beyond appearances.
158. We will explore this point further in Chapter 2.
159. As Nasr asserts, "Metaphysics [in the traditional sense] is a veritable "divine science" and not a purely mental construct which would change with every alteration in the cultural fashion of the day or with new discoveries of the science of the material world." Nasr, *Need for a Sacred Science*, p. 54.
160. Peter Godfrey-Smith, *Theory and Reality: An Introduction to the Philosophy of Science* (Chicago: The University of Chicago, 2003), p. 237.
161. Ibid., pp. 237–238.
162. It is in this modern sense that the distinguished philosopher Alex Rosenberg speaks of the mechanical worldview espoused by Newtonian mechanics as "a *metaphysical theory*, according to which the physical universe is just a 'clockwork' mechanism." Alex Rosenberg, Philosophy of Science: A Contemporary Introduction, 2d ed. (New York: Routledge, 2005), p. 81. (accent ours)

163. See, for instance, the all-inclusive nature of Christian and Islamic cosmologies in E. Edson and E. Savage-Smith, *Medieval Views of the Cosmos: Picturing the Universe in the Christian and Islamic Middle Ages* (Oxford: University of Oxford, 2004)
164. For instance, Shyakh Ibn ‘Atā’illāh al-Iskandarī (d. 1309), one of the masters of metaphysics in Islam, states, “The Cosmos is all darkness. It is illumined only by the manifestation of God in it. Whoever sees the Cosmos and does not contemplate Him, in it or by it or before it or after it, is in need of light and is veiled from the sun of gnosis by the clouds of created things.” Ibn ‘Atā’illāh al-Iskandarī , *The Book of Wisdom*, chapter 1, verse 14, trans. Victor Danner (New York: Paulist Press, 1978), p. 49.
165. “All traditional cosmology is in fact the fruit of applications of the metaphysical principles to different domains of cosmic reality.” Seyyed Hossein Nasr, “The Cosmos as Theophany,” in *The Essential Seyyed Hossein Nasr*, ed. William C. Chittick (Bloomington, IN: World Wisdom, 2007), p. 189.
166. Titus Burckhardt, “Traditional Cosmology and Modern Science,” in *Mirror of the Intellect: Essays on Traditional Science and Sacred Art*, trans. and ed. William Stoddart (Cambridge, England: Quinta Essentia, 1987), p. 17.
167. Purely material conception of cosmology by modern science is evident in modern studies of cosmologies. See Steven Weinberg, *Cosmology* (Oxford and New York: Oxford University Press, 2008), pp. v–vi.
168. “A cosmology which is based solely on the material and corporeal level of existence, however far it may extend into the galaxies…is not real cosmology. It is a generalized view of a terrestrial physics and chemistry.” Nasr, *Man and Nature*, pp. 22–23.
169. See Martin Lings, “The Past in the Light of the Present,” in *The Underlying Religion: An Introduction to the Perennial Philosophy*, eds. Martin Lings and Clinton Minnaar (Bloomington, IN: World Wisdom, 2007), pp. 35–54.
170. Based on class notes for the course titled *Man and Nature*, a graduate level course taught by Nasr in the Spring of 2004 at the George Washington University (USA), 27 January 2004. Nasr emphasizes this point in almost all his public lectures on the environmental crisis. For instance, see Seyyed Hossein Nasr, “Reading the Cosmic Qur’ān,” lecture delivered to the Muslim Students’ Association (MSA) at the George Mason University (USA), p. 27 March 2008. Also, see Nasr, “Islam and the Environment,” Lecture delivered at the Georgetown University School of Foreign Service, Qatar, 26 January 2009. Tapes are available at Nasr’s office at the George Washington University, USA.
171. See Huston Smith, “Nasr’s Defense of the Perennial Philosophy,” p. 151.
172. Seyyed Hossein Nasr, *Traditional Islam in the Modern World*, (London and New York: Kegan Paul International, 1994), p. 11. *Hadīth* refers to the sayings of the Prophet Muhammad (peace be upon him).
173. Seyyed Hossein Nasr, *Islam and the Plight of Modern Man,* 2d ed. (Chicago: ABC International, 2001), p. 73.

174. Nasr, *Traditional Islam in the Modern World*, p. 98. (accent ours).
175. Gerard Kelly, *Get a Grip on the Future without Losing Your Hold on the Past* (London: Monarch Books, 1999), 133 quoted in Haifaa Jawad, "Seyyed Hossein Nasr and The Study of Religion in Contemporary Society" *The American Journal of Islamic Social Sciences,* 22:2, 2005, p. 66 n18.
176. Nasr, *Traditional Islam in The Modern World*, 12. Also, see Chapter 1.2–1.3.
177. See Chapter 1.5. As the eminent political theorist Jane Bennett has observed that "Today, to call something 'modern' is to frequently invoke its Enlightenmemnt characteristics." See Bennett, *Unthinking Faith and Enlightenment*, p. 7.
178. See Chapter 1.4–1.4.1.
179. "Most of the current 'fundamentalist' movements while denouncing modernism, accept some of the most basic aspects of modernism. This is clearly seen in their complete and open-armed acceptance of modern science and technology." Nasr, *Traditional Islam in the Modern World*, p. 19. According to Nasr, unlike many 'fundamentalist' movements, traditional Islam is opposed to any form of dictatorship. He believes that "such dictatorships are usually outwardly based on the external forms of political institutions derived from French Revolution and other upheavals of European history, even though they are presented as the authentic Islamic form of government. Ibid., pp. 17 and 20–21.
180. "What is directly opposed to tradition is counter-tradition … and of course modernism, without whose existence there would be no need for the usage of such a term as 'tradition.'" Ibid., p. 14. Nasr excludes the original form of Wahhabism from the counter-traditional category which while opposed to the inner dimension of Islam, still remained bound to the Islamic worldview though in a very exoteric fashion. Ibid., p. 12.
181. Ibid., p. 15.
182. Ibid., pp. 15–16. Also, see Joseph Lumbard, "The Decline of Knowledge and the Rise of Ideology in the Modern Islamic World," in *Islam, Fundamentalism and Betrayal of Tradition*, ed. Joseph E.B. Lumbard (Bloomington, IN: World Wisdon, 2004), pp. 39–77.
183. Nasr, *Traditional Islam in the Modern World*, pp. 14–15 and 18.
184. Ibid., p. 16.
185. Ibid., p. 17.
186. Ibid., pp. 20–22.
187. Ibid., p. 19.
188. A remarkable early manifestation of traditional Islamic response to the scientific worldview was that of the theologian, Sufi and philosopher Maulanā Ashraf 'Alī Thanvī (1863 – 1943). See Fuad S. Naeem, "A Traditional Islamic Response to the Rise of Modernism," in *Islam, Fundamentalism and Betrayal of Tradition*, ed. Joseph E.B. Lumbard (Bloomington, IN: World Wisdon, 2004), pp. 79–116.
189. Nasr, "An Intellectual Autobiography," p. 6.
190. Ibid., p. 7.
191. Nasr, "An Intellectual Autobiography," in *The Philosophy of Seyyed Hossein*

Nasr, 27.
192. Seyyed Hossein Nasr, “An Intellectual Autobiography,” in *The Philosophy of Seyyed Hossein Nasr,* p. 41.
193. In assessing Nasr’s traditional Islamic education, Patrick Laude has observed, “He is by no means a simply a Muslim born expert on Islam, he is the spiritual and intellectual offspring of a lineage of remarkable men whose life and works bear the deep imprint of a whole traditional civilization.” See Patrick Laude, “ Nasr in the Context of the Perennialist School,” p. 247.
194. Seyyed Hossein Nasr, “In the Quest of the Eternal Sophia,” The Complete Bibliography of the Works of Seyyed Hossein Nasr, eds. Mehdi Aminrazavi and Zailan Morris (Kuala Lumpur, 1994), pp. 28–29.
195. Mohammad H. Faghfoory, Introduction to *The Beacon of Knowledge: Essays in Honor of Seyyed Hossein Nasr*, ed. Mohammad H. Faghfoory (Louisville, Kentucky: Fons Vitae, 2003), p. xxvii.
196. Leif Stenberg, *The Islamization of Science: Four Muslim Positions Developing an Islamic Modernity*, Lund Studies in History of Religions, Vol. 6 (New York: Coronet Books, 1996), p. 148.
197. Seyyed Hossein Nasr, *The Heart of Islam: Enduring Values for Humanity* (New York: HarperCollins, 2002), p. 63.
198. Ibid., p. 67.
199. Jawad, “Nasr and The Study of Religion,” p. 64.
200. About Nasr’s influence in Turkey, see Ibrahim Ozdemir, “Turkey,” in *Environmentalism in the Muslim World,* ed. Richard C. Foltz (New York: Nova Science Publishers, Inc., 2005), p. 30. For Malaysia and Indonesia, see Osman Bakar, “The Intellectual Impact of American Muslim Scholars on the Muslim World, with Special Reference to Southeast Asia,” in *Muslims in the United States: Identity, Influence, Innovation*, ed. by Philippa Strum (Washington DC: The Woodrow Wilson International Center for Scholars, 2003), pp. 165–167.
201. John O. Voll, “Changing Western Approaches to Islamic Studies and Seyyed Hossein Nasr’s Vision,” in *The Beacon of Knowledge: Essays in Honor of Seyyed Hossein Nasr*, ed. Mohammad H. Faghfoory (Louisville, Kentucky: Fons Vitae, 2003), p. 88.
202. Ibid.
203. William C. Chittick, *Science of the Cosmos, Science of the Soul: Pertinence of Islamic Cosmology in the Modern World* (Oxford: Oneworld Publications, 2007), p. 78.
204. Ibid. And incidentally, Schuon, Guenon, Burckhardt, and Lings themselves lived as traditional Muslims while they also accepted the validity of other paths.
205. Jawad, “Nasr and the Study of Religion,”p. 49.
206. Jane I. Smith, “Seyyed Hossein Nasr,” Defender of the Sacred and Islamic Traditionalism,” in *The Muslims of America*, ed. Yvonne Y. Haddad (New York: Oxford University Press, 1991), p. 91.
207. *Environmentalism in the Muslim World,* ed. Richard C. Foltz (New York: Nova

Science Publishers, Inc., 2005).
208. Ali Ahmad, “Nigeria,” p. 81.
209. The term *himā* from the time of the Prophet Muhammad has come to mean protected areas for non-human species. The number of *himās* in Saudi Arabia has declined from about 3,000 in the 1960s to only a few dozen existing today. See *Al Himā: A Way of Life*, available from http://cmsdata.iucn.org/downloads/al_Himā.pdf, p.12; Internet; accessed 20 August 2010.
210. Khalid, “Applying Islamic Environmental Ethics,” p. 107.
211. According Richard Foltz, more than any Western or other Muslim countries, Iranian government has been actively supportive of environmental actions and has used Islamic teachings in supporting its position. Richard Foltz, “Iran,” in Environmentalism in the Muslim world, ed. Richard Foltz (New York: Nova Science Publishers, 2005), pp. 5–7. Article 50 in Iran’s 1979 constitution states: “all activities, economic or otherwise, which may cause irreversible damage to the environment are forbidden.” Quoted in Foltz, “Iran,” p. 6. In 1996, the Department of the Environment stated “the religious leaders in Iran have found the principles of environmental conservation compatible with the general guidelines of the holy religion of Islam. It is now the duty of the environmentalists to encourage the Friday Prayer speakers to convey environmental messages to the public.”’ Islamic Republic of Iran Country Paper, Third Session of the Committee on Environment and Sustainable Development, Bangkok, pp. 7–11 October, 1996 (Tehran: Department of Environment, 1996), p. 36. In Iran’s case, lack of sophisticated technology for reducing toxic emission may have left them unable to keep the most obvious symptoms of pollution out of sight as Western nations with a far bigger record of annual pollution has done successfully. Foltz, “Introduction to *Islam and Ecology*,” p. vi.
212. There are serious long term Islamic environmental initiatives being taken by the Malaysian government. See Abu Bakar Abdul Majeed, “Islam in Malaysia’s Planning and Development Doctrine,” in *Islam and Ecology: A Bestowed Trust,* eds. Richard C. Foltz, Frederick M. Denny, and Azizan Baharuddin (Cambridge, MA: Harvard University Press, 2003), pp. 463–475.
213. The idea of sustainable development emerged in the late 1980s. As Frederick Buell has noted, the success of sustainable development has been quite controversial. See Buell, *From Apocalypse To Way of Life*, p. 51.
214. See Chapter 4.1.
215. The Misali Island project in Zanzibar initiated by Fazlun Khalid has used Qur’ānic teachings successfully to motivate the local population, wholly dependent on fishing, to desist from fishing habits that are unsustainable. See “African Fisherman find way of conservation in the Koran,” by Eliza Barclay, published in *Christian Science Monitor*, 31 October 2007; available from http://www.internationalreportingproject.org/stories/detail/407/ Internet; accessed 20 August 2010.
216. Ibid., pp. 106–107. Jabal Aja’ is 2200 sq. km. area and the biggest surviving

natural habitat in the Arabian Peninsula. Mainly through initiatives taken by Othman Abd ar-Rahman Llewellyn, the Saudi government has established Jabal Aja' as a *himā* "to creatively apply the provisions of the Sharia, set an example to the rest of the Muslim world and set up training and education projects to further these objectives." See Khalid, "Applying Islamic Environmental Ethics,"pp. 106–107.
217. See Ali Ahmad, "Nigeria," pp. 81–82.
218. Ayman Ahwal, "Saving Rivers and Forests in Malaysia," in *Environmentalism in the Muslim World*, ed. Richard C. Foltz (New York: Nova Science Publishers, Inc., 2005), pp. 113–131.
219. Iran has committed itself to the idea of "sustainable development" as understood in *Agenda 21* from Rio Earth Summit of 1992. See Foltz, "Iran," p. 6.
220. See n211.
221. See Chapter 3.1.
222. See their essays in *Islam and Ecology: A Bestowed Trust*, eds. Richard Foltz, Frederick Denny and Azizan Baharuddin (Cambridge: Harvard University Press, 2003). Also see *Islam and the Environment*, ed. Harfiyah Abdel Haleem (London: Ta-Ha Publishers Ltd., 1998).
223. Fazlun Khalid founded the Islamic Foundation for Ecology and Environmental Sciences (IFEES) which works on sensitizing their target Muslim populations to teachings in the Qur'ān on the value of the environment and helps in establishing new *himās* wherever possible. See more of their many strategies and projects in different countries at the following website: http://ifees.org.uk/index.php?option=com_content&task=view&id=12&Itemid=26; Internet; 20 August 2010.
224. Khalid, "Applying Islamic Environmental Ethics," p. 89.
225. See the articles by Ibrahim Ozdemir, S. Nomanul Haq, Fazlun Khalid, Abdul Aziz Said and Nathan Funk in *Islam and Ecology: A Bestowed Trust,* eds. Richard C. Foltz, Frederick M. Denny, and Azizan Baharuddin (Cambridge: Harvard University Press, 2003).
226. Izzi Dien, *Environmental Dimension of Islam*, p. 81.
227. Mawil Izzi Dien, "Islam and the Environment: Theory and Practice," in *Islam and Ecology: A Bestowed Trust,* eds. Richard C. Foltz, Frederick M. Denny, and Azizan Baharuddin (Cambridge, MA: Harvard University Press, 2003), pp. 110–114. For a look at the environmental crisis in the Gulf area of the Middle East today, see Liz Alderman,"Dubai Struggles with Environmental Problems after Years of Growth," *New York Times*, 28 October, 2010; available from http://www.nytimes.com/2010/10/28/business/energy-environment/28dubai.html?hpw; Internet; accessed 18 November 2010.
228. See Richard C. Foltz, "Islamic Environmentalism: A Matter of Interpretation," in *Islam and Ecology: A Bestowed Trust,* eds. Richard C. Foltz, Frederick M. Denny, and Azizan Baharuddin (Cambridge, MA: Harvard University Press, 2003), pp. 249–279 and Kaveh L. Afrasiabi, "Toward an Islamic Ecotheology," in *Islam and Ecology: A Bestowed Trust,* eds. Richard C. Foltz, Frederick M. Denny, and Azizan Baharuddin (Cambridge, MA: Harvard University Press, 2003), pp. 281–296.

229. Seyyed Hossein Nasr, *Religion and the Order of Nature* (New York and Oxford: Oxford University Press, 1996), p. 61.
230. Foltz, "Islamic Environmentalism: A Matter of Interpretation," pp. 250–251. Nasr is well aware of the meaning given to the term 'nature' by Ibn Sīnā and some other medieval Muslim thinkers. See Nasr, *An Introduction to Islamic Cosmological Doctrines*, p. 8.
231. "…whatever takes place in the actual world has an ideal primordial form in the world of the spirit…as God says, There is nothing but that We possess its treasures, nor do We send it down except in prescribed measure." Ibn 'Arabī quoted in Mahmoud M. Ayoub, *The Qur'ān and Its Interpreters*, Vol. I (Albany, NY: State University of New York, 1984), pp. 78–79. Also, see Chapter 2.2.1a.
232. Foltz, "Islamic Environmentalism: A Matter of Interpretation," p. 253. For examples of Islamic environmentalists' understanding of the term *khalīfah*, see Othman Abd-ar-Rahman Llewellyn, "The Basis for a discipline of Islamic Environmental Law," in *Islam and Ecology: A Bestowed Trust,* eds. Richard C. Foltz, Frederick M. Denny, and Azizan Baharuddin (Cambridge, MA: Harvard University Press, 2003), pp. 190–91. Also, Ibrahim Ozdemir, "Toward an Understanding of Environmental Ethics from a Qur'ānic Perspective," in *Islam and Ecology: A Bestowed Trust,* eds. Richard C. Foltz, Frederick M. Denny, and Azizan Baharuddin (Cambridge, MA: Harvard University Press, 2003), pp. 25–27.
233. See Ayoub, *The Quran and Its Interpreters*, pp. 74 and 76.
234. Ibid., pp. 78–79.
235. Foltz, "Islamic Environmentalism: A Matter of Interpretation," p. 249.
236. Ibid., p. 254.
237. Llewellyn, "The Basis for a discipline of Islamic Environmental Law," 190. For more, see Chapter 4.
238. Also, see Nasr's comments in this regard in section 0.7.1.
239. Foltz, "Islamic Environmentalism: A Matter of Interpretation," p. 257.
240. See Section 0.6.
241. See Othman Llewellyn, "The Basis for a discipline of Islamic Environmental Law," pp. 249–279.
242. Ali Ahamd, "Nigeria," p. 76.
243. Foltz, "Islamic Environmentalism: A Matter of Interpretation," p. 255.
244. C02 emissions per capita based on 2007 data for India, Sri Lanka, Pakistan and Bangladesh were 1.18, .64, .85 and .25 tonnes respectively. See *C02 Emission From Fuel Combustion* report of International Energy Agency (IEA), 2009 ed., p. 89. Available from http://www.iea.org/co2highlights/co2highlights.pdf. Internet; accessed 30 August 2010.
245. Foltz, "Islamic Environmentalism: A Matter of Interpretation," p. 253.
246. See Chapter 6.7.
247. *The Message of the Quran*, trans. Muhammad Asad, Bilingual ed. (Watsonville, CA: The Book Foundation, 2003).
248. See for instance, see Q. 4:126, 57:3, 22:6. "When Sufis … relate all sorts of

verses — dealing with diverse subjects — to the all-pervading, immanent divine Presence, it is not a question of 'speculating in the void.' It is instead the expression of a vision of an all-embracing oneness evoked by particular verses, a vision which is experientially intutited, mystically anticipated or concretely realized." Reza Shah-Kazemi, *The Other in the Light of the One: The Universality of the Qur'ān and Interfaith Dialogue* (Cambridge, UK: The Islamic Texts Society, 2006), p. 77. For Sufi experiences of unity of reality, see *Knowledge of God in Classical Sufism: Foundations of Islamic Mystical Theology*, trans. John Renard (New York: Paulist Press, 2004).

249. See Chapter 2.2.1a and Foltz, "Islamic Environmentalism: A Matter of Interpretation," p. 250.

250. Foltz, "Islamic Environmentalism: A Matter of Interpretation," p. 256.

251. Abū Hāmid Muhammad al-Ghazzālī, *The Niche of Lights*, trans. David Buchman (Provo, Utah: Brigham Young University Press, 1998), 17. In another occasion, he relates this to the formal declaration of *tawhīd* (unity of God): " 'There is no god but God' is the declaration of God's unity of the common people, while 'There is no he but He' is the declaration of God's unity of the elect." See al-Ghazzālī, *The Niche of Lights*, 20.

252. See Foltz, "Islamic Environmentalism: A Matter of Interpretation," pp. 250–251.

253. Foltz, "Islamic Environmentalism: A Matter of Interpretation," p. 253.

254. See Chapter 4.1.1.

255. William C. Chittick, *Ibn 'Arabī: Heir to the Prophets* (Oxford: Oneworld, 2005), p. 1.

256. Chittick, *Heir to the Prophets*, pp. 2–3.

257. James Morris, "Ibn Arabi and his Interpreters," Part II–A, *Journal of the American Oriental Society*, 106 (1986), p. 733.

258. See Chapter 3.3.

259. Nasr, *Three Muslim Sages* (New York: Caravan Books, 1964), p. 91.

Chapter 1
A Historical Overview of the Philosophical Roots of the Environmental Crisis

> A young Muslim will never be able to understand the modern world without understanding the role of religion and also its eclipse in the West during the incubation, birth, growth and spread of the modern world [view] in Europe and America and its later spread to other lands.[1]
> S. H. Nasr

> The solution of the environmental crisis cannot come but from the cure of the spiritual malaise of modern man and the rediscovery of the world of the Spirit.[2]
> S. H. Nasr

Nasr holds that the environmental crisis today is driven by the prevalent modern scientific worldview which, since the Scientific Revolution, gradually replaced pre-existing religious worldviews.[3] Nasr's thesis is based on the premise — supported by the conclusions of the vast majority of the climate scientists[4] — that human activities enabled by modern science and technology since the Industrial Revolution are the main cause behind the environmental crisis. Nasr's solution to the crisis partly lies in our ability to understand what is destructive about modern science and technology and to find appropriate remedies accordingly. The solution, Nasr asserts, requires in part understanding "the philosophical and theological significance" of assumptions inherent in modern science that concerns both the human self-perception and his perception of the nature that surrounds him.[5] Our purpose in this chapter is to highlight Nasr's main conclusions in this regard and present historical evidence to explain them wherever possible. We will do this in three phases.

First, in section 1.1, we will briefly present Christian religious and philosophical worldviews before the advent of modern science. Second, from section 1.2 to 1.4.1, we will outline how, for Nasr, the birth of modern science was the final triumph of a rationalistic trend in Western thought that eventually replaced Christian worldviews with the modern scientific worldview. Third, in sections 1.5 and 1.5.1 we will discuss how the modern scientific worldview gave birth to the modern human being, who is inclined to exploit nature to meet the needs of his increasingly materialistic goals and activities. This will include a brief presentation of recent research by eminent economic historians that, in effect, vindicates Nasr's philosophical conclusion that modern scientific worldview played a crucial role in bringing about the Industrial Revolution and the environmental crisis that eventually followed. We will end the chapter with a summary of Nasr's general recommendations for all civilizations for a lasting solution to the environmental crisis.

1.1 NATURE IN THE PRE-MODERN CHRISTIAN EUROPE

Since modern science was born in the Christian West, we must begin with a look at the view of nature in Christianity, a view that was later to be eclipsed by that of modern science. Many eminent contemporary Christian thinkers have portrayed the Christian view of nature, with emphasis on the view of God's presence in nature, as it was prevalent before the advent of modern science. [6] This attests to the radical transformation of the Western worldview after the birth of modern science. Nasr points out, directly or indirectly, the presence of the perennial metaphysical principles — unity of reality, hierarchy of reality, and the purposefulness of the cosmos — in traditional Christian sources.

First, we have the Biblical view of the unity and omnipresence of the Spirit of God, the view that is also championed by the likes of Francis of Assisi (1182–1226), Hildegard of Bingen (1098–1179) and Meister Eckhart (1260–1327).[7] This relates to the idea of *vestigia dei*, the "signs of God" in all things of nature.[8] Indeed, Saint Paul states this in unequivocal terms: "the invisible things of Him from the creation of the world have been clearly seen, being understood by the things that are made, even His eternal power and Godhead." (Romans 1:20)

Second, the early Greek Church Fathers like St. Maximus (580–662) envisioned the *logos* doctrine, according to which, principles of all entities were contained in Christ, the *Logos* or the Word of God, through whom the cosmos was created by God.[9] Likewise, the doctrine of the existence of archetypes or principles in the Divine plane for of all corporeal entities are to be found in other Christian Platonic and Neoplatonic sages.[10]

Third, we have the synthesis of Aristotelian cosmology with the Christian worldview of St. Thomas Aquinas (1224–1274). Aquinas's perspective has been the centrepiece of scholasticism since the thirteenth century and has been splendidly conveyed by Dante's *Divine Comedy*. It is the vision of a geocentric and finite universe with a hierarchic structure that also represents the levels of reality the human soul has to traverse, starting from the lowest or the earthly level, to reach the highest reality of God.[11]

1.2 THE ROOT IS IN RATIONALISM

While Nasr acknowledges a number of interrelated causes that laid the ground for the emergence of modern science, the increasing dominance of rationalism in Western thought from the twelfth century onward was the fundamental philosophical cause to him. In light of our earlier discussion of the distinction between 'reason' and 'Intellect,'[12] "Rationalism does not mean simply the use of reason, but the exclusive use of reason independent of both intellection and revelation and the consideration of reason as the highest and exclusive authority for the attainment of truth."[13] To be sure, rationalism as such pitted itself against the tradition of St. Augustine (354–430),

St. Thomas Aquinas (1224–1274), Meister Eckhart (1260–1327) and their followers.[14] By the same token, rationalism obscured the sacred or sapiental view of nature that can only be appreciated by the Intellect. As Nasr put it, "The reduction of the Intellect to reason …not only caused sacred knowledge to become inaccessible and to some even meaningless but it also destroyed that natural theology which in the Christian context represented at least a reflection of knowledge of a sacred order, of the wisdom or *sapientia*."[15]

According to Nasr, by the end of the seventeenth century, the growing rationalism among intellectual circles in the Christian West fundamentally transformed the human view of not just the cosmos but also of his own self, "What happened in the post-medieval period in the West was that higher levels of reality became eliminated in both the subjective and the objective domains: There was nothing higher in man than his reason and nothing higher in the objective world than what that reason could comprehend with the help of the normal human senses."[16] It becomes evident from Nasr's analysis that this transformation happened in three progressive major phases. The first phase, which began after the fall of the Moorish city of Toledo in 1085, consisted of the impact on Christian thought of the Islamic Aristotelian philosophy and the associated sciences from the Islamic world.[17] The second phase was driven by the intellectual movement known as Renaissance Humanism. Nasr contends that the transformations of our understanding of the human self and nature during the first two phases effectively divorced philosophy from metaphysics and revelation, laying the foundations for the birth of modern science in the seventeenth century.[18] The third phase is the Scientific Revolution during the seventeenth century, which led to the separation of science from metaphysics and revelation[19] and, by the same token, led to a complete denial of the perennial principles of the unity and hierarchy of reality and of the ultimate meaningfulness or purposefulness of the cosmos.

Given the limited scope of our discussion and our concern with the philosophical foundations of modern science and their implications, we will first highlight some of the most important factors that led to the third phase, the Scientific Revolution, which saw a complete triumph of rationalism and empiricism. This will be followed by a discussion of the basic philosophical assumptions of modern science and how the scientific worldview amounted to a denial of the traditional Christian worldviews fundamentally. We will begin with a brief summary of Nasr's view of the role of Renaissance Humanism in Scientific Revolution and highlight the immense significance of Francis Bacon (1561–1626) in whom, Nasr believes, "can be found that aspect of modern science which is concerned not so much with understanding the order of nature as with dominating over it."[20]

1.3 THE RENAISSANCE HUMANISM AND THE EMERGENCE OF THE PROMETHEAN MAN

The Humanist movement of the Renaissance was multi-faceted and often

contradictory.[21] Increasing rationalist thought was undoubtedly one of the most important trends.[22] First, Aristotelian thought continued to be taught in universities, and increasingly outside the Christian context, until well into the seventeenth century.[23] Second, as Nasr suggests, many of the most influential thinkers of the Renaissance such as Lorenzo Valla (1406–57), Marsilio Ficino (1433–99), Giovani Pico (1463–94), and Charles de Bouvelles (1475–1566) glorified the human being for his possession of reason and freedom with which he could know and experience things, including God, *without any help from heaven*.[24] In fact, Bouvelles identified the wise man with the image of Prometheus who symbolized the audacious human who stole the power of the gods.[25] To this list should be added Giordano Bruno (1548–1600), one of most influential thinkers of the late Renaissance for whom, "The ideal of humanity includes the ideal of *autonomy*; but as the ideal of autonomy becomes stronger, it dissociates itself more and more from the realm of religion."[26]

Another intellectual trend that was manifest along with growing rationalism, especially in the sixteenth century, was scepticism, not only of metaphysical realities, but of the very possibility to know the truth as well. In the early sixteenth century, the humanist movement revived interest in the scepticism of Sextus Empiricus (d. 3rd century) which held "that there is not sufficient and adequate evidence to decide whether knowledge is possible or not,"[27] . After Nicholas Copernicus (1473–1543) presented the mathematical justifications for his heliocentric model of the universe in 1543 and thus revolutionized the European conception of cosmology,[28] the scepticism of Sextus Empiricus was studied more widely and had considerable influence on Montaigne (1533–92), one of the leading voices of late Renaissance.[29] However, the rationalistic trend had to be strong considering that it was the rationalistic Promethean image of the human being which emerged out of the Renaissance and completely eclipsed all other trends during the Scientific Revolution and the Enlightenment that followed. Indeed, the most influential voice that offered a way out of the scepticism of the late Renaissance was that of Francis Bacon (1561–1626), a product of late Renaissance thought who had a decidedly rationalist mindset in understanding the non-human world, in keeping with an outward religiosity.

1.3.1 Baconian Progressivism and the Divorce of Philosophy from Metaphysics

Bacon was instrumental in popularizing the ideology that the knowledge about the material aspect of nature and the development of mechanical arts with the aim to control and harness nature's power was a certain means of human progress. This ideology of human progress came to its full fruition only after the Scientific Revolution of the seventeenth century. In the first decade of the seventeenth century, the epistemology proposed by Bacon to develop such useful arts promised to reverse the still prevalent traditional way of studying the particulars of the phenomenal world by

looking through the metaphysical principles:

> There are and can be only two ways of searching into and discovering truth. The [first] one flies from the senses and particulars to the most general axioms, and from these principles, the truth of which it takes for settled and immovable, proceeds to judgment and to the discovery of middle axioms. And this is now in fashion. The other derives axioms from the senses and particulars, rising by a gradual and unbroken ascent, so that it arrives at the most general axioms last of all. This is the true way, but as yet untried.[30]

> To resolve nature into abstractions is less to our purpose than to dissect her into parts;…Matter, rather than forms should be the object of our attention, its configurations and changes of configuration, and simple action, and law of action or motion; for forms are figments of the human mind, unless you will call those laws of action forms.[31]

Bacon was referring to the still prevalent Aristotelian doctrine of hylomorphism, which stipulated that every corporeal entity was a combination of a 'form' and a 'matter' where 'form' represented the essence of the entity and therefore the actual object of knowledge whereas 'matter' was the unknowable pure potentiality.[32] In his rejection of Aristotelian forms and his reliance on empirical knowledge alone, Bacon was following in the footsteps of the influential late Renaissance nature philosophers[33] except that he wanted to make natural philosophy even more materialistic than they had proposed. Thus, Bacon clearly represents Nasr's contention that Renaissance Humanism divorced philosophy from metaphysics and revelation.[34]

The most crucial aspect of Bacon's proposed methodology was that if only accidents, instead of the universal principles or the intangible Aristotelian forms of things, could be the focus of study, then knowledge of nature could also be *cumulative*. Theodore Roszak illustrates the difference between knowledge reached by the Baconian method and that reached by traditional means.[35] Roszak explains that no other types of knowledge such as philosophy, theology or literature could be cumulative in the same manner because in each of those areas the essentials are intangibles and grasping them would involve not just one's reason, but feelings, intuitions, faith, and speculations as well. While it is possible to gain insights from another's interpretation of Shakespeare, Plato or the New Testament, one cannot directly build on it; each must struggle to grasp the meanings in these with his own heart, for as Roszak holds, "The foundation of the [traditional] arts and of philosophy properly understood is the perennial wisdom."[36] In other words, what one says about Shakespeare's *Hamlet* says as much about one's own wisdom as about Shakespeare. However, the same cannot be said about one recording the changes in the accidents associated with natural entities; if accidents are the only things that

count, as Bacon suggests, one's unfinished work could be taken up by another.[37] Such knowledge consisted of numerical measurements that required only a functioning ordinary rational faculty without needing any contemplation or intuition to grasp the meaning or form of things.

Bacon believed that from the progressive accumulation of physical data on particulars, it is possible to deduce the general principles for the purely physical causes behind natural phenomena. Such knowledge would be the means to harness the power of nature which would benefit human society, and bring about progress. As Bacon himself states, "For the end which this science of mine proposes is the invention not of arguments but of arts … to command nature in action."[38] It is an 'end' which ignores intangible forms and substances of philosophers.[39]

In the *New Organon*, Bacon envisions that his empirical cumulative method of advancing in knowledge was to apply "not only to natural sciences but to all sciences."[40] It is to "embrac[e] everything"[41] except that which directly relates to faith in God. He hoped "that things human may not interfere with things divine …. [And] give to faith that which is faith's."[42] We term this ideology that human progress on earth is possible by basing all knowledge on empirical foundations without affecting the quality of one's faith, 'Baconian progressivism.'

The coming of Baconian progressivism is understandable considering the context of his time.[43] There was extreme poverty among the masses and the apparent utility of the developing mechanical arts in mining, metallurgy, architecture, mechanical clocks, etc., was envisioned as a means to help the masses out of their deplorable material conditions.[44] Yet, as noble as his motives might have been, thinking himself as though on a divine mission[45] to uplift humanity in the material sense, he had little concern for the welfare of the rest of nature. In any case, Bacon was seeking to turn the thrust of human pursuit towards material progress through empirical certainties that deny all assertions in Christian tradition about the hierarchic structure of reality and the vision of nature consisting of the signs of God. As the distinguished philosopher Charles Taylor puts it, the Baconian view abandoned "the attempt to read the cosmos as the locus of signs…in order to adopt the instrumental stance effectively."[46] As such, compared to the prevalent scholastic worldview of the day, things have no intrinsic purpose or final cause in Baconian epistemology.[47] In all, if Bacon thought his method would fulfil God's purpose for humans, he limited that purpose to their material well being only. [48]

Nasr states that until the advent of modern times, the primary goal of Western Christian civilization, or any other civilization for that matter, was the perfection of moral virtue, not the "progress through material evolution"[49] that Bacon called for.[50] Over the course of the Renaissance, historian Torben Nielsen suggests, "Both 'happiness' and 'moral virtue,' the supreme and absolute blessings for antiquity and middle ages, were reduced to incidentals in the process by which man became free." [51]

According to Nasr, the idea of material progress as the primary goal of life was

propelled by two key factors: 1) The “Reduction of man to purely human”;[52] 2) utopianism in the material sense that is clearly discernible with Bacon.[53] By the “reduction of man,” Nasr refers to man’s turning away from his higher nature, the Intellect, and holistic or higher reality that he can perceive through it.[54] Hence, to the extent that the Promethean man[55] abandoned the traditional worldview which could be best appreciated by his Intellect, he also abandoned the goal of spiritual perfection for the goal of progress in material comfort.[56]

The Promethean man’s worldly orientation and the ideology of Baconian progressivism would be given a firm rationalistic philosophical foundation and great prestige by the end of the Scientific Revolution of the seventeenth century. The cosmos had to be completely secularized by a new cosmology that denied the hierarchy of reality in order for the Baconian proposition to be widely accepted. This is precisely what appears to have happened in the course of the Scientific Revolution and thereafter during the Age of Enlightenment.

1.4 SCIENTIFIC REVOLUTION AND THE DIVORCE OF SCIENCE FROM METAPHYSICS

The Scientific Revolution, as Nasr and many other scholars argue, completely secularized nature. [57] In fact, the secularization process fulfilled many objectives of the Baconian vision by (1) redefining ‘matter’ from being a ‘pure unknowable potentiality’ to being just a quantity, (2) rejecting the forms or substances as proper subjects of inquiry, (3) introducing the philosophical basis (Descartes’ bifurcation of the human self and any object of knowledge) for conceiving the possibility of a pure objective knowledge independent of human qualities, and finally, (4) by setting forth mechanical laws and claiming them as the ultimate laws of nature.

Galileo (1564–1642) made a philosophical decision to regard the quantitative aspects of any object as its “primary qualities” and all else that could be said about the object as its “secondary qualities.” As Nasr explains, this was the beginning of the change in the whole conception of ‘matter’ from its traditional view as pure potentiality.[58] It amounted to a rejection of the Aristotelian doctrine of hylomorphism that the Catholic Church had adopted and to giving Bacon’s rejection of substances and forms of objects a stamp of approval from the scientific community.

René Descartes (1596–1650), for his part, was influenced by Bacon through his mentor, the puritan Dutch mechanical engineer Isaac Beeckman (1588–1637).[59] In Descartes’ words, “the nature of body, taken generally, does not consist in the fact that it is hard, or heavy, or a coloured thing, or a thing that touches our senses in any other manner, but only in that it is a substance extended in length, breadth and depth,”[60] that is, *res extensa* (extended thing). What were considered “secondary qualities” by Galileo were produced in the *res cogitans* (thinking thing) which he identified as the human self. The *res extensa* and *res cogitan* faculties, it is important to add, are totally distinct.[61] Moreover, within its “length, breadth and depth,” matter

was no more than a conglomerate of particles and every phenomenon was no more than consequences of matter and motion. Motion was a result of collision or frictions with other "extensions" in an universe where, according to Descartes, even living bodies functioned in the same way as machines did.

With the bifurcation of *res cogitans* and *res extensa*, Descartes went a step further than Galileo. His *Discourse on Method* (1637), coming only four years after the trial and condemnation of Galileo, helped create the first rationalistic school of philosophy. This school posited that the faculty of reason is independent of any higher principle and is the ultimate authority of human conclusions and perceptions. Hence, Nasr suggests that Descartes "made the thinking of the individual ego the centre of the reality and the criterion of all knowledge, turning philosophy into pure rationalism…The knowing subject was bound to the realm of reason and separated from both the Intellect and revelation, neither of which were henceforth considered as possible sources of knowledge of an objective order."[62]

Thus, in addition to reducing the cosmos to a material quantity as Galileo had done before him, Descartes also reduced the human self to that which possessed no faculty of knowledge higher than that of ordinary reason.[63] Descartes ultimately gave philosophical legitimacy to the Promethean man's rationalism and to the Baconian methodology for knowledge.

Finally, as Nasr points out, the new science was radically altering the traditional understanding of the "order in nature" in all civilizations from one in which Divine Laws governed the whole universe, morally and otherwise, to just mechanical laws of the material dimension that could be determined by scientific experiments.[64] As Lawrence Schmidt and Scott Marratto observe, "An examination of the material nature can reveal its laws to humans, but it cannot reveal the meaning and purpose of human freedom … [which] can be discovered by philosophical reflection."[65] Both in the "classical and Christian traditions," ultimate natural order is the metaphysical reality that can be known and that "right action for human beings consists of attuning themselves to it."[66] Yet, in opposition to this traditional vision, Descartes' *Discourse of Method* refers to the mechanical laws as the natural laws from God.[67] Henceforth, the mathematically-defined mechanical laws came to be seen as the laws of nature, ignoring the fact that they can have no relevance to moral laws and other laws that govern the universe, unless defined symbolically.[68]

The strictly rationalistic or mathematical character of the new science made it, for decades, incomprehensible to the vast majority of people who still held the traditional view of the universe as it appeared to them, and which gave meaning to their lives.[69] To be sure, as the eminent historian of science Sherwood Taylor put it, "before the separation of science [from religion] and the acceptance of it as the sole valid way of apprehending Nature, the vision of God in Nature seems to have been normal way of viewing the world, nor could it have been marked as an exceptional experience."[70] In fact, like Bacon, both Galileo and Descartes tried to popularize their science by stressing on its utility in a material, physical or commercial sense,[71]

not by appealing to people's higher nature or, as Nasr would refer to it, their Intellect.

In their quest for certitude in an age of scepticism, Galileo and, more systematically, Descartes, settled for mathematical proofs as certainties. Galileo and Descartes thus cleared the way for quantification and mathematicization of nature, separating science from metaphysics or religion with the intent to render it controllable. Exploitation of nature for the material welfare of human beings was now justified philosophically in an unprecedented manner.[72]

1.4.1 Newtonian Science Retained the Cartesian Biases

Nasr argues that the fundamental philosophical assumptions of the new science set forth by Galileo and Descartes were not altered fundamentally by the Newtonian science that followed.[73] Indeed, Newton (1642–1727) did not question the principles of quantification or Cartesian bifurcation. He accepted the idea of a mathematically definable universe and relied firmly on facts based on the empirical method. Although he attributed the cause of the laws of his physics to God, the spiritual content of Newtonian physics was confined to his own interpretation of them. His legacy was the mechanistic worldview defined by his mathematical formulations and the Cartesian dualism inherent in them which enabled the imprinting of mathematical relations upon the cosmos. John Henry, the distinguished historian of science, sums it up conclusively: Newton "represented the triumphant synthesis" of Bacon's experimentalism and Descartes' rationalism.[74]

Devoid of metaphysical principles, the legacy of the Scientific Revolution was a conception of reality that separated nature "from the intelligible world in the Platonic sense"[75] as envisioned by St. Augustine, St. Maximus and Johannes Scotus Erigena (810–877),[76] "from the moral principles dominating over human life,"[77] as envisioned by St. Thomas,[78] and "from any spiritual reality that human beings and nature could share,"[79] as envisioned in the doctrines of the unity and omnipresence of the Spirit and of Christ as the *Logos.*[80] In the same vein, Wolfgang Smith terms the entire modern scientific outlook "a wholesale apostasy from the Christian worldview."[81] Thus, the Scientific Revolution of the seventeenth century is called a revolution not for a sudden unprecedented flourishing of Renaissance science, but for the radical divorce of science from Christian metaphysics of nature. It replaced the Christian view of nature with a mechanical vision of nature that was detached from the soul and devoid of any suggestions of divine presence or consciousness.

1.5 SCIENTISM AND SCIENTIFIC PROGRESSIVISM DURING THE ENLIGHTENMENT AND BEYOND

During the Enlightenment and the ensuing Industrial Revolution, Newtonian science and its worldview spread throughout the West, and thereafter, in the lands the West had colonized. Rationalistic and empiricist methodologies of modern science came to

be applied to philosophy — as evident especially in the thought of John Locke (1632–1704)[82] — and from the early nineteenth century, to the study of human society to make these disciplines as rationalized and "progressive" as modern science itself. [83] This phenomenon was the result of scientism, the idea that modern science or scientific rationality is, if not the *only*, at least the *most* reliable means to true knowledge.[84] At first, and until the late seventeenth century, scientism was limited to a very small minority of intellectual elite, but it later spread throughout Europe.[85] Scientism implied that the modern scientific worldview was true. It made the Newtonian mechanical worldview the foundation of the Enlightenment.

Scientism has two key effects: (1) it robs man's view that nature has levels of reality beyond the tangible material aspects and (2) it secularizes human consciousness. Jane Bennett aptly summarizes the effects of this ideology on nature, evident especially since the Enlightenment: "the eighteenth-century Enlightenment sought to demystify the world according to faith, where nature was God's text, filled with divine signs, intrinsic meaning, and intelligible order. In the face of belief in an enchanted cosmos, the Enlightenment sought to push God to a more distant social location."[86]

Scientism was likewise a challenge for Christianity, especially from the time of the Enlightenment. As the eminent philosopher Louis Dupre states, "One may plausibly argue that the eighteenth century was the first non-Christian century. Most leading thinkers and artists, even if they were not opposed to Christianity, ceased to take their inspiration from it. For the first time, the secular became dominant." [87] Dupre adds that the nineteenth century was even worse for religion, "It was an epoch marked by a virulent antitheistic campaign to clean the cultural slate of all Christian traces."[88] In the nineteenth century, scientism clearly rejected the traditional view of the hierarchy of reality as evidenced in Marxism's claim of being scientifically true,[89] in Darwin's theory of evolution,[90] and later, in Freud's effort to establish a scientific psychology without considering any role for the Spirit.[91] To this day many scholars assert the secularizing effect of modern science and technology without any qualms. [92]

Beginning with the Enlightenment, the ideology of Baconian progressivism, which thrust the idea of "progress through material evolution"[93] forcefully, was transformed into a progressivism based on scientism. Also, once nature could be seen through the eyes of modern science as mere quantity, progress in the material sense, was inevitable: "why have the experimental sciences received a development in modern civilization such as they never had in any other? The reason is that these sciences are those of the sensible world, those of matter, and also those lending themselves most directly to practical applications."[94] The logic of this progress enabled by a science that reduces reality to the material plane is no different from Bacon's logic in the possibility of cumulative knowledge about nature if the existence of higher realities of entities would be rejected.[95]

On the other hand, as we have noted above, the spread of scientism had the secularizing effect on human consciousness which, as Nasr puts it, encouraged "human beings to devote all their energies to worldly activities as the hereafter became more and more a distant concept."[96] The goal of moral perfection had further receded even from the days of Bacon. As the eminent historian Roy Porter noted, the age of Enlightenment that followed the Scientific Revolution, saw a shift in human interest from "being good" to "being happy" in the tangible material sense.[97] The distinguished philosopher Jacob Needleman has described the same situation as an effect of modern science having robbed the cosmos of divine consciousness such that it could no longer inspire in humans an expansion of consciousness necessary for the awareness of the good and holy: "Science, while beginning as a search for a new way to experience the meaning of the book [of nature], soon ended by counting commas. Gradually, but inexorably, the desire to manipulate nature took centre stage. Pragmatism was born, and the purpose of knowledge came to be the satisfaction of desire rather than growth of consciousness."[98]

Thus, scientism produces and maintains a secularized view of nature as well as a secular humanity. According to Nasr, this secular humanity, seeing no purpose or meaning of nature beyond its material reality, has been eager to conquer and consume more and more of it with the help of science and technology resulting in the ever increasing destruction of nature. [99]

In other words, in Nasr's view, the more secularized both nature and human consciousness are, the more the human being resorts to the means to explore and satisfy his lust for life in the only real domain before him — the secularized natural world. Thus, for a secularized world, modern science, along with its rationalism and technology that enable the effective exploring and exploiting of the secularized nature, is necessarily the most reliable means for human progress. We will refer to this ideology that modern science and associated scientific rationality is, if not the only then the most reliable means of human progress as 'scientific progressivism.' In summary, for Nasr, scientism leads to scientific progressivism which in turn leads to the exploitation of nature and the environmental crisis.

The negative effects of scientism and the resulting scientific progressivism have been slow to manifest. As Schmidt and Marratto note, the Enlightenment philosophy, with its *outward oriented* mechanical worldview devoid of spiritual meaning, sought to eliminate or reduce *outer* causes of human suffering — labour, scarcity, disease and war — and "understood ethics in terms of this project."[100] However, in the process, this project to lift the human lot in the Baconian sense has ignored the *inner* or spiritual need of the human being and the role of the spiritual view of nature in fulfilling that need. Additionally, in the twentieth century, the two World Wars followed by the growing awareness of an environmental crisis since the 1960s have brought about the urgent need to question scientism and scientific progressivism.

Since 1905, although the theory of relativity, Quantum mechanics and several other developments that followed have challenged the Newtonian mechanical model, it

is the mechanical model of the classical Newtonian science with its Cartesian philosophical basis that still influences most of the sciences and the general consciousness of modern humanity.[101] As John Carvalho has observed, the scientific worldview today "takes into account belief in an actual reality outside of the human mind and the ability of the human mind and human sense to grasp that reality [completely]."[102] Hence, referring to the scientific developments of the twentieth century, Wolfgang Smith suggests that "this vast body of physical theory still rests upon the old Newtonian foundations. In point of its essential function … it reduces, now as before, to the venerable Cartesian doctrine."[103] Scientific knowledge remains to this day 'objective' in the sense of being unrelated to God or to the soul. In Nasr's words, "The Truth remains that no matter how much it changes, modern science cannot but deal with [outer] phenomena."[104] The traditional view of nature, on the other hand, involves 'seeing' its inner reality[105] with faith in revelation and/or knowledge by Intellection.[106]

Nasr's suggestion that the environmental crisis was caused by a change from a religious or metaphysical view to a modern scientific view is corroborated by the likes of Theodore Roszak,[107] Philip Sherrard,[108] Huston Smith,[109] Wolfgang Smith,[110] several Islamic environmentalists noted in the Introduction, and various other scholars of ecology and religion. For instance, Mary Evelyn Tucker and John Grim, two of the leading scholars of the field of ecology and religion, maintain that the environmental crisis was caused by the worldview that has "captured the imagination of contemporary industrialized societies."[111] Recently, even some of the most outstanding economic historians have begun to acknowledge the truth of the claim that the modern scientific worldview itself played a decisive role in creating today's economic and technological society which is in constant search for growth.

1.5.1 Nasr's Vindication by Economic Historians

In the last two decades, researches by two eminent economic historians, namely Margaret Jacob of the University of California at Los Angeles (UCLA) and Joel Mokyr of the Northwestern University, have provided historical analyses that, in effect, have vindicated Nasr's conclusions by linking the change in the Western understanding of nature in the seventeenth century with the Industrial Revolution, and with the continued technological and economic growth beyond it. Hence, we will discuss the relevant works of these two scholars at length.

Mokyr begins his recently published book *The Enlightened Economy* with the statement "Economic change in all periods depends, more than most economists think, on what people *believe*."[112] For Jacob and Mokyr, the Industrial revolution was not just the natural consequence of available resources and other economic factors that prompted people to invent adequate technology in order to raise their standard of life in the material sense. The driving force behind the rapid economic growth was the rate and breadth of technological innovations. As Mokyr suggests, "The Industrial

Revolution, it was felt for many decades, should be explained by economic factors .... Yet these approaches have all suffered from the 'endogenous growth problem': … none of them carry the weight of the explanadum without relying on technological change."[113]

Scholars have generally maintained that seventeenth century science, except in a few cases, had no direct effect on the technological development over the eighteenth century.[114] Yet, what brought about the numerous and sustained technological innovations throughout the eighteenth century and later? According to Mokyr, it was the emergence of a culture of progress and improvement during the Age of Enlightenment that drove the technological innovations. This culture, Mokyr adds, was characterized by what he calls, 'Industrial Enlightenment,' meaning "a belief in the possibility and desirability of economic progress and growth through knowledge."[115] Mokyr traces this belief to the Baconian vision for social uplift where the term "knowledge" refers to the knowledge that is "useful" in harnessing the wealth and power of nature.

What sustained Industrial Enlightenment was, according to Mokyr, the reduction of the cost to access the useful knowledge, that is, scientific and technological knowledge.[116] Although Mokyr does not directly credit the modern scientific worldview for the Industrial revolution, it seems implicit in Mokyr's discussion of the Baconian theory of useful knowledge.

Mokyr argues that the rapid economic growth of the eighteenth century can only be explained by "developments in the intellectual realm concerning [what constitutes] useful knowledge."[117] This useful knowledge, he contends, consisted not only of the work of scientists, but also of "those who collected data and practices" about the material realm.[118] Bacon envisioned a constant growth of useful knowledge that consists solely of empirical findings. Philosophically, this meant a shift from a holistic to a fragmented view of reality; that is, from the traditional perspective in which the reality of the material world was inextricably related to higher realities and ultimately to God to one in which any consideration of higher realities was abandoned and human efforts were devoted to acquiring knowledge of the multiplicities in the material domain alone. The "division of knowledge"[119] that Mokyr credits for the growth of useful knowledge through "specialization, professionalization and expertization"[120] was part and parcel of Bacon's fragmented view of reality. Therefore, the intellectual development of useful knowledge that Mokyr deems necessary to explain its growth relates to Bacon's reversal of traditional epistemology.[121] After a century of intense scientific activity and research during the Scientific Revolution that established a science based only on the material domain, the Baconian vision of progress in knowledge and prosperity, once novel, now seemed completely credible, justified, and desirable by the time of the Enlightenment.

Jacob is more direct than Mokyr in suggesting that the modern scientific worldview itself determined "useful knowledge" in the eighteenth century and in turn served as an instrument for advancing more science and technology. She argues that

under the influence of Newton's mechanical worldview, in the secular age of the eighteenth century, the religious dimension of Bacon's inspiration to build a prosperous utopia for the poor masses was forgotten. The utopian vision simply became a justification for technological innovation.[122] Jacob states categorically, "A new *scientific understanding of nature* preceded mechanized industry and most important, *assisted in its development*."[123]

Jacob concurs with Mokyr in the ways Newton's science was made easy to grasp and was disseminated widely so as to reduce the cost to access the new scientific knowledge. Yet, she notes that the *Principia* of Newton was not just about force and motion of the planetary realm, but it also included parts about "mechanics of local motion" based on which "scientists created and merchants consumed curricula and books applicable to technological innovation."[124] Figures such as James Watt, the inventor of the first steam engine, came from the groups of mechanics and engineers who studied Newtonian science from such texts. In effect, there is no doubt that modern science "in the form of Newtonian mechanics directly fostered industrialization."[125]

According to Jacob, Newton's mechanized worldview significantly altered people's very interests and actions, as well. Through their study of Newtonian science both the engineers and the entrepreneurs who hired them to make technological innovations learned to "objectify the physical world, see its operations mechanically, and factor their common interests and values into their partnerships."[126] This is evidently a result of seeing the universe not as a marvel of God but as a harmonious mechanical order functioning according the physical laws Newton had unearthed. If nature neither consists of the signs of God nor, as by Cartesian doctrine, have any relation to us humans ontologically, human attitude towards nature could only turn from one of wonder to one, owing to our reliance on it for material needs, more exploitative. As such, as Jacob asserts, "Science made nature lawful."[127] In the same vein, Bennett concludes that "in the face of a view of knowledge as mysterious divine hints, [the Enlightenment] sought a transparent, certain science; in the face of a sacralised nature, [the Enlightenment] sought a fund of useful natural resources."[128]

Furthermore, the secularization of the vision of the universe simultaneously affected people's faith in religion. If everything functioned according to the mechanical laws, all the teachings of the Christian tradition were inevitably going to be questioned as well because "as the definition of creation changed so too did the human conception of the Creator."[129] According to the mechanical view of nature, knowledge of science and mathematical laws alone could suffice for humans to benefit from nature. If there was a God, He could very well be either distant, or as physicist P.S. Laplace (1749–1837) put it, an unnecessary hypothesis.

Not surprisingly, if we look at the values of the eighteenth century engineers, inventors and their entrepreneurial partners, we can see that the religiosity of the early industrialists had, declined markedly over time, if not completely disappeared.[130] Importantly, their interest in "more and better science"[131] continued unabated as

their faith weakened. For Jacob, this “turn towards the secular” is what the Enlightenment was about as it had played a decisive role in the aspirations to technology and the subsequent economic growth.[132]

The decline in religious faith along with growing interest in modern science could be attributed to various limitations of modern science.[133] However, fundamentally this phenomenon had to do with how truth and falsehood became determined by an increasingly scientifically minded culture. Beginning with the Age of Enlightenment, “the rules of the discourse and the criteria for ‘what was true’ or ‘what worked’ shifted toward a more empirical and verifiable direction.”[134] In other words, the criteria for truth became increasingly rational and empirical. The validity of faith and intuition could not be demonstrated by graphs or models. In all, the widespread dissemination of scientific knowledge transformed the way people perceived the world around them and led them to make efforts to shape this world and their lives in accordance with what was deemed real and worthy in the newly acquired scientific worldview. For Jacob, the secular orientation of the Enlightenment inspired people to find success in the life of the world through science and technology and encouraged them to try to control and exploit the natural world.[135] By the same token, we may conclude that scientific progressivism today is driven fundamentally from the hold that scientism or the scientific worldview has on any society.

The conclusions of Jacob and Mokyr add further weight to Nasr’s arguments that substituting religious worldviews with the modern scientific worldview leads to human activities that are exploitative of nature. What then would Nasr have modern humanity do in order to find a lasting solution to the environmental crisis? This leads to Nasr’s recommendations for all civilizations.

1.6 NASR’S GENERAL RECOMMENDATIONS FOR ALL CIVILIZATIONS

Nasr holds that the ultimate solution to the environmental crisis lies in restoring the religious or sacred vision of nature. He recommends several interrelated steps in order to bring that about. He asserts that the sacred vision of nature cannot be revived until modern science and scientific worldview are universally criticized and their limitations are exposed.[136] First of all, Nasr holds that the modern human being must accept the reality of God. Then he must re-establish the sacred view of nature according to traditional sources.[137] This would involve reinstating the belief that the human being possesses higher faculties of perception beyond reason.[138] Only then can the reality of revelations and their sapiential commentaries be accepted and the religious view of nature as a sign or a symbol of God be revived.[139]

Nasr insists that the human being must understand that there are metaphysical principles — such as the perennial principles we have been referring to — which govern “human ethics as well as the cosmos to bring out the interconnectedness between man and nature in light of the Divine.”[140] Only then, the human being can believe at the deepest level the need for ethical treatment not only of human beings

but also of the world of nature.[141] Finally, in order to overcome the negative effects of modern science completely, sciences must be subordinated to the all-governing metaphysical principles.[142]

1.7 CHAPTER SUMMARY

In effect, Nasr argues that the modern scientific worldview leads to scientism and scientific progressivism which in turn lead to goals and activities which cause exploitation of nature and contribute to the environmental crisis. In other words, scientism and scientific progressivism resulted from a radical shift in human orientation from a traditional outlook on nature filled with the signs of God to one strongly influenced by modern scientific outlook devoid of any suggestion of God's role or reality. The scientific outlook swept aside faith in the unity and hierarchy of reality and denied any purpose beyond the material plane. Nasr suggests that these are the roots of the current environmental crisis. A number of eminent scholars of religion, philosophy and ecology essentially agree with Nasr's analysis. For the first time, even some economic historians have come to support, in effect, Nasr's view that the modern scientific worldview played a critical role in bringing about the Industrial Revolution and the kinds of growth oriented economy and technological innovations that were to be sustained afterwards. Nasr's recommendations for all nations have the common objective of restoring the religious worldviews across all religious communities in order to achieve a lasting solution to the environmental crisis.

In order to fully comprehend what Nasr implies by the aforementioned recommendations for all civilizations, it is necessary to analyse his extended discussions of the ways Muslims may restore the sacred vision of the cosmos or the natural world within the context of the Islamic metaphysical, scientific, and philosophical traditions of which he stands as one of the living authorities. We will begin this task in the next chapter by exploring the Islamic counterparts of the perennial principles we discussed earlier and how they define the sanctity of nature and its relationship to a Muslim and his purpose.

NOTES

1. Seyyed Hossein Nasr, *A Young Muslim's Guide to the Modern World* (Chicago: Kazi Publications, 1994), p. 136.
2. Nasr, *Need for a Sacred Science*, p. 145.
3. Nasr, *Man and Nature,* pp. 21–22.
4. Introduction 0.1.
5. Nasr, *Man and Nature,* pp. 20–21.
6. Sherrard, *Rape of Man and Nature*, p. 64. As Peter Harrison has observed, in the Middle Ages, the knowledge of all things meant primarily the knowledge of their spiritual meanings and purposes. See Harrison, "Subduing the Earth," pp.91–92. For a summary of the Christian view of God's unity and omnipresence and of nature as a sign of God, see Wolfgang Smith, *Cosmos and Transcendence: Breaking Through the Barrier of Scientistic Belief* (Illinois: Sherwood Sugden & Company, 1984), pp. 45–60. Wendel Berry, "Christianity and the Survival of Creation," in *Seeing God*

Everywhere: Essays on Nature and the Sacred, ed. Barry McDonald (Bloomington, IN: World Wisdom, 2003), pp. 53–70. For a summary of St. Maximus's views, see Vincent Rossi, "Sacred Cosmology in the Christian Tradition," *The Ecologist* Vol. 30; Issue 1, January 2000.

7. Nasr, *Religion and the Order of Nature*, pp. 56–59.

8. Ibid., 136. The term *vestigial dei* to mean signs or traces of God in creation was first coined by Saint Augustine (354-430) and ever since remained integral to the Christian view of nature as reflected in the thoughts of numerous medieval saints and scholars. See Marie-Dominique Chenu, *Nature, Man and Society in the Twelfth Century* (Cambridge, MA: Medieval Academy of America, 1997), pp. 115–117. Especially significant in this regard is Saint Bonaventure's (1221–1274) metaphysical exposition of St. Francis's experiences of the divine in the midst of nature. See P. Rout, *Francis and Bonaventure* (Glasgow,UK: Fount Paperbacks, 1996).

9. Nasr, *Religion and the Order of Nature*, pp. 58–59. The *logoi* of things is the "fundamental meaning" in accordance with which the thing is created by God. See Andrew Louth, *Maximus the Confessor* (New York: Routledge, 1996), p. 65.

10. Nasr, *Religion and the Order of Nature*, pp. 57 and 97–98.

11. Ibid., pp. 99–100.

12. See Introduction 0.6.1.

13. Nasr, *Religion and the Order of Nature*, p. 170.

14. Saint Augustine held that human reason, once illuminated by God, can know much more. See Brian Harding, "Scepticism, Illumination and Christianity: In Augustine's Contra Academicos," *Augustinian Studies* 34:2 (2003), p. 12. Johannes Scotus Erigena (810–877) also clearly makes a distinction between reason and the intellect, which shares in the divine nature. See W. Norman Pittenger, "The Christian Philosophy of John Scotus Erigena," *The Journal of Religion,* vol. 24, No. 4 (Oct., 1944), p. 250. For Aquinas, the act of *intellectus* was more perfect than that of *ratio*. See Andrew Tallon, *Head and Heart: Affection, Cognition, Volition as Triune Consciousness* (Fordham University Press, 1997), p. 275.

15. Nasr, *Knowledge and the Sacred*, p. 4. As Mircea Eliade suggests, "we might say that for the nonreligious men of the modern age, the cosmos has become opaque, inert, and mute; it transmits no message, it holds no cipher. The feeling of sanctity survives today in Europe chiefly among rural populations, for it is among them that a Christianity lived as a cosmic liturgy still exists." See Eliade, *The Sacred and the Profane: The Nature of Religion*, trans. Williard R. Trask (New York and London: Hartcourt, 1987), p. 178.

16. Nasr, *Traditional Islam in the Modern World*, pp. 100–101.

17. Nasr, *Man and Nature*, 60–61; Also see David C. Lindberg, *The Beginnings of Western Science: The European Scientific Tradition in Philosophical, Religious, and Institutional Context, Prehistory to A.D. 1450*, 2nd edition (Chicago and London: The University of Chicago Press, 2007), pp. 225–246.

18. Nasr, *Religion and Order of Nature*, 177. Also, see Charles G. Nauret, *Humanism and the Culture of Renaissance Europe,* 2nd edition (Cambridge:

Cambridge University Press, 2006), p. 204
19. Nasr, *Man and Nature*, p. 70.
20. Nasr, *Religion and Order of Nature*, p. 135.
21. Lauro Martines, “The Protean Face of Renaissance Humanism,” *Modern Language Quarterly*, 1990; 51, pp. 105–121.
22. Smith, *Cosmos and Transcendence,* pp. 44 and 47.
23. Lindberg, *Beginnings of Western Science*, pp. 228–249.
24. Nasr, *Religion and Order of Nature*, pp. 173–175. Nasr recognizes that the Renaissance Humanist movement was in part an educational programme for the study of grammar, rhetoric, poetry, etc., but he emphasizes the aspect that glorifies the power of human reason over everything else. Ibid., pp. 164–65. For Ficinio and Pico’s view of human nature, see Nauert, *Humanism and the Culture of Renaissance Europe*, pp. 73, 76. The rationalist trend should be viewed also as an increasing focus on the mundane in the context of the nominalist denial led by William of Ockham (1285–47) of any human ability to know metaphysical truths on the one hand, and on the other, the Protestant movement which turned away from the scholastic philosophy with its metaphysical contents. See Lindberg, *Beginnings of Western Science*, p. 251; Lawrence Schmidt and Scott Marratto, *The End of Ethics in a Technological Society* (Montreal & Kingston: McGill-Queen’s University Press, 2008), p. 13.
25. Nasr, *Religion and Order of Nature*, pp. 175–76; Ernest Cassirer, *The Individual and the Cosmos in Renaissance Philosophy*, trans. Mario Domandi (Chicago: University of Chicago, 1963), p. 96.
26. Cassirer, *The Individual and the Cosmos in Renaissance Philosophy*, p. 98.
27. Nasr, *Religion and Order of Nature*, p. 171.
28. Copernicus’s proposition with its mathematical arguments for a heliocentric model of the universe, in rejection of the hitherto universally accepted and Church-backed geocentric model, was the first biggest event against traditional Christian cosmology. In Europe, for many of the intellectual elite who gradually became aware of Copernicus’s arguments for the rejection of the geocentric model, it was the first major phenomenon to shake the foundations of their conviction in the traditional worldview. Furthermore, it threw into doubt the view of the cosmos as an ordered whole and God’s special concern for the earth and its inhabitants placed at the centre of His universe.
29. “Sextus Empiricus was not a major thinker, but his summary of the most radical form of philosophy, Pyrrhonism, helped to shape the expression of all the accumulated doubts of late Renaissance thinkers.” Nauret, *Humanism and the Culture of Renaissance,* p. 218.
30. Francis Bacon, “The New Organon,” Book One, Aphorism no. xix in *The New Organon and Related Writings,* ed. Fulton H. Anderson (New Jersey: Prentice Hall, 1960), p. 43.
31. Ibid., Book One, Aphorism no. LI, p. 53.
32. In his *De Anima* (On the Soul)*,* Aristotle speaks of ‘form’ as the ‘actuality’ and ‘matter’ as the ‘potentiality’ which together constitute a corporeal body. *De Anima*,

Part II, 1. “Aristotelian physics aimed at understanding qualitative processes. Quantities were at best peripheral to it, because they failed to speak of the essence of things.” Peter Dear, *Revolutionizing the Sciences: European Knowledge and Its Ambitions, 1500–1700*, 2nd edition (Princeton: Princeton University Press, 2009), p. 64.
33. See Fulton H. Anderson, Editor’s Introduction to *The New Organon and Related Writings*, pp. xii–xiii. Also see Cassirer, *The Individual and the Cosmos in Renaissance Philosophy*, pp. 145–46.
34. “The corruption of philosophy by … an admixture of theology is … widely spread, and does the greatest harm, whether to entire systems or to their parts.” Bacon, “The New Organon,” Book one Aphorism no. LXV, p. 62.
35. Roszak, *Where the Wasteland Ends*, pp. 142-159.
36. Ibid., p. 154.
37. “this Instauration of mine … is by no means forgetful of the conditions of mortality and humanity, for it does not suppose that the work can be completed within one generation but provides for its being taken up by another.” Bacon quoted in Roszak, *Where the Wasteland Ends*, p. 150.
38. Francis Bacon, “The Great Instauration,” in *The New Organon and Related Writings,* ed. Fulton H. Anderson (New Jersey: Prentice Hall, 1960), p. 19.
39. “men have been kept back as by a kind of enchantment from progress in the sciences by reverence for antiquity, by authority of men accounted great in philosophy, and then by general consent.” Bacon, “The New Organon,” Book One, Aphorism no.LXXXIV, p. 80.
40. Bacon quoted by Sherrard, *Rape of Man and Nature*, p. 68.
41. Ibid.
42. Bacon, “Great Instauration,” pp. 14–15.
43. Lauro Martines, “The Protean Face of Renaissance Humanism,” pp. 105–106.
44. William R. Shea “The Scientific Rev Really Occurred” *European Review*, Vol. 15, No. 4, (459–471), 2007, p. 463.
45. Bacon, “Great Instauration,” p. 14.
46. Charles Taylor, *A Secular Age* (Cambridge: Harvard University Press, 2007), p. 98.
47. Ibid., p. 98.
48. Ibid., 222. Bacon called Plato and Aristotle “pompous” and saw the Aristotelian ‘forms,’ the ‘first cause,’ and the ‘final cause’ as mere vanities. Bacon, “The New Organon,” Book One, Aphorism nos. LXXI and LXV, pp.69, 62.
49. Nasr, *Need for a Sacred Science*, pp. 150–151.
50. Ibid. “The modern world devotes to the treatment of sick bodies an incalculable store of energy which in the past was devoted to the treatment of sick souls. Men were brought up in the consciousness that all souls are sick, save only the rarest exceptions.” Lings, *Ancient Beliefs and Modern Superstitions*, p. 34.
51. Torben Nielsen, “The State, the Market and the Individual,” *Acta Sociologica,* 1986 (29), 4:283–302), p. 284.

52. Nasr, *Need for a Sacred Science*, p. 150.
53. Ibid., p. 153.
54. See Introduction 0.6.1.
55. See section 1.3.
56. Nasr, *Need for a Sacred Science*, pp. 150–151.
57. See for instance, Roszak, *Wasteland*, 172–74, 178–80; Sherrard, *Rape of Man and Nature*, pp. 68–71; Smith, *Cosmos and Transcendence*, pp. 13–30.
58. Eventually, this would lead to conceptualizing objects in nature in purely quantitative terms and express it in a mathematical formula such as F= m*a, where 'F' is the force necessary to give an acceleration 'a' to an object 'm' that represents the quantification of the reality of 'matter' of that object. Based on notes from the course *Man and Nature* offered by Nasr at the George Washington University. 24 February 2004.
59. Beeckman was one of the three most prominent students of Bacon in the continental Europe. See *Philosophical Studies, C.1611–C.1619*, Vol. 6, edited by Graham Rees and Lisa Jardine (New York: Oxford University Press, 1996), p. lxxvii. Beeckman also had a profound impact on Descartes' science and thought. See *Routledge Encyclopedia of Philosophy*; available from http://www.rep.routledge.com/article/DA026SECT1; Internet; accessed: 10 August 2010.
60. Rene Descartes quoted in Nasr, *Religion and the Order of Nature*, p. 139.
61. Descartes could not explain how *res cogitans* could perceive *res extensa,* and failing thus, he assigned that role to God. See Smith, *Cosmos and Transcendence*, p. 29.
62. Nasr, *Knowledge and the Sacred,* pp. 41–42.
63. Descartes' was a clear case of the eclipse of the intellect by reason. The rationalistic bent of his mind was evident in his admitted inability to conceive "substantial forms and real qualities" in the bodies. Descartes quoted in Smith, *Cosmos and Transcendence*, p. 28.
64. Nasr, Religion *and the Order of Nature*, pp. 132–133. Also**,** Ibid., 155, n15. "All laws are reflections of the Divine Principle. God is the Law-Giver. He manifests his Will both in the Cosmos and in the human domain through laws." Osman Bakar, *The History and Philosophy of Islamic Science* (Cambridge, UK: Islamic Texts Society, 1999), p. 71.
65. Schmidt and Marratto, *End of Ethics in a Technological Society*, p. 15. "the supreme unity whose reflections we discern in all the laws of Nature, is itself beyond every law: for that unity belongs, not to the creation, but to God Himself." Smith, *Cosmos and Transcendence*, p. 54.
66. Schmidt and Marratto, *End of Ethics in a Technological Society,* 15; On the classical view, see Lindberg, *Beginnings of Western Science*, p. 213.
67. Nasr, *Religion and the Order of Nature*, p. 133.
68. The medieval scholastic tradition was aware of the limitations of mathematics. See John L. Heilbron, "Coming to Terms with the Scientific Tradition," *European*

Review, Vol. 15, No. 4, 2007, p 478.
69. Margaret Jacob, *Scientific Culture and The Making of the Industrial West* (New York and Oxford: Oxford University Press, 1997), pp. 18–27.
70. Sherwood Taylor, *The Fourfold Vision* (London, 1945), p. 91; quoted in Nasr, *Man and Nature,* p. 41.
71. Jacob, *Scientific Culture*, pp. 18, 43. The contemporary historians of science James E. McClellan III and Harold Dorn note that in the seventeenth century the ideology of the social utility of the new science was "activist and contrasted with the Hellenic view of the practical irrelevance of natural philosophy and the medieval view of science as the subservient handmaiden to theology." See McClellan and Dorn, *Science and Technology in World History: An Introduction*, 2nd edition (Baltimore, MD: The Johns Hopkins University Press, 2006), p. 245.
72. According to McClellan and Dorn, "Bacon and Descartes separately voiced the view that humans should be the master and possessor of nature, that nature and the world's natural resources should be vigorously exploited." Whatever idea of human dominion over nature Christians had inherited from their religion before the seventeenth century, it did not match "a distinctive imagery of the violent rape and torture of nature as an aspect of scientific practice came to the fore in the seventeenth-century. Bacon, for example, asserted bluntly that 'Nature must be taken by the forelock.'" See, *Science and Technology in World History*, pp. 245–246.
73. Nasr, *Religion and the Order of Nature*, p. 140.
74. John Henry, *The Scientific Revolution and the Origins of Modern Science* (Basingstoke, UK: Macmillan, 1997), p. 96.
75. Nasr, *Religion and the Order of Nature*, p. 103.
76. Ibid., pp. 57–58 and 97–98.
77. Ibid., pp. 103 and 132–33.
78. Ibid., p. 132.
79. Ibid., p. 103.
80. Nasr, *Religion and the Order of Nature*, pp. 56, 59.
81. Smith, *Cosmos and Transcendence*, p. 47.
82. For more, see Locke's atomistic conception of ideas. John Locke, "Of Innate Notions," in *The Age of Enlightenment: The 18th Century Philosophers*, ed. Sir Isaiah Berlin (New York and Toronto: The New American Library, 1956), pp. 36–45.
83. For an in-depth study of the effect of the quantifying spirit of the Newtonian physics on other branches of natural science, see *The Quantifying Spirit in the 18th Century,* eds. Tore Frangsmyr, J.L. Heilborn, Robin E. Rider (Berkely: University of California, 1990). Also, see Richard Dewitt, *Worldviews: An Introduction to the History and Philosophy of Science* (Oxford: Blackwell Publishing, 2004), pp.188–190.
84. Smith, "Scientism: The Bedrock of the Modern Worldview," p. 233.
85. For a thoughtful account of the effects of scientism as they became manifest in the nineteenth century in the development of positivism of August Comte (1798–1857), materialism of Ludwig Feuerbach (1804–1872), Karl Marx (1818–1883), and

in the Social Darwinism of Herbert Spencer (1820–1903) and others, see Richard G. Olson, *Science and Scientism in Nineteenth-Century Europe* (Urbana: University of IL, 2008).
86. Bennett, *Unthinking Faith and Enlightenment*, p. 7.
87. Louis Dupre, "Spiritual Life and the Survival of Christianity," *Cross Currents*; Fall 1998, Vol. 48 issue 3, p. 381.
88. Ibid.
89. "There is no doubt that Marxism was a scientistic movement. That is, it openly sought to extend methods derived from mathematics and the natural sciences to deal with social phenomena." Olson, *Science and Scientism in Nineteenth-Century,* p. 163.
90. See Chapter 6.6.
91. "Our science is not an illusion, but an illusion it would be to suppose that what science cannot give us we can get elsewhere." Sigmund Freud quoted in Smith, "Scientism: The Bedrock of Modern Worldview," p. 234.
92. "I would say that the impact of the discoveries of the natural sciences, the consequent technologies applied to the safety, health, and ease of everyday life, and the gradual dissemination of the attitude that good deal of religious doctrine is absurd *in the face of science and what science makes possible in technological application*, have all contributed to the secularization of society." See George Kateb, "Locke and the Political Origins of Secularism," in *Social Research*, Vol. 76: No 4: Winter 2009, pp. 1004-1005. (accent ours)
93. Nasr, *Need for a Sacred Science*, pp. 150–151.
94. René Guénon, *The Crisis of the Modern World*, trans. Marco Pallis, Arthur Osborne and Richard C. Nicholson (Hillsdale, NY: Sophia Perennis, 2001), p. 47.
95. See section 1.3.1.
96. Nasr, *Need for a Sacred Science*, p. 151.
97. Roy Porter, "The Enlightenment in England," in Roy Porter and Mikulas Teich, eds., *The Enlightenment in National Context* (Cambridge: Cambridge University Press, 1981), p. 14**.** In the same vein, Huston Smith asserted, "From the fourth-century triumph of Christianity in the Roman Empire through the Middle Ages and Refomation, the Western mind was above all else theistic. 'God, God, God; nothing but God' — in the twentieth century one can assume such an exclamation to have come, as it did, from a theologian. In the Middle Ages, it could have come from anyone." Smith, *Beyond the Postmodern Mind*, p. 4.
98. Jacob Needleman, *A Sense of the Cosmos: Scientific Knowledge and Spiritual Truth* (New York: Monkfish Book, 2003), pp. 36–37 and 17–21.
99. As Nasr has put it, the Promethean human "Equipped with a Faustian knowledge, secular in character, and based on power over the natural order … began to create unprecedented havoc over the globe, for there was no limit set by any spiritual laws upon his rights of dominion and no higher knowledge to set a limit upon his profane knowledge of the world." Nasr, *Religion and the Order of Nature*, p. 179.
100. Schmidt and Marrato, *End of Ethics in a Technological Society*, p. 15.

101. Nasr, *Religion and the Order of Nature*, p. 152.
102. John J. Carvalho IV, “Overview of the Structure of a Scientific Worldview,” *Zygon,* vol. 41, no. 1 (March 2006), p. 121.
103. Smith, *Cosmos and Transcendence*, p. 40.
104. Nasr, *Religion and the Order of Nature*, p. 152.
105. See the Introduction 0.6.1, Chapter 1.1 and Chapter 2.2.1a
106. Introduction 0.6.1.
107. Roszak, *Where the Wasteland Ends*, pp. 231–237.
108. Philip Sherrard, “The Desanctification of Nature,” in *Seeing God Everywhere: Essays on Nature and the Sacred,* ed. Barry McDonald (Bloomington, IN: World Wisdom, 2003), pp. 109–130.
109. Huston Smith remarked that Nasr’s Religion and the Order of Nature was the “most comprehensive and intelligent treatment of its topic.” Smith quoted on dust jacket of Nasr’s Religion and the Order of Nature (New York and Oxford: Oxford University Press, 1996).
110. See Smith, *Cosmos and Transcendence*, pp. 143–144.
111. Mary E. Tucker and John Grim, “Series Forward,” in *Christianity and Ecology*, eds. Dieter Hessel and Rosemary Ruether (Cambridge: Harvard University Press, 2000), p. xxv.
112. Joel Mokyr, *The Enlightened Economy: An Economic History of Britain 1700–1850* (New Haven: Yale University Press, 2009), p. 1. (emphasis ours)
113. Joel Mokyr, “The Intellectual Origins of Modern Economic Growth,” *The Journal of Economic History*, Vol. 65, Number 2, June 2005, pp. 287–288.
114. See James E. MeClellan III and Harold Dorn, *Science and Technology in World History* (Baltimore: The Johns Hopkins University Press, 2006), p. 269.
115. Mokyr, “The Intellectual Origins,” p. 291.
116. Ibid., pp. 297–322.
117. Ibid., p. 287.
118. Ibid., p. 290.
119. Ibid., p. 292.
120. Ibid., p. 287.
121. See Section 1.3.1.
122. Jacob, *Scientific Culture,*p. 33.
123. Ibid., p. 1. (accent ours)
124. Ibid., p. 107.
125. Ibid., p. 113. The economic historian Jack Goldstone is adamant that “th[e] view of the Industrial Revolution as having nothing to do with scientific knowledge is false. In fact, the diffusion of new scientific discoveries and techniques was essential to almost every step of British industrialization.” Jack Goldstone, *Why Europe?* (Boston: McGraw Hill Higher Education, 2008),133. The same could be said about the beginning and spread of industrialization in America. See Ross Thomson, *Structures of Change in the Mechanical Age: Technological Innovation in the United States, 1790–1865* (Baltimore: The Johns Hopkins University Press, 2009).

126. Jacob, *Scientific Culture,* p. 115.
127. Ibid., p. 74.
128. Bennett, *Unthinking Faith and Enlightenment*, p. 7.
129. Jacob, *Scientific Culture*, p. 74.
130. Ibid., pp. 127–129. Already, as the Scientific Revolution progressed, “In the later seventeenth century serious savants began to question the inspired authorship of the bible, made the Old Testament the work of several anonymous hands, reduced its stories to imaginative literature, and contemplated the existence of men before Adam.” Heilbron, “Coming to Terms with the Scientific Revolution,” p. 486.
131. Jacob, *Scientific Culture*, p. 129.
132. Ibid., p. 127.
133. See Chapter 6.
134. Mokyr, “The Intellectual Origins,” p. 303.
135. Our analysis of the perspective of Prof Margaret Jacob was confirmed by her in personal e–mail correspondence, 11–12 June 2010.
136. Nasr, *Religion and the Order of Nature*, pp. 152–153.
137. Ibid., p. 222.
138. Ibid., pp. 185, 223.
139. Ibid.
140. Ibid.
141. Ibid.
142. Nasr, *Man and Nature*, p. 117.

Chapter 2
The Perennial Principles and the Metaphysics of Nature within Islam

> The fact that Cairo or Karachi suffer from the environmental decay does not negate the traditional Islamic doctrines concerning the love and appreciation of nature any more than does the pollution of Tokyo negate the spiritual significance of the Zen gardens of Kyoto.[1]
> S. H. Nasr

> Because of the intimate connection between man and nature, the inner state of man is reflected in the external order.[2]
> S. H. Nasr

In order to set the stage for Nasr's traditional Islamic response to the environmental crisis, we will discuss the existence and the implications of the three principles of the perennial philosophy for reality as such — unity of reality, the hierarchy of reality, and the ultimate meaningfulness or purposefulness of the cosmos — in Islamic metaphysics (*ma'rifa*).[3] We will also demonstrate how these principles form the basis of the Islamic metaphysical view of nature as the Self-disclosure of God and, as such, our ontological bond with nature such that nature can be a means of knowing God and realizing His Unity. Also, in demonstrating the existence of the perennial principles in Islamic metaphysics, we suggest implicitly that in Nasr's analysis of the environmental crisis, the perspective of the perennial philosophy is essentially traditional Islamic outlook as well.

2.1 THE PERENNIAL PRINCIPLES AND THE ISLAMIC TRADITION

Islam, in its outward or exoteric aspect, contains the principles of *taw hīd* (Unity of God), the hierarchic structure of reality, and of the ultimate meaningfulness or purposefulness of the cosmos, corresponding to the principles of the perennial philosophy for reality as such. After a brief summary of the principles in their outer or ordinary sense, we will discuss their exposition in Islamic metaphysics which reveals their identity with the perennial principles as well as helps to clarify certain questions that the outer dimension alone cannot resolve.

Taw hīd (Unity of God)

The principle of *taw hīd* is the basis and the central pole of Islam. It corresponds to the perennial principle of the unity of reality. In the ordinary sense, *taw hīd* implies the absoluteness and the Unity of God. God is not only eternally One (*Al-A h ad*), He

is also the Sovereign (*Al-Mālik*) over all things and *there is none like unto Him* (112:4).[4] This transcendent aspect of God is however complemented by suggestions in the Qur'ān that He is Near (*Al-Qarīb*), Most Loving (*Al- Wadūd*), that all natural phenomena are His signs and *Wherever you turn there is God's countenance* (2:115), suggesting an ever present link between God and the cosmos. In short, we can conclude that *taw hīd* points to an inseparable ontological bond between God and the created order that cannot be explained by an understanding of God in His transcendent aspect alone.

Hierarchy of Reality

Though all things are created with Truth,[5] in cosmic manifestation, the differences among the fundamental created elements used to create the different categories of entities form a hierarchy. Thus, the Qur'ānic description of the created order includes among other beings, human beings, made of earth; jinns, made of fire; and angels, made of light, with the plane of angels being above that of men and jinns, respectively.[6] Even within the angelic order, divine authority descends through a hierarchy of angels, with those closer to divine reality entrusted with greater authority. Thus, the Qur'ān speaks of not only a hierarchy of reality but also of a largely concealed hierarchy in which the visible world is dependent on the invisible world.[7]

Corresponding to the hierarchy of existence, there is also a hierarchy of the capacity for knowledge.[8] The Qur'ān alludes to varying capacities of perception of the signs of God according to people's "understanding" or level of wisdom.[9] But if the level of our perception can vary according to our level of "understanding" or wisdom, certainly what we perceive of an entity with our senses and ordinary reason is necessarily only a starting point of knowledge of its reality.

Ultimate Meaningfulness or Purposefulness

God does not create anything in vain.[10] He has created each entity in a measure and proportion appropriate to its purpose as determined by Him.[11] Also, every entity and every event is a sign reflecting the wisdom, beauty, generosity and majesty of its Creator.[12] But how is the purpose of an entity related to its being a "sign" or "God's countenance" wherever we turn? The answer lies within the metaphysical exposition of the principles of *taw hīd* and the hierarchic nature of reality.

2.2 METAPHYSICAL EXPOSITION OF *TAWHĪD* AND THE HIERARCHY OF REALITY

The Qur'ān raises questions that require deeper reflection and an understanding of the immanent aspect of God in light of His transcendence. Indeed, in the Qur'ānic references to the principles of *tawhīd* and hierarchy of reality, the absolute

transcendence of God *vis-à-vis* His creation seems to be only one side of the story. One clue on the relationship between God and the universe that Nasr and other Islamic environmentalists never fail to point out is that both the entities in nature and the verses in the Quran are related by the same term *āyā* (sign or symbol) of God.[13] This is a clear indication that just as the Quran is a means for knowledge of God, so is nature. We might say that Islamic metaphysics (*ma'rifah*) is the full exploration of the realization that everything inside and outside of us, and not only the Qur'ān, is a means of knowledge of God.

Indeed, the famous Sufi Abū Bakr al-Kalābādhī (d. 994) cited Junayd al-Baghdādī (d. 910), one of the greatest authorities on Sufism, in asserting that metaphysics (*ma'rifah*) is either direct Self-disclosure of God within His servants or the true knowledge God instructs of His signs (*āyāt Allāh*) *on the horizon and within themselves* (41:53).[14] 'Abd Allāh Ansārī (1006-88), another famous Sufi, reiterates this understanding in stating that metaphysics (*ma'rifah*) is "the comprehension of the essence of a thing as it is."[15] In other words, from the metaphysical point of view, the knowledge of the "essence of a thing as it is" is equivalent to the knowledge of the "Self-disclosure of God." Thus, Islamic metaphysics is the means of unveiling the realities of the signs of God that constitute the universe. Hence, it is in metaphysics that we should look for understanding the universe at all levels and, by the same token, for a comprehensive elucidation of the principles of unity and hierarchy of reality. The principle of purposefulness, as we will see, is inseparable from these other two principles.

Though the Sufis had for long alluded to the deepest meanings of *tawhīd* and the hierarchy of reality, the most comprehensive expositions of these two metaphysical principles in the Islamic tradition can be found in the doctrinal Sufism of Muhyī al-Dīn Ibn 'Arabī (1165–1240) and his school which includes Mullā Sadrā (1571–1640). Ibn 'Arabī, according to Nasr, "expounded the most profound doctrine possible of Being and its manifestations,"[16] which relates directly to *tawhīd* and hierarchy of reality. Nasr's own understanding of Sufism also rests largely on doctrines expounded by Ibn 'Arabī, as is evident in his recently published work on Sufism *The Garden of Truth.*[17] In reference to Ibn 'Arabī's significance in Islamic tradition, William Chittick, the foremost scholar of both Sufism and Ibn 'Arabī in the West, states, "…practically every intellectual formulation of Sufism after him derives directly or indirectly from his own works or those of his followers."[18]

For our present discussion, most importantly, Nasr considers Ibn 'Arabī to be one of the main proponents of the perennial philosophy.[19] Hence, it is imperative to discuss the key doctrines of Ibn 'Arabī's metaphysics concerning the relationship of the human being to God and the cosmos, that is, the whole of reality, in order to see how the principles of the perennial philosophy not only have their counterparts in Islamic metaphysics, but also *form the basis of Islamic metaphysics on nature.*

2.2.1 Ibn 'Arabī's Exposition of the Principle of *Tawhīd*

We will present Ibn ‘Arabī’s metaphysical exposition of *tawhīd* by way of discussing the formulation of three doctrines associated with his thought which have been permanent fixtures of Sufism ever since his time:

1. The immutable archetype (*al-a‘yān al-thābita)*
2. Theophany/Self-disclosure of God (*tajallī*)
3. Unity of Being (*wahdat al-wujūd*)

2.2.1a The Immutable Archetype (*al-a‘yān al-thābita*) *and Self-disclosure of God* (*tajallī*)

The doctrine of immutable archetype in Islamic metaphysics is derived from the Qur’ān’s affirmation that Allah knows the reality of things even before He brings them into existence: *Whenever We will anything to be, We but say unto it Our word “Be” — and it is* (16:40).[20] The “thing” before God gives existence to “it,” is the “immutable archetype” of any existent entity.

God’s purpose for creation is expressed in majestic simplicity in the *hadīth qudsi*, [21] “I was a hidden treasure; so I loved to be known, hence I created creatures in order that I might be known.”[22] Ibn ‘Arabī interprets this divine utterance as evidence of God’s desire to be known through the things He creates: “God says to a thing, ‘Be!’… it becomes a locus of manifestation for the Real. This is the meaning of His words, [‘Be!’] And it is.”[23] In other words, the immutable archetype becomes the “locus of manifestation” for God when He desires to give it existence.

As to what the existent things manifest in particular at the “locus of manifestation of the Real,” Ibn ‘Arabī directs our attention to the divine names revealed in the Qur’ān. God in His Essence (*dhat*) is unknowable. He becomes known through His attributes corresponding to His names which are His first delimitations. Thus His names are His first Self-disclosures in His desire to be known. For Ibn ‘Arabī, the Qur’ān is the Self-disclosure of God (*tajallī*) in a linguistic mode where God reveals His attributes most directly through His names.[24] Though God in His Essence is unknowable, like light which is invisible but becomes known only as multiplicity of differentiated colours, God can be known by His attributes.

The divine names function as universal archetypes of the created order. The Being of God is present in all entities, but either they do not all reveal the same attributes of God or the attributes do not shine with same brilliance in each entity. Each immutable archetype permits the manifestation of a unique combination of divine names and determines the degree of their manifestations when the archetype is given existence. By existentiating each archetype, God reveals a unique combination of His attributes. Thus, all existent entities in Ibn ‘Arabī’s language are ‘Self-disclosures’ of God (*tajallī*) in accordance with their immutable archetypes in the knowledge of God.

An immutable archetype can be said to be one of the infinite possibilities of God’s Being. In other words, an immutable archetype is His knowledge of a particular possibility of His Being. He may or may not existentiate this archetype, but as a

possibility of His Being, it must remain fixed, and therefore immutable in His knowledge eternally. Therefore, even when an entity on earth perishes, it does not bring an end to its immutable archetype.

We never see the immutable archetypes of the existent entities because the archetypes in themselves are non-existent. What we perceive in the cosmos are actually the divine attributes themselves, inasmuch as they are manifest. As Ibn ‘Arabī writes:

> God says, *We created not the heavens and the earth, and what is between them, save through the Real* (15:85), which is Pure Being. Hence, there came to be ascribed to It everything given by the realities of the entities…the effects belong to the divine names.[25]

Consisting of Self-disclosures of God, the cosmos is a theophany; it is the Cosmic Qur’ān (*al-Qur’ān al-takwīnī*), the counterpart of the composed or oral Qur’ān.[26] But this view of the cosmos as theophany must not be confused with the deification of the cosmos. Ibn ‘Arabī explains that coming into existence with the Creative word “Be” does not mean that a thing itself gains ‘being’ of its own or that God is no longer transcendent: “This does not mean that the thing ‘acquires existence.’ It only acquires the property of being a locus of manifestation…He is He, and things are the things.”[27] Each existent entity is like a mirror of nothingness reflecting some qualities of God.[28] In other words, the ultimate meaning of an entity is the qualities of God revealed through it and its ultimate purpose is to make God known in that capacity.

Jālāl al-Dīn Rūmī (1207–1273) summarized the relationship between the attributes of the Creator and the created in like manner in these lucid verses:

> Consider the creatures as pure and limpid
> water, within which shine the Attributes of the Almighty.
> Their knowledge, their justice, their kindness —
> All are stars of heaven reflected in flowing water.[29]

2.2.1b Wahdat al-wujūd (Unity of Being)

Even though Ibn ‘Arabī himself did not use the expression *wahdat al-wujūd*, his views on the cosmos and the Being of God point to what is meant by this expression.[30] *Wahdat al-wujūd*, or the Unity of Being, is derived from the doctrine that the cosmos is composed of non-existent immutable archetypes existentiated solely by the one God, thereby affirming *tawhīd.* Thus, the doctrine of *wahdat al-wujūd* does not imply that multiplicity is false, but simply that Being is One while existents are many. For each existent, its being is neither separate nor independent of the Being of God. All entities have the presence of the Being of God in Its totality but can reveal only those divine qualities determined by their immutable archetypes. Since the immutable

archetypes are in themselves non-existent, *wahdat al-wujūd* posits the existence of the Being of God alone without negating the multiplicity of existents. As such, Nasr sometimes relates *wahdat al-wujūd* as 'transcendent unity of being.'[31] Many Sufi poets indicated the reality of *wahdat al-wujūd* without providing an elaborate metaphysics of the divine names and qualities as Ibn 'Arabī did. As Rūmī (1207–1273) says in the *Mathnaw ī ,*

> We and our existences are non-existent: Thou art the
> Absolute appearing in the guise of mortality.[32]

Likewise, the most celebrated Arab Sufi poet Ibn al-Fārid (1181–1235) refers to the reality of the one God behind all acts and veils:

> All thou beholdest is the act of the One.
> In solitude, but closely veiled is He.
> Let him but lift the screen, no doubt remains:
> The forms are vanished, He alone is all.[33]

Wa hdat al-wujūd is central to Nasr's thought on the cosmos as theophany,[34] and it clearly corresponds to the first principle of the perennial philosophy in that it asserts the existence of one Ultimate Principle or Reality[35] from which rise the multiplicity of existents of the cosmos.

2.2.1c The Human Being as the Image of God and as the Microcosm

With the understanding of the doctrines of the immutable archetypes (*al-a'y ā n al-th ā bita*) and *wahdat al-wujūd* (Unity of Being), we can explore Ibn 'Arabī's view of the human being, his relationship to the cosmos, and his ultimate purpose.

The immutable archetype for the human being is unlike that of any other being because as the famous hadīth of the Prophet (peace be upon him) confirms, "God created Adam (human being) in His image." Not surprisingly, as Ibn 'Arabī interprets a *hadīth qudsi* and verses of the Qur'ān, only the human being is the locus of manifestation for all the divine names:

> God says [in a *hadīth qudsi*], "My earth and My heaven embrace me not, but the heart of My believing servant does embrace Me." …It is as if He is saying "All my names become manifest only within the human configuration." He said, *He taught Adam the names, all of them* (2:31), that is, [ultimately] divine names from which all things in engendered existence come into being.[36]

Ibn 'Arabī provided theoretical formulations for what was known intuitively or experientially by Sufis for centuries before him. Mansūr al-Hallāj (d. 922) proclaimed:

> *An ā man ahw ā wa man ahw ā an ā*
> I am He whom I love, and He whom I love is I[37]

The great Sufi poet Farīd al-Dīn ‘Attār (d. 1220) narrates the whole mystic journey through the symbolism of the flight of a flock of birds in his *Conference of the Birds*. At the end of the journey, the thirty birds (*si murgh* in Persian) who succeed in the journey to the divine presence realize that they ‘are’ the Simurgh, the mythical bird which, for ‘Attār, symbolizes the divine. They then realize that they are mere reflections of the Being they sought and worshipped; otherness and duality have perished:

> To be consumed by the light of the presence of the Simurgh
> Is to realize that,
> I know not whether I am Thee or Thou art I;
> I have disappeared in Thee and duality hath perished.[38]

If the human being is the locus of manifestation for all the divine names, he is also the microcosm of the cosmos by virtue of the fact that the cosmos is also a manifestation of God’s names.[39] As Ibn ‘Arabī explains, the Qur’ān affirms the microcosm-macrocosm relationship between the human being and the cosmos in no uncertain terms: “God says, *We shall show them our signs upon the horizons and in themselves until it is clear to them that It is the Truth* (41:53) so that they will know that the human being is a microcosm of the cosmos containing the signs that are within the cosmos.”[40]

But the cosmos is incomplete without the human being. In Ibn ‘Arabī’s metaphysics, in contrast to all the divine names manifesting together in the human entity, no non-human entity reflects the full range of God’s names. Thus, since the human being is the only entity in the cosmos that reflects all the attributes of God, only his presence within the cosmos makes it a total theophany. Hence, the human being, for Ibn ‘Arabī, is like the spirit of the cosmos:

> The whole cosmos is the differentiation of Adam, while Adam is the all-comprehensive book. In relation to the cosmos he is like the spirit in relation to the body…through bringing together all of this the cosmos is the “great human being,” so long as the human being is within it.[41]

It follows that not only do the human being and the cosmos reflect each other as ‘images’ of God, as body and spirit, but the cosmos and the human being are integral to each other. One cannot be known without reference to the other. In order to know himself, the human being must know God whose attributes are reflected in the cosmos. The divine names provided by the revelation tell us exactly what the “signs” of God in the cosmos are. But without reference to entities and phenomena of the cosmos, the human being could never know what the names meant. Thus, the quest for self-knowledge or the quest for knowledge of God requires that we see the cosmos consisting of not just material “facts” but “signs of God” (*āyāt Allāh*).

God created the human being such that through him He may be known as God, and the cosmos plays an essential role in aiding human beings in fulfilling that

purpose. And in knowing God in this manner “wherever one turns,” a Muslim can also fulfil his ultimate purpose of knowing God and His Unity (*tawhīd*).

2.2.2 Ibn ‘Arabī’s Exposition of the Principle of Hierarchy of Reality

Not all entities or signs of God reflect the attributes of God equally because the immutable archetypes allow manifestation of divine attributes in different combinations and degrees. From Ibn ‘Arabī’s metaphysical perspective, the number and the intensity of manifestation of the divine attributes is at the root of the hierarchy of reality in the cosmos.[42]

As we have seen, the human being reflects all the attributes of God. Therefore, there is a horizontal hierarchy of reality on the material plane with the human being at the top followed by the animal, plant and mineral kingdoms respectively in the descending order. However, according to the Qur’ān, between the invisible world of God and His angels and the visible material domain, there is a world of intermediate realities — referred to in the Qur’ān as the *barzakh* (55:19*)* — which shares the attributes of both the spiritual world above and the corporeal world below.[43] Traditional accounts regarding posthumous life of the soul until resurrection on the Day of Judgment, take place in this intermediate world.[44] Entities in this world, such as the *jinns,* are immaterial but have forms and possess sensory qualities.

Ibn ‘Arabī conveys the reality of this intermediate world by the term ‘imagination.’ According to Chittick, the term ‘imagination’ is used by Ibn ‘Arabī in two closely related senses. It can be used either to mean the intermediate world we discussed above, or “In the narrowest sense…a specific faculty of the soul that brings together sensory things, which have shapes and forms, and consciousness, which has no shape or form.”[45] Contemporary scholars of the school of Ibn ‘Arabī usually use the term ‘imaginal’ to distinguish the intermediate reality or the faculty to perceive it as such, from the sense of unreality associated with the term ‘imagination’ in its current usage in English.

Like all Islamic thinkers, Ibn ‘Arabī conceives of all things originating in God. Thus, creation begins from above with the immutable archetypes in God. In Ibn ‘Arabī’s metaphysics, the first step in comprehending the hierarchy of reality is to know that even though God is equally present in every existent entity, He is not equally perceptible at all levels of reality. For the school of Ibn ‘Arabī, for any given immutable archetype, the hierarchy of reality results from the divine names not being equally manifested at all levels of the cosmos. Ibn ‘Arabī speaks of decreasing levels of transparency of divine reality — from the realm of the Absolute Presence of God to the corporeal plane.[46] The various manifestations of Presence below the divine reality are also described in terms of decreasing levels of spiritual luminosity — luminosity being a measure of the intensity of the presence of the pure Spirit or Light (*al-Nur*) of God.

The divine names and the immutable archetypes are closest to the Essence of

God. When God chooses to give existence to an immutable archetype, it 'descends,' so to speak, from the spiritual world into the imaginal world where it first manifests in a 'form' corresponding to its immutable archetype in the spiritual plane above.[47] When this imaginal form 'descends' to the material plane, it is wedded to matter — itself a pure potentiality — to give rise to the corporeal entity corresponding to the imaginal 'form' in the imaginal plane above.[48] The imaginal form is nothing other than the aggregate of the divine qualities that constitute the corresponding immutable archetype though at a diminished intensity. Likewise, the visible form of a corporeal entity itself is nothing but the outermost manifestation of the qualities of the imaginal form when combined with matter below.[49]

It follows that the immutable archetype of any given corporeal entity is the principle of its reality on the imaginal plane, and likewise, the imaginal form in the imaginal world is the principle of the corporeal entity on the corporeal plane. The human being cannot access purely spiritual realities except by the way of knowing imaginal realm separating the corporeal from the spiritual.[50] Corresponding to the hierarchy of reality is a hierarchy of human faculties of perception. For Ibn 'Arabī, only spiritual practice and Divine grace open up faculties of perception for levels of reality beyond the level perceived by ordinary rationality.[51]

From the brief discussion above on Ibn 'Arabī's vision of the role of the divine names, we can conclude the following: first, that there is a hierarchy of reality on the material plane among entities based on both the number and degree of manifestation of divine attributes. Second, there is another hierarchy of reality corresponding to each corporeal entity, from its immutable archetype in the knowledge of God to its imaginal form below in the imaginal world, and finally to the wedding of the imaginal form with the matter below in the corporeal world. Moreover, for each entity, the hierarchy is the result of the decreasing intensity of manifestation of the divine names at each successive plane from above.

There are several features of the hierarchic structure of reality that we must keep in mind. Any plane of reality has its principle in the plane above it. The human being cannot access the spiritual plane except through the intermediate plane of the imaginal reality. Most importantly, all planes of reality are ultimately contained within an indivisible and infinite Unity that God is and hence, God's Unity is the basis of relationship between different planes of reality. As we will see in the next chapter, the metaphysics of the hierarchic structure of reality also provides the basis for understanding, among other things, the necessity of religion with all its rites and symbols.

2.3 CHAPTER SUMMARY

The first principle of the perennial philosophy is almost identical to *wahdat al-wujūd*. The second principle of the hierarchy of reality also clearly has a counterpart in Islam in terms of spiritual, imaginal and corporeal planes of reality. As for the cosmos, the doctrine of the non-existent immutable archetypes (*al-a'yān al-thābita*) enables us to understand that the principle of *tawhīd* (Unity of God) imply *wahdat al-wujūd* (Unity of Being) and to see that the signs of God which fill the cosmos are the Self-disclosures of God. Thus, in the ultimate sense, the meaning of the cosmos consists of the attributes of God and the purpose of the cosmos is to make Him known.

The doctrine of the imaginal world sheds more light on the relation between different planes of reality and the nature of the signs of God. The doctrine of *wahdat al-wujūd* is joined with the doctrine that the human being is made "in the image of God" to give us the vision of the microcosmic and macrocosmic relationship between the human being and the cosmos. From this perspective, the human being can know himself and the Unity of God by seeing Him everywhere. Most importantly, underlying the entire vision of the cosmos are the principles of *tawhīd* and the hierarchy of reality which portray the cosmos as sacred and symbolic.

We can conclude that Islamic intellectual tradition contains metaphysical doctrines which not only agree with the perennial principles, but also serve as the basis of Islam's view of the cosmos as theophany and of the human being's intimate relationship with it in fulfilling his purpose. Therefore, any system of thought, such as the modern scientific worldview and associated ideologies, which deny the perennial principles, also challenge the foundation of the Islamic view of nature and its role in fulfilling human purpose.

Given the essential identity of the perennial principles with those of Islamic metaphysics, when Nasr appears to criticize the modern scientific worldview from the Perennialist or Traditionalist standpoint, as we see in his major works that relate to environmental crisis,[52] he does so from an essentially Islamic perspective as well. However, our discussion here is only the foundational part of what we propose as Nasr's traditional Islamic response to the environmental crisis. In subsequent chapters we will see that all of Nasr's positions are directly or indirectly based on consideration of the Islamic metaphysical principles we discussed in this chapter.

NOTES

1. Nasr, *Need for a Sacred Science*, p. 140.
2. Nasr makes this statement in the context of discussing Islamic vision of the relationship between the human being and nature. Nasr, *Man and Nature*, p. 96.
3. See Introduction 0.6 and 0.6.2.
4. See *The Holy Qur'ān*, trans. Martin Lings (Cambridge: The Royal Aal al-Bayt Institute for Islamic Thought, 2007).

5. Q. 14: 19
6. Q. 15:27; 32:7.
7. Q. 2:3; 3:44; 50:33.
8. *Are they equal — those who know and those who do not? (*39:9).
9. *We detail our signs for people who have understanding* (6:98). *In the creation of the heavens and the earth…are signs for people who are wise* (2:164).
10. *Not without purpose did We create heaven and earth and all between*! (38:27).
11. *Verily, We have created all things in proportion and measure* (54:49).
12. *Among His Signs is the creation of the heavens and the earth, and the living creatures that He has scattered through them* (Q. 42:29).
13. Seyyed Hossein Nasr, "Reading the Cosmic Qur'ān," lecture delivered to the Muslim Students' Association (MSA) at the George Mason University (USA), 27 March 2008.
14. Abū Bakr al-Kalābādhī, "The Exploration of Sufi Teachings (*Kitāb at-ta'arruf*)," trans. John Renard in *Knowledge of God in Classical Sufism: Foundations of Islamic Mystical Theology,* The Classics of Western Spirituality Series (New York: Paulist Press, 2004), p. 101.
15. 'Abd Allāh Ansārī, "The Hundred Fields: Resting Places of the Wayfarers (*Sad Maydān*)," trans. John Renard in *Knowledge of God in Classical Sufism: Foundations of Islamic Mystical Theology,* The Classics of Western Spirituality Series (New York: Paulist Press, 2004), p. 296. Also, see Chapter 3.4.
16. Nasr, *Islamic Philosophy from its Origin to the Present*, p. 86.
17. Seyyed Hossein Nasr, *The Garden of Truth: The Vision and Promise of Sufism, Islam's Mystical Tradition* (New York: HarperCollins Publishers, 2007), pp. 30–58.
18. William Chittick, "Ibn 'Arabī and His School," in *Islamic Spirituality: Manifestations*, ed. Seyyed Hossein Nasr (New York: The Crossroad Publishing Company, 1997), p. 68.
19. Nasr, "Reply to Huston Smith," p. 160.
20. See *The Message of the Quran*, trans. Muhammad Asad.
21. A *hadīth* is a saying attributed to the Prophet Muhammad. But a *hadīth qudsi* is a saying attributed to God but uttered by the Prophet Muhammad and is not part of the Qur'ān.
22. This *hadīth qudsi* is quoted by Ibn 'Arabī frequently. See William Chittick, *Imaginal Worlds: Ibn al-Arabi and the Problem of Religious Diversity*, (Albany: State University of New York Press, 1994), p. 29. Also see William Chittick, *The Sufi path of knowledge: Ibn al-Arabi's metaphysics of imagination*, (New York: State University of New York Press, 1989), pp. 66, 126, 180.
23. Ibn 'Arabī, al-*Futūhāt al-Makkiyya*, vol. II 484.23 translated and quoted in Chittick, *Sufi path of knowledge*, 90. Henceforth *al-Futūhāt al-Makkiyya* authored by Ibn 'Arabī will be referred to as just *Futūhāt*.
24. *Futūhāt* IV *60.33* in Chittick, *Sufi path of knowledge,* p. 241. Based on many *hadīths,* Osman Bakar has related the Islamic understanding that "God 'wrote' by the Pen (*qalam*) the inner reality of all things on the Guarded Tablet (*al-lawh al-mahfūz*)

before the creation of the world. The Pen symbolizes the Universal Intellect…. It is also by the Pen that God 'wrote' the Qur'ān upon the Tablet. Thus metaphysically, the Qur'ān contains the prototype of all creation." Bakar, *History and Philosophy of Islamic Science,* 24 n20.
25. *Futūhāt* II 216.7 in Chittick, *Sufi path of knowledge*, pp. 95–96. Also, see *Imaginal Worlds,* p. 18.
26. Nasr, *Need for a Sacred Science,* pp. 130–131.
27. *Futūhāt,* II 484.23 in Chittick, *Sufi path of knowledge,* p. 90.
28. *Futūhāt* III 46.27, 47.25 in Chittick, *Sufi path of knowledge*, p. 205.
29. Jālāl al-Dīn Rūmī, *Mathnawī* vol. VI 3172–73, translated and quoted in William Chittick, *The Sufi Path of Love: The Spiritual Teachings of Rūmī* (Albany: State University of New York Press, 1983), p. 43.
30. The term *wahdat al-wujūd* was coined by Sa'id al-Din Farghani (d. 1300), one of Ibn 'Arabī's followers. Though according to William Chittick the term reflects Ibn 'Arabī's point of view well. See William C. Chittick, " Rūmī and *wahdat al-wujūd*," in *Poetry and Mysticism in Islam: The Heritage of Rūmī,* eds. A. Banani, R. Hovannisian, and G. Sabagh (Cambridge: Cambridge University Press, 1994), pp. 70–111.
31. Nasr, *Religion and the Order of Nature*, p. 283.
32. Jālāl al-Dīn Rūmī, *Mathnawī*, quoted in Seyyed Hossein Nasr: *Islamic Art and Spirituality* (New York: State University of New York Press, 1987), 138.
33. Ibn al-Fārid, quoted in Seyyed Hossein Nasr, *Sufi Essays*, 3rd edition (Chicago: ABC International Group, 1999), 78.
34. Nasr, *Knowledge and the Sacred*, pp. 189–214. Also, see Nasr's book of verses, *The Pilgrimage of Life and the Wisdom of Rūmī,* (Oakton, VA: The Foundation of Traditional Studies, 2007), p. 23.
35. *Allah is the Reality* (Q 22:6).
36. *Futūhāt* I 216.9 in *Sufi path of knowledge,* p. 276.
37. Mansūr al-Hallāj quoted in Annemarie Schimmel, *As Through a Veil: Mystical Poetry in Islam* (Oxford, UK: Oneworld, 2001), p. 32.
38. Farīd al-Dīn 'Attār, *Conference of the Birds*, quoted in S.H. Nasr: *Islamic Art and Spirituality*, p. 110.
39. Commenting on the *hadīth* "God created Adam in His image," Abū Hāmid al-Ghazzālī stated, "God showed beneficence to Adam. He gave him an abridged form that brings together every sort of thing found in the cosmos. It is as if Adam is everything in the cosmos, or an abridged transcription of the world." Al-Ghazzālī, *Niche of Lights*, p. 31.
40. Ibn 'Arabī , *Futūhāt* vol. II 150.33 quoted in William Chittick in *Self-Disclosure of God: Principles of Ibn al-Arabi's Cosmology* (Albany: State University of New York, 1998), p. 9. Also, see Q. 51: 20–21.
41. *Futūhāt* vol. II 67.28, quoted in William Chittick, *Imaginal Worlds*, p. 34.
42. Chittick, *Imaginal Worlds*, p. 21–22.
43. *Futūhāt* III 42.5 and II 390.4 in Chittick, *Self-Disclosure of God,* pp. 258–259.

44. *Futūhāt* III 42.5 and II 390.4 in Chittick, *Self-Disclosure of God,* pp. 258–259.
45. Chittick, *Imaginal Worlds*, p. 54.
46. Chittick, *Sufi path of knowledge*, p. 16.
47. *Futūhāt* III 361.5 in Chittick, *Sufi path of knowledge*, p. 122.
48. *Futūhāt* III 46.27 and 47.25 in Chittick, *Sufi path of knowledge*, p. 204.
49. As Mullā Sadrā explained, “material forms are nothing but icons and moulds of ... disembodied [i.e. intelligible] forms.” Sadrā quoted in Kalin, *Knowledge in Later Islamic Philosophy*, p. 104.
50. *Futūhāt* III 47.25 in Chittick, *Sufi path of knowledge*, p. 205.
51. *Futūhāt* I 271.27 and I 319.27 in Chittick, *Sufi path of knowledge*, pp. 168–169.
52. See Seyyed Hossein Nasr, *Man and Nature: The Spiritual Crisis in Modern Man* (Chicago: ABC International Group, 1997) and *Religion and the Order of Nature* (New York and Oxford: Oxford University Press, 1996). Also, see Chapter 1.

Chapter 3
Metaphysics, Sufism, and Islamic Ethics

> What undergirds a house is its foundation, and what undergirds the religion is experiential knowledge of God, along with certitude and circumspect intelligence.[1]
> Prophet Muhammad (peace be upon him)

> Sufism possesses teachings concerning the nature of man and the world about him which contains keys to the solutions of the most acute problems of the modern world, such as the ecological crisis.[2]
> S. H. Nasr

Like other Muslim environmentalists who have been advocating an Islamic response to the environmental crisis, Nasr strongly encourages the observance of Islamic environmental ethics which includes the *Sharī'ā* concerning the natural world: "Islamic environmental ethics must be revived in the context of *al-Sharī'ā* and the Islamic view of nature on the basis of the noble Qur'ān."[3] But he argues that the prevailing modern scientific worldview can only "corrode metaphysical and religious doctrines upon which ethics must of necessity rely."[4] How the fundamental religious and metaphysical doctrines discussed in Chapter 2 form the basis of Islamic ethics and by what means we may best preserve the relevance of those doctrines for Muslims will be the focus of our attention in this chapter.

In order to draw attention to Nasr's emphasis on the revival and observance of Islamic ethics, we will first present an outline of various strategies that Nasr recommends for Islamic environmental ethics to play a significant role towards the protection of the environment. Next, we will briefly discuss how Islamic metaphysics or *ma'rifa* (knowledge of God or of Supreme Reality) and religious doctrines are foundational to Islamic ethics. And finally, we will discuss the critical importance of Sufism in upholding and confirming the religious and metaphysical view of nature.

3.1 NASR'S STRATEGIES FOR THE DISSEMINATION AND APPLICATION OF THE KNOWLEDGE OF ISLAMIC ENVIRONMENTAL ETHICS

Nasr is aware that most of today's *'ulamā'* (Islamic religious scholars) have little concern about the environmental crisis and are hardly aware of Islamic teachings about the natural world. He sees an urgent need for pious Muslims, especially the *'ulamā,'* to wake up to the fact that Islam is not just about praying to God and moral behaviour towards other human beings, but also about taking care of the world of nature.[5]

Accordingly, Nasr recommends education on Islamic environmental ethics in the *madrasahs* as well as in the modern educational institutions of the Muslim world.[6] Once the *'ulamā'* have educated themselves about Islamic teachings on the environment, Muslim governments would do well to work together with the *'ulamā'* "who have the ear of the people" and let them "spearhead efforts."[7] In addition, contemporary scholars should use existing "concrete laws and principles of regulations"[8] in Islamic jurisprudence "to extend" the field of application of existing environmental *Sharī'ā* "whenever necessary"[9] to respond to today's environmental crisis.[10]

Nasr argues that laws intended for the preservation of the environment that have sanction of the *Sharī'ā* have a better chance of being observed than secular laws do, because Muslims "would see them as God's Laws, rather than simply governmental regulations to be circumvented whenever possible."[11] He supports efforts by civil laws or by modern NGOs to take measures with the aim of limiting pollution as long as those measures do not violate Islamic principles such as the legal maxims.[12] Such approaches which protect the natural environment may qualify as *'āda* and *'urf*,[13] and receive approval by Islamic legal scholars. Finally, as means for funding the environmental projects, especially for the creation and administration of *har īm s* and *himā s,*[14] Nasr recommends the revival of the traditional Islamic institution of *waqf* (religious endowments for public welfare) which would be supported mainly by pious individuals.[15]

How do the variations in the interpretations of the *Sharī'ā* affect Nasr's strategy? With regard to Islamic environmental laws, Othman Llewllyn, one of the authorities on the subject today, contends that "there is little divergence in their interpretations."[16] Moreover, Nasr leaves the interpretations of the *Sharī'ā* at large to the legal scholars. In this regard his attitude towards the *Sharī'ā* is no different from that of Ibn 'Arabī, Rūmī and most other traditional Sufis. In modern times, the question of who interprets the *Sharī'ā* frequently becomes a major issue due to the presence of 'fundamentalist' and 'modernist' interpretations which were absent in the more traditional world.[17]

In summary, we can envision a comprehensive Islamic ethics based programme which not only has a better chance of being practiced by Muslim nations where faith is still strong, but could also, by the same token, go farther than the reach of secular environmental protection laws especially in those circumstances that cannot be observed or regulated by authorities. However, according to Nasr, such ethically based efforts cannot ultimately succeed unless we can revive and maintain the religious or metaphysical view of nature which the scientific worldview denies.[18] To understand this, we must first grasp how religious and metaphysical doctrines are at the foundation of Islamic ethics.

3.2 RELIGIOUS AND METAPHYSICAL DOCTRINES AT THE FOUNDATION OF ISLAMIC ETHICS

The fundamental Islamic religious doctrines that define the relationship between the human being and nature are the doctrines of *amāna* (bestowed trust)[19] and *khilāfa* (vicegerency).[20] Also, the Qur'ān suggests that servitude to God and obedience to His Prophet (peace be upon him) accordingly compose the proper attitude necessary for human beings to achieve felicity.[21] Indeed, servitude is the only means by which the human being can act as a *khalīfah* (vicegerent) and treat what God has given to him as *amāna* — his own body, senses, reason, heart, and the natural world about him.[22]

Servitude to God requires that we know the will of God. However, the will of God is known not only by the specific divine commands, which form the main components of the *Sharī'ā,* but also indirectly and fundamentally by the intrinsic nature of everything created by God. Nasr makes this point by drawing attention to the fact that the Qur'ānic term *haqq* not only refers to God who is *al-Haqq* (The Truth) but "[it] at once means truth, reality, right, law, and due."[23] He observes that "according to Islam each being exists by virtue of the truth (*haqq*) and is also owed its due (*haqq*) according to its nature. The trees have their due as do animals or even rivers and mountains. In dealing with nature man must pay what is due to each creature and, each creature has its right accordingly…The rights of creatures were given by God and not by us, to be taken away when we decide to do so."[24]

Since the Qur'ān describes the fundamental nature of the reality of entities as signs of God (*āyāt Allāh*) (3:190), it is fundamentally by that criterion that God's will regarding the human treatment of nature is determined. As Mawil Izzi Dien has observed, this point is emphasized by a verse on the she-camel — a metaphor for the natural world that the Qur'ān uses several times — who must not be harmed because of her essential value as a sign of God: [25]

> *…This she-camel of Allah*
> *Is a sign unto you:*
> *So leave her to graze*
> *In God's earth, and let her*
> *Come to no harm,*
> *Or you shall be seized*
> *With a grievous punishment*. (7:73)[26]

In fact, everything *in the creation of the heavens and the earth* (3:190; 2:164) is a sign of God. If we disregard God's signs, we sin against Him and *corruption doth appear on the land and the sea* (30:41).[27]

If the appropriate human attitude due to each entity in the natural world is determined fundamentally by it's nature as a sign of God, then our appreciation of Islamic ethics depends ultimately upon true understanding of the signs which concern metaphysics (*ma'rifa*).[28] Indeed, in light of the doctrines of immutable archetype (*al-a'yān al-thābita*), Self-disclosure of God (*tajall ī*) and the Unity of Being (*wahdat al-wujūd*), we might say that Islamic metaphysics (*ma'rifa*) is an elaboration of the Qur'ān's repeated assertions that all entities are signs of God. However, these

doctrines are only metaphysical expositions of the ordinary religious doctrines of *tawhīd* and the hierarchy of reality.

Indeed, the doctrines of *amāna* (bestowed trust) and *khilāfa* (vicegerency) are made comprehensible by the metaphysical doctrines of the immutable archetypes and of the human being as the microcosm of the cosmos which reflects all the qualities of God who is One (*Al-Ahad*).[29] For Abū Hāmid al-Ghazzālī (d. 1111), the *amāna* is the *potential ability* of the human being alone to know the realities of all things, that is, the archetypes, in his heart, where God, the One, dwells.[30] In the same vein, in his popular exegesis of the Quran, Nizām al-Dīn Nishaburi (d.1327) asserts that the human being *becomes* God's *khalīfah* (vicegerent) when his heart's vision is "illumined with the fire of the light of God,"[31] the means by which, for al-Ghazzālī, the human knows how all things are rooted in God.[32] Thus, the religious doctrines of *amāna* and *khilāfa* are rooted in the principles of *tawhid,* the hierarchy of reality and purposefulness of the cosmos.[33] If the doctrines of *amana* and *khilāfa* determine Islamic ethics regarding the natural world, Islamic environmental ethics is rooted fundamentally in *tawhīd*. Indeed, as Mohammad Hashim Kamali, one of the foremost scholars of Islamic jurisprudence (*fiqh*) and Law (*Sharī'ā*) today has observed, "Every discussion of law and morality in Islam must, of necessity, proceed from *tawhīd*…God created the universe, and every part of it is synchronized with its other parts."[34]

Al-Ghazzālī spoke of four levels of knowledge of *tawhīd:* The first level consists of the declaration by tongue without accepting it by the heart;[35] the second level is limited to imitation of others;[36] the third level consists of an intuitive knowing of how "all proceeds from one source" while still retaining a sense of mutiplicity;[37] and finally, the fourth level is the state where "one sees nothing save One."[38] The first level of belief is termed as that of the hypocrite. The second level is most common and is limited to faith in the knowledge or belief of others. With this ordinary level of belief in *tawhīd*, the unitarian approach to life in *Sharī'ā*[39] can be explained mostly by the logical conclusion at the mental level that all facets of life must be somehow related because everything has been created or willed by one and the same God. However, al-Ghazzālī suggests that the third and fourth levels of knowledge of *tawhīd,* which reveal the interconnections among everything unperceived by ordinary rationality, can also justify those ethical teachings or *Sharī'ā* injunctions that may otherwise seem arbitrary.

Al-Ghazzālī asserts that "God's Unity is in the Religious Law, and the Religious Law is in God's Unity."[40] He explains this by way of arguing that hell or heaven is ultimately not given to us "from some other place," but that our own deeds draw us to the hell or heaven existing within our own true reality.[41] He explains that there is a level of realization of *tawhīd* which allows us to experience "one animate being," within which everything in the universe, including heavens and hells, is interconnected into an Unity.[42] Al-Ghazzālī adds that this vision of Unity cannot be understood except by recognition of the truth of the *hadīth* "Verily, God created Adam in His image,"

suggesting how as His 'image,' the human being contains within himself the universe, including the hells and the heavens, though that reality and all the interconnections among people, the non-human world, deeds and obligations remain hidden from our ordinary consciousness.[43] In this manner, Al-Ghazzālī demonstrates the significance of metaphysics in comprehending the *Sharī'ā,* especially in cases where the rationale is not obvious.

This brings us back to the metaphysical view of the human being, who as God's 'image,' shares, even if he is not aware of it, all His attributes,[44] and has the potential to be His *khalīfah* (vicegerent), His perfect representative on earth. In this regard, Ibn 'Arabī argues that the human being represents God most perfectly only when he can manifest the divine qualities of mercy and majesty[45] within himself in perfect *equilibrium,* as they are in God.[46] Further, we will see next that Ibn 'Arabī also provides the metaphysical rationale for observing the *Sharī'ā* as the means to attain an equilibrium of divine qualities in the human being.

3.3 THE METAPHYSICS OF THE HIERARCHY OF REALITY PROVIDES THE RATIONALE FOR *SHARĪ'Ā*

In light of the metaphysics of the hierarchy of reality discussed in Chapter 2, the principles of the entities in a given plane of reality lie in the plane above it. Hence, all entities or meanings on the earthly plane are mere symbols of their realities in the imaginal plane and beyond. Further, since we don't have access to the knowledge of spiritual realities except through the imaginal realm, only those who have access to the higher planes of knowledge can convey messages received at those levels most appropriately. In turn, they alone can explain the symbolism or the higher realities of events and entities on the earthly plane. In order to understand how the Islamic religion with all its rites and symbols has a rationale beyond what could be fathomed by ordinary reason, we must first understand that in Islamic metaphysics, the Qur'ān itself is an imaginal reality and that the Prophet Muhammad is its most perfect interpreter.

Ibn 'Arabī draws attention to the imaginal nature of the Qur'ān by describing its 'descent' as an imaginal reality. Originally, the Qur'ān is the pure meaning of guidance from God. But reportedly, the revelation of the Qur'ān was always preceded by dream-visions.[47] Thus, the Qur'ān received on the material plane is an imaginal form of the immutable archetype or the 'meaning' of the Qur'ān, combined with the sensory quality of sound.[48] Naturally, only those who have access to realities above the material plane would qualify to interpret the Qur'ān as it should be interpreted. So, how is the Prophet the most perfect interpreter of the Qur'ān?

Differences between levels of reality are determined by different levels of manifestation of the qualities of God, who is All-Knowing (*al-'Alīm*) or All-Aware.[49] According to Ibn 'Arabī and other Sufis, the human being grows in knowledge, awareness and perfection with spiritual practice.[50] As Ibn 'Arabī asserts, "The

perfect human being witnesses God in the manifest domain inasmuch as He is in the cosmos, and he witnesses Him in the nonmanifest domain inasmuch as He is concealed."[51] As the prototype of the perfect human being in Islam, the Prophet knew all levels of reality perfectly. Since the Qur'ān is an imaginal world itself, only the Prophet, having the perfect knowledge of the higher planes of reality, can interpret its guidance pefectly by giving directions and establishing the most appropriate rites and symbols.[52] By this logic, the *Sharī'ā,* essentially based on the Prophet's interpretations of the Quran, is the most perfect general guidance from God.[53] But how does observance of the *Sharī'ā* help to bring about the equilibrium of divine qualities in the human being? We will outline Ibn 'Arabī's arguments below.

Obedience to God entails observing His guidance as given by the *Sharī'ā* which includes commands and prohibitions and whose main components — the remembrance of God's unity, prayer, fasting, alms-giving and pilgrimage — obviously have the goal of drawing human beings to God's mercy or nearness. As Ibn 'Arabī says, the prophets have designated for the people "acts that bring about nearness to God."[54] The prohibitions against lying, stealing, drinking, backbiting, and so forth, ultimately have the same goal as well. Thus, the main thrust of the *Sharī'ā* is obviously to unveil qualities of mercy in the observant Muslim.

Now, the attributes of mercy are higher in rank and nearer or more fundamental to God because, as the famous *hadīth qudsi* states, "My mercy precedes my wrath." With the cultivation of the qualities of mercy given priority in the *Sharī'ā*, its observance serves to unite, harmonize, and balance the diverse divine attributes in the human being.[55] Thus, the observance of the *Sharī'ā* unveils the qualities of mercy and severity in the faithful Muslim in proper balance, a feat that human calculations alone would be unable to determine.

Thus, according to Ibn 'Arabī, for Muslims to fully actualize their human potential, there is no recourse other than to follow the Prophet Muhammad. He concludes, "The road to felicity is that set down by revealed religion, nothing else."[56] Conversely, the rationale for religion is weakened if the perennial principles and the associated metaphysics are neglected or denied. By extension, the same logic applies to the rites and symbols established by revelations and prophets corresponding to other religions.[57] The Qur'ān itself acknowledges the reality of the diversity of religious paths ordained by God.[58] As such, the Islamic tradition is quite in harmony with the Traditionalist insistence on the observance of rites and symbols of each religion by its adherents.[59]

3.4 SUFISM AND THE SUPREMACY OF KNOWLEDGE BY THE HEART

Metaphysics or *ma'rifa* (knowledge of God or Supreme Reality) is the central objective and perspective of Sufism. For one on the Sufi way, it is the perspective, the road-map or discursive knowledge of God, and as the objective, it is the experiential knowledge of God.[60] In other words, metaphysical doctrines are

theoretical articulations of knowledge realized by those who already reached the 'end' of the Sufi path; the doctrines define the nature of reality as such for all entities and thereby serve as road maps to God, who is the Supreme Reality (*al-Haqq*).[61]

Martin Lings, one of the leading Islamic scholars of the twentieth century in the West, pointed out that Sufism's "aspirations, its practice, and in a sense even its doctrine" is summed up by the following much quoted *hadīth qudsi*:

> Nothing is more pleasing to Me, as a means for My slave to draw near unto Me, than worship which I have made binding upon him; and My slave ceaseth not to draw near unto Me with added devotions of his free will until I love him; and when I love him I am the Hearing wherewith he heareth and the Sight wherewith he seeth and the Hand whereby he graspeth and the Foot whereon he walketh.[62]

Thus, in addition to observing the obligatory duties of Islam as crystallized in the *Sharī'ā ,*[63] Sufism consists of numerous ways of drawing near to God. Non-obligatory forms of worship include additional prayers, recitation of the Qur'ān, *dhikr*(remembrance or invocation of God by His names), spiritual retreat (*khalwa*), and charity beyond the minimal established by the obligatory duty of alms-giving (*zak āh*). In all this, the Prophet Muhammad serves as the preeminent example for imitation.[64] The objective of drawing near God also coincides with the need to see Him everywhere one looks because the noblest way of worshiping Him is to do so *as though* one sees Him.[65]

Since the Sufi way has sought to contemplate the presence of God in all actions and phenomena, it is in Sufism than in any other aspect of Islam, that the inner or higher reality of the world of nature also holds a special interest.[66] Accordingly, we find al-Ghazzālī state that one gains "knowledge of God Most High through the knowledge of His handiwork, and this is the totality of the universe."[67]

However, this contemplation can only bear fruit to the degree that the heart is made pure because the Intellect or the "light that appears in the heart"[68] and enables us to witness beyond what ordinary rationality can offer, that is, a vision of God's omnipresence, is able to function without obstructions only when the heart is cleansed. Indeed, purity of the heart is the goal of Sufism. As al-Ghazzālī observed, the object of Sufism "is to lop off the obstacles present in the soul and to rid oneself of its reprehensible habits and vicious qualities in order to attain thereby a heart empty of all save God and adorned with constant remembrance of God."[69]

The Sufi understanding of the perceptual role of the heart can be traced to the numerous mentions in the Qur'ān and the *Hadīth* of the necessity of a having a heart able to grasp the spiritual realities in the natural world as well as in ourselves. The Qur'ān warns that the signs of God cannot be deciphered except by those who have understanding.[70] It points at the heart not only as a physical organ but also as the means of understanding of a higher order of reality beyond what is accessible by the senses and ordinary reason. It is not enough to have physical organs and senses; evil

doers may have hearts but they “understand not” with them:

> *They have hearts wherewith they understand not; eyes wherewith they see not, and ears wherewith they hear not. They are like cattle, nay, more misguided, for they are heedless* (7:179).[71]

The Qur’ān suggests that the physical heart can be transformed into an instrument for grasping deeper or higher realities if there is faith in God and the heart is cleansed of worldly attachment, doubts about God, and of evil, accordingly.[72] The benefit of such a pure heart is the certitude in knowledge. Commenting on the Qur’ānic verse *The heart did not lie as to what it saw* (53:11) the renowned Sufi Abū Tālib al-Makkī (d. 996) indicates Quranic legitimacy to the experience of certitude by the heart: “[God] thus establishes that the heart has eyes; so the vision of the heart is certitude, and one who possess the heart is endowed with certitude.”[73] Thus, in Sufi terminology, what we have referred to as the Intellect is also known as the ‘eye of the heart’ (*‘ayan al-qalb*).

Sufis over the ages have asserted the supremacy of knowledge by the pure heart. Like Rūmī,[74] al-Ghazzālī, Ibn ‘Arabī, and numerous other Sufis before him, the famous Sufi poet Mahmūd Shabistarī (d. 1321) contends that mere reasoning is incapable of revealing the reality of things. Shabistarī summarizes ratiocination as the process that first starts with concepts in the mind, which judges and categorizes them, then applies Aristotelian syllogistic reasoning among concepts that are ‘known,’ to infer from there, a new ‘known.’ Thus, knowledge through ratiocination is not an absolute knowledge but contingent upon other ‘knowns’ and hence only an ‘imitation’ and not an experiential knowledge.[75] Instead, we find Shabistarī speaking of the “work of the Heart” that alone can reach beyond ordinary reason:

> The physical actions of one’s water and clay
> Don’t lead to the Knowledge which is the work of the Heart.[76]

And many Sufis have used the term ‘eye of the heart’ to relate to the faculty of the heart that can perceive all levels of reality:

> I saw my Lord with the eye of the heart
> And said: “Who are you?” He answered: “You!”[77]

Or,

> The eye of the heart knows
> What it has seen through His collyrium:
> Light and mercy, all the way to the seventh heaven.[78]

Or,

Open the ‘eye of the heart’ so that thou canst see the spirit,
And gain vision of that which visible is not.[79]

Nasr has warned that in modern thought, not only that the Intellect has been reduced to reason, but the heart is also associated with only emotions and sentiments and not with the deepest knowledge as implied by the Sufis.[80] However, as the ‘eye of the *heart*,’ the Intellect is not like the dry ordinary reason; the Intellect knows with certitude and loves at the same time. Indeed, the famous Sufi Shaykh Ahmad al-‘Alawī (1869–1934) spoke of the Intellect in him as the “bond which bindeth”[81] one’s soul to God with knowledge that is at once truth and love because the Intellect sees nothing but God, the Loving (*Al-Wadūd*), in all It sees:

Our intelligences are made drunk with the wine of love,
As though we were mad, yet mad we are not.
Thou seest us amongst men, but we are not as thou seest,
For our Spirits shine clear above the highest heights.
Our is an intelligence, a flawless jewel,
Exquisite in beauty; it *perceiveth naught but God*.
This is the *bond which bindeth*, be it but a glimmering.[82]

3.4.1 *Dhikr* as the Sustenance for Metaphysical Knowledge

What is the most efficacious way to cleanse the heart and thus enable the ‘eye of the heart’ to open? While obligatory acts of worship are of primary importance, altogether they can occupy only about an hour each day. Hence, for the Sufi who wants to watch over his heart for the remaining hours of the day as well, the supererogatory acts gain special importance.[83] Of the supererogatory acts we mentioned earlier, the practice of *dhikr* (invocation of God by His many revealed names) is the most universal among Sufis.[84] Numerous Qur’ānic verses and prophetic traditions attach tremendous significance to *dhikr*.[85] The *dhikr* is used to purify the heart of evil qualities such as greed, envy, jealousy and hatred by imbuing it with virtues which are “human reflection[s] of the divine aspect symbolized by the sacred Names”[86] of God. Indeed, numerous Sufis have referred to cultivating virtues through remembrance of God as “assuming the traits of the divine names” (*al-takhalluq bi’l-asma’ al-ilahiyya*).[87] As Rūmī observed, “When I mention His Name, good fortunes arrives; then the Name becomes the Named.”[88]

We might say that sincere *dhikr* is a way of overcoming the contingencies of individual consciousness which hide the Intellect[89] by substituting them with selfless and merciful qualities of God such as truthfulness, patience, contentment, generosity, kindness and love. The Intellect, or as al-Ghazzālī said, “the light that appears in the heart,” can then shine and provide knowledge of spiritual realities, including that of nature.[90] Indeed, the famous Sufi Hakīm at-Tirmidhī (d. 908) saw *dhikr* as the

“sustenance” of *ma‘rifa*.[91] Only with such certitude, as we saw in section 3.2, can ethical teachings of religion have the firmest foundation and can virtues flourish most easily. Indeed, the famous Sufi Abū Nasr as-Sarrāj (d. 988) argues that the Revealed Law “encompasses the two concepts of transmission (*riw ā ya*) and comprehension (*dir ā y ā*).”[92] He suggests that the inner qualities nurtured in the Sufi way are essential for an enlightened comprehension of the Law. In short for Sarrāj, “The outward can not get by independent of the inward.”[93] Likewise, Nasr has characterized Sufi vision as a wisdom that has issued from the same source as the Law has, such that the loss of the former “cannot but affect the understanding and mode of attachment of men” to the Law.[94]

Al-Ghazzālī draws attention to the way the Prophet Abraham also was given the vision of spiritual realities to help him gain certainty.[95] He concludes that much of prophecy “can be perceived only by fruitional experience as a result of following the way of Sufism.”[96] Naturally, Sufism would ensure a greater observance of Islamic ethics in every affair. Indeed, as the anonymous author of the famous tenth-century text *The Manners of Kings* asserts concerning Sufis, “I have seen no people more firmly connected to the prophetic example, both externally and internally, both secretly and openly, in terms of law, intention, and practice, than the society known by the name Sufism.”[97]

In this manner, Sufism, with its metaphysics and the way of verification (*tahqīq*) of the professed truths, provides a counterpoint to the modern scientific worldview that also seeks to describe the nature of reality of the whole cosmos.[98] Hence, Sufism is the most convincing means for Muslims to challenge the scientific worldview which Nasr holds ultimately responsible for the environmental crisis. Nasr has this in mind when he says, “religious ethics, although necessary, is not sufficient. What is needed in addition is the reassertion of the religious understanding of the order of nature, which involves *knowledge* and not only ethics.”[99]

As the heart is purified by Sufi practices, and thereby ennobled by the virtues that originate in God, the human being becomes a channel of divine grace for all of nature.[100] Seeing through the ‘eye of the heart’ the purified heart sees nature not only as the conveyer of God’s beauty, charity, love and wisdom, but also as that which is ontologically related to the human soul and reflects its inner realities.[101] Such a human being cannot but live in harmony with nature. In contrast, as the Prophet revealed, the world of nature is relieved when a wicked person passes away.[102]

3.5 SUFI POPULARIZATION OF NATURE’S WONDER

One of the major ways that Sufis have propagated their messages and at once gained popularity has been the profusion of heartfelt poetic expressions in praise of God’s omnipresence, beauty, love and wisdom as they found evident in nature. Such poetic expressions constituted until recently the most popular and influential form of

literature in the Islamic world. Hence, Nasr argues that the popularity of Sufi poetry can again be a powerful means for the revival of the Islamic view of nature as sacred presence.[103]

In Sufi poetry, 'forms' or visible aspects of nature do not exist in opposition to their 'meanings' but serve as aids that lead to these 'meanings.' The apparent form-meaning dichotomy also corresponds to parallel dichotomies of outer and inner, evident and hidden, seen and unseen, shell and kernel, and so forth, observed frequently in Sufi poetry. Thus, in contemplating the meaning of forms, Rūmī keeps the Prophet's directive in mind: "The Prophet said, 'Behold the form of the heavens and the earth, and through this form draw benefit from that Universal Meaning.'"[104] Hence, the underlying theme of everything in the natural world is its function as a means to knowledge of God's qualities, and ultimately, of His unity. As Shaykh Muhammad ibn al-Habīb (1876–1972) wrote:

> Reflect upon the beauty of the way in which both the land and sea are made,
> And contemplate the beauty of Allah outwardly and secretly.
> The greatest evidence to the limitless perfection of Allah can be found
> Both deep within the self and the distant horizon.[105]
> If you were to reflect on the physical bodies and their marvellous forms
> And how they are arranged with great precision, like a string of pearls;
> And if you were to reflect on the earth and the diversity of its plants
> And the great variety of rugged land in it;
> And if you were to reflect on all the secrets of the heavens —
> The Throne and the Foot-stool and the spirit sent by the command —
> Then you would accept the reality of *tawhīd* with all your being,
> And you would turn from illusions, uncertainty and otherness.[106]

And Rūmī sang:

> The unique God has manifested His signs in the
> six directions to those with illuminated eyes.
> Whatever animal or plant they behold, they
> contemplate the gardens of divine Beauty.
> That is why he said to them,
> *Wheresoever you turn, there is His Face* (Q 2:115).[107]

In the same vein, there is nothing in the phenomenal world that does not bear God's fragrance:

> I am joyous in the world of nature for the world of nature is joyous through Him
> I am in love with the whole universe because it comes from Him. [108]

Anne-Marie Schimmel, one of the greatest authorities of Sufi poetry in the twentieth century, observed that in Sufi poetry, every creature in the animal and plant kingdoms is a reminder of God's glory:

> Since the Qur'ān states that everything was created in order to worship God, early Sufis listened to the trees and flowers, the birds and fishes, each of them speaking in *lisan ul-hal*, the "tongue of its whole being." Sanā'ī (d.1131) created

> the lovely “Littany of the Birds,” in which every bird addresses God in his own language: the stork speaks with a constant *lak lak*, attesting *al-mulk lak, al-‘izz lak*, “Thine is the kingdom, Thine is the glory,” while the dove is always calling *ku ku*, “where? Where?”[109]

In the same vein, Schimmel also describes how, in Sufi poetry, each flower, bird, animal, the sun, moon, mountain, sea, and precious stone has special meaning by the way it adores God or by the message it carries from God.[110]

As a Sufi and also as one deeply influenced by Sufi poetry, Nasr articulates his vision of the sacred presence in nature through moving verses of his own and proves the enduring influence of Sufi vision of nature to those who would turn to it:

> Thy Beauty is in all creatures reflected here below.
> In the face of a fair maiden and the flight of a flock of birds,
> In the azure sky and the roaring sea,
> In the mane of the mighty lion and the hues of the lovely sea urchin.
> I hear the Beauty of Thy Voice in the siren song of the whale,
> As well in the chant of the nightingale in the garden,
> Hymning Thy Praise in her morning concert.
> Above all I behold Thy Beauty in the sanctified soul of Thy true lovers,
> Beholden to Thy Love, basking in Thy Radiance.[111]

3.6 CHAPTER SUMMARY

Nasr strongly supports the observance of Islamic ethics concerning the natural world. However, he argues that the rationale for Islamic ethics can best be grasped theoretically by means of religious and metaphysical doctrines and experientially by verification of the same through the path of Sufism. Al-Ghazzālī, Ibn ‘Arabī and the most influential Sufis, before and since, essentially take the same stance. In the traditional Islamic world, Sufism, with its focus on cleansing the heart, its love and contemplation of nature, widely popular poetry, and most importantly, its provision of a way of verification (*tahqīq*) of religious and metaphysical doctrines, contributed immensely to preserving an awareness of the divine presence in nature for the ordinary believer. But as we will see in the next chapter, increasing scientific progressivism in the Muslim world since the second half of the nineteenth century has been spreading the scientific worldview, and by the same token, marginalizing Sufism and the associated metaphysical knowledge. It is a situation that makes it less and less likely for Islamic environmental ethics to retain its credibility and be sufficiently observed across the various Muslim societies to have any significant effect on the protection of nature.

NOTES

1. This *hadīth* is quoted by the renowned Sufi, Abū ‘l-Qasim al-Qushayrī (d. 1074) in “The Treatise on Sufism *(Ar-Risālat al-qushayrīya),*” in *Knowledge of God in Classical Sufism: Foundations of Islamic Mystical Theology,* trans. John Renard, The Classics of Western Spirituality Series (New York: Paulist Press, 2004), p. 287. The Prophet further goes on to explain that by ‘circumspect intelligence’ he means “being intent on obeying God.” Ibid. The chain of transmission includes the Prophet’s wife ‘A’isha (d. 678). Ibid., 399 n4.
2. Nasr, *Islam and the Plight of Modern Man*, p. 93.
3. Seyyed Hossein Nasr, “Islamic worldview and Modern Science,” in *Islamic Thought and Scientific Creativity*, Vol. 7 (1), 1996, p. 21. For an excellent summary of Islamic ethics on the environment, see Othman Abd-ar-Rahman Llewellyn, “The Basis for a Discipline of the Islamic Environmental Law,” in *Islam and Ecology: A Bestowed Trust,* eds. Richard C. Foltz, Frederick M. Denny, and Azizan Baharuddin (Cambridge, MA: Harvard University Press, 2003), pp. 185–247.
4. Nasr, *Need for a Sacred Science,* p. 86. We discuss how modern scientific worldview undermines faith in religion and metaphysical doctrine briefly in Chapter 1.4–1.5 and in greater detail, especially from the Islamic metaphysical point of view, in Chapter 6.
5. Nasr, “On the Environmental Crisis,” pp. 146–147.
6. Seyyed Hossein Nasr, “Islam, the Contemporary Islamic World, and the Environmental Crisis,” in *Islam and Ecology: A Bestowed Trust*, eds. Richard Foltz,

Frederick Danny and Azizan Baharuddin (Harvard University Press, 2003), pp, 101–102.
7. Nasr, “Islam, the Contemporary Islamic World, and the Environmental Crisis,” p. 102.
8. Ibid., p. 99.
9. Nasr, *Need for a Sacred Science,* p. 143.
10. For the most extensive discussion of Islamic environmental ethics, see Mawil Izzi Dien, *The Environmental Dimension of Islam* (Cambridge, UK : The Lutterworth Press, 200). This work and the aforementioned essay by Othman Abd-ar-Rahman Llewellyn, contain a great variety of excellent suggestions about how the existing *Shar ī‘ā* on the environment can be extended for modern circumstances.
11. Nasr, “Islam, the Contemporary Islamic World, and the Environmental Crisis,” p. 99.
12. Ibid., 102; Also Nasr, *Need for a Sacred Science,* p. 143. For a summary of Islamic legal maxims as they apply particularly for the environment, see Izzi Dien, *Environmental Dimension of Islam*, pp. 114–116. For a thorough study of Islamic legal principles, please see Mohammad Hashim Kamali, *Principles of Islamic Jurisprudence* (Cambridge: Islamic Texts Society, 2008).
13. *‘āda* and *‘urf* are “customary practices and definitions” in a Muslim society “which may acquire legal force when they accord with the aims of the *Sharī‘ā.*” Othman Llewellyn, “Basis for a Discipline of the Islamic Environmental Law,” p. 192.
14. A *harīm* is an inviolate public space or water resource and a *himā* is a protected area for the non-human species. They are among the most important environmental practices in the *Sharī‘ā.* For an excellent discussion of *harīms, himās,* and suggestions for their extension under modern circumstances, see Othman Llewellyn, “The Basis for a Discipline of the Islamic Environmental Law,”pp. 210–217.
15. Nasr, “Islam, the Contemporary Islamic World, and the Environmental Crisis,”103. The *waqfs* funded the building of mosques, schools, hospitals, wells, and other charitable projects for the public in the pre-modern Islamic world. Llewellyn, “Basis for a Discipline of the Islamic Environmental Law,” 217–8.
16. Llewellyn, “Basis for a Discipline of the Islamic Environmental Law,” p. 192.
17. For Nasr’s understanding of ‘fundamentalist’ and ‘modernist’ perspectives, see Chapter 4. On the flexible nature of traditional interpretations of the *Sharī‘ā*, see Muhammad Qasim Zaman, *The Ulama in Contemporary Islam* (Princeton: Princeton University Press, 2002), pp. 18–19.
18. For our discussion of the ways modern scientific worldview denies Islamic metaphysical principles, see Chapter 6.
19. See Q. 33:72.
20. See Q. 2:30.
21. Ingrid Mattson points out that in the verse *I have only created jinn and humans to worship me* (Q. 51:56), the word *‘ibada* translated here as “worship” literally means “servitude.” Ingrid Mattson, *The Story of the Quran: Its History and Place in Muslim Life* (Malden, MA: Blackwell Publishing, 2008). The verses 3:132 and 4:69 assert the

need to obey God and His Prophet to achieve felicity.
22. See Introduction 0.8.1.
23. Nasr, “Islam, the Contemporary Islamic World, and the Environmental Crisis,” p. 97.
24. Ibid. When one perceives the *haqq* of a thing, one “understands not only the thing itself, but also his own correct response to it.” Chittick, *Heir to the Prophets*, 88. In the same vein, James Morris, one of the leading Islamic scholars today, asserts “*al-Haqq*, ‘the Real,’ is at once the ultimate Reality, Truth, Right, and the vast complex of human rights and responsibilities which are inseparable from our always partial recognition of the Real.” James Morris, “Communications and Spiritual Pedagogy: Exploring the Methods of Investigation in Classical Islamic Thought,” unpublished manuscript, p. 2; available from http://www.ibnarabisociety.org/articlespdf/sp_communication.pdf ; Internet; accessed 10 September 2010.
25. Izzi Dien, *Environmental Dimension of Islam*, 98.
26. Also, see Q. 26:155–158; 17:59.
27. See *The Holy Qur’ān*, trans. Muhammad M. Pickthal (New York: Tahrike Tarsile Qur’ān, 2001). Also, see Q. 26:155–158.
28. See Chapter 2.2.
29. See Chapter 2.2.1c.
30. See Abū Hāmid al-Ghazzālī, “The Elaboration of the Marvels of the Heart (*Kit ā b Sharh ‘aj ā ’ib al-qalb*),” trans. John Renard in *Knowledge of God in Classical Sufism: Foundations of Islamic Mystical Theology,* The Classics of Western Spirituality Series (New York: Paulist Press, 2004), p. 304.
31. Nizām al-Dīn Nishaburi quoted in Ayoub, *Quran and Its Interpreters*, Vol. I, p. 78.
32. See Introduction 0.6.1.
33. *Tawhīd* is known by knowing the rootedness of things in God, the One; the apparent distinction between a thing’s ordinary appearance and its root in God proves the hierarchy of reality; and the ultimate meaningfulness of the cosmos again lies in its rootedness in God who is the ultimate reality.
34. Mohammad Hashim Kamali, *Shari‘ah Law: An Introduction* (Oxford, UK: Oneworld, 2008), p. 17.
35. Al-Ghazzālī, *On Trust and the Unity of God*, p. 22.
36. Ibid.
37. Ibid.
38. Ibid. The second, third and the fourth level of knowledge of *tawhīd* also corresponds to the Lore of Certainty*(‘ilm al-yaqīn*), the Eye of Certainty*(‘ayn al-yaqīn*) and the Truth of Certainty (*haqq al-yaqīn*) in Sufism. “The Lore is the certainty that comes from hearing the fire described, the Eye is the certainty that comes from seeing the flames; the Truth is the certainty which comes from being consumed in it. This last description is the extinction (*fan ā ’*) of all otherness which alone gives realisation of the Supreme Identity. The second degree is the Heart-knowledge, for the Eye which sees is the Heart.” Martin Lings, *What is Sufism?*, (London: Unwin

Paperbacks, 1982), 61–62. This is a further elaboration of al-Ghazzālī's discussion to the same effect. See al-Ghazzālī, "Elaboration of the Marvels of the Heart," pp. 306–307.
39. Kamali, *Shari'ah Law*, p. 18.
40. Al-Ghazzālī, *On Trust and the Unity of God*, p. 28.
41. Ibid., p. 30.
42. "There is a station in gnosis (*marifat*) where, when a person reaches it, he really sees that all that exists is interconnectedness, one with another, and are all like one animate being. The relationship of the parts of the world such as the heavens, the earth, the stars to each other is like the relationship of the parts of one animate being to each other." Ibid., p. 25.
43. Ibid., pp. 25 and 33.
44. See Chapter 2.2.1c.
45. The qualities of mercy refers to God's qualities of beauty and generosity by which we can imagine His nearness or immanence. In contrast, the qualities of majesty, often referred to as the qualities of wrath or severity, are those that emphasize His transcendence and power over creation. See Chittick, *Imaginal Worlds*, p. 56.
46. Ibn al-Arabi, al-*Futūhāt al-Makkiyya*, II 615.22 in William Chittick, *Sufi path of knowledge*, 370. Also, see Ibid., pp. 22-23. Henceforth *al-Futūhāt al-Makkiyya* authored by Ibn 'Arabī will be referred to as just *Futūhāt*.
47. See Chittick, *Imaginal Worlds*, p. 74. For our discussion on the imaginal realities, see Chapter 2.2.2.
48. *Futūhāt* II 375.32 in Chittick, *Imaginal Worlds*, p. 75.
49. Chapter 2.2.2.
50. *Futūhāt* I 271.27 and I 319.27 in Chittick, *Sufi path of knowledge*, pp. 168–169. On the views of other Sufis, see Chapter 3.4 – 3.4.1.
51. *Futūhāt* IV 246.12 in Chittick, *Imaginal Worlds*, p. 155. Also, see Chittick, *Sufi path of knowledge,* p. 30.
52. *Futūhāt* III 398.11 in *Imaginal Worlds,* p. 154. Al-Ghazzālī makes a similar argument in al-Ghazzālī, *Al-Ghazali's Path to Sufism*, pp. 65–66.
53. "God gives to His servants from Himself, and also through the hands of His messengers. As for what comes to you on the hand of the Messenger, take it without employing any scale. But as for what comes to you from the hand of God, take it with a scale. For God is identical to every giver, but He has forbidden you from taking every gift. Thus He says, 'Whatever the messenger gives you, take; whatever he forbids you, forego.' [59:7] Thus your taking from the messenger is more profitable for you and better able to actualize your felicity." See *Futūhāt* IV 186.22 in Chittick, *Imaginal Worlds*, p. 146.
54. *Futūhāt* chapter 66 in Chittick, *Imaginal Worlds,* p. 134.
55. Chittick, *Imaginal Worlds*, pp. 3, 148–149.
56. *Futūhāt*, II 148.12, in Chittick, *Imaginal Worlds*, p. 146.
57. Ibn 'Arabī recognized not only the validity but also the necessity of diverse religions. See *Futūhāt* Chapter 48 in *Imaginal Worlds*, pp. 157–160.

58. See Q. 5:48; 22:67; 5:68.
59. See p. 34. For an excellent study of traditional Islamic concepts and attitudes towards other religions, please see Shah-Kazemi, *The Other in the Light of the One*.
60. See ‘Alī ibn ‘Uthmān Hujwīrī (990–1077), “The Revelation of Realities Veiled (*Kashf al-ma h j ū b*),” trans. John Renard in *Knowledge of God in Classical Sufism: Foundations of Islamic Mystical Theology,* The Classics of Western Spirituality Series (New York: Paulist Press, 2004), pp. 273–274.
61. “The theoretical gnosis (known also as doctrinal Sufism) does not mark progress over earlier Sufism … Earlier Sufis had spoken more or less through allusions to the reality of the Garden of Truth while Ibn ‘Arabī and his followers provided a full map of the nature of the Garden along with the means of reaching it.” Nasr, *The Garden of Truth*, pp. 210–211.
62. *Sahih Bukhari*, Riqaq, 37, quoted in Lings, *What is Sufism?*, p. 74.
63. There have always been Sufis who have been neglectful of *Sharī‘ā* obligations. But such Sufis are the exceptions that prove the rule.
64. “All of the early handbooks of Sufism, beginning with Sarrāj(d. 988) and Qushaayrī (d. 1074), emphasize the role of the Prophet as the model and exemplar of the mystic in all the ordinary details of life and daily ritual as well as in internal experience.” Carl Ernst, *The Shambala Guide to Sufism* (Boston: Shambala Publications, Inc., 1997), p. 49.
65. This refers to the famous *hadīth* of Archangel Gabriel in which the Prophet was asked by the angel to tell him about “doing what is beautiful.” The Prophet replied “Doing what is beautiful means that you should worship God as if you see Him, for even if you do not see Him, He sees you.” See Sachiko Murata and William C. Chittick, *The Vision of Islam* (St. Paul, Minnesota: Paragon House, 1994), p. xxv.
66. In fact, Sufi interest in the inner reality of the natural world was inspired by the Qur’ān itself. According to the Qur’ān, every creation symbolizes metaphysical, moral, and ethical truths by their very nature, as we see for instance in the specific cases of raven (5:31), dog (7:176), good and bad tree (14:24–26), spider (29:41), ass (62:5) and the hidden pearls (56:23) as well as in various natural phenomena. These examples employ a symbolic, rather than rationalistic understanding of nature, and further, they stand as evidence that moral and metaphysical principles are not arbitrary; rather these principles govern the cosmos.
67. Abū Hāmid al-Ghazzālī, *On Knowing Yourself and God*, trans. Mohammad Nur Abdus Salam (Chicago: Great Books of the Islamic World, 2002), p. 12.
68. Al-Ghazzālī quoted in Introduction 0.6.1. In another instance, in seeking to give this vision the Quranic legitimacy, al-Ghazzālī quotes the Qur’ānic verse *Does not a person, the centre of whose being God has expanded, have the light of his Lord* (39:22). See al-Ghazzālī, “Elaboration of the Marvels of the Heart,” p. 305.
69. Al-Ghazzālī, *Al-Ghazali’s Path to Sufism*, p. 51.
70. Q. 2:269; 3:7; 3:190; 6:98; 7:32.
71. Also see Q. 22:46.
72. Q. 9:108; 26:89; 29:49; 7:33; 3:14; 6:32; 64:11.

73. Abū Tālib al-Makkī, “The Sustenance of Hearts (*Q ū t al-qul ū b*),” trans. John Renard in *Knowledge of God in Classical Sufism: Foundations of Islamic Mystical Theology,* The Classics of Western Spirituality Series (New York: Paulist Press, 2004), p. 198.
74. “The saints have polished their breasts until cleansed of greed, cupidity, avarice, and hatred. Without doubt the pure mirror is the heart acting as a receptacle for infinite pictures …. Here reason must remain silent, or else lead astray.” Jālāl al-Dīn Rūmī, *Mathnaw ī* vol. I, 3484–3488, trans. William Chittick, in Chittick, *Sufi Path Love*, p. 38.
75. Sa’d ud-Dīn Mahmūd Shabistarī, *The Garden of Mystery* (*Gulshan-i r ā z)*, Trans. Robert Darr. (California: Real Impressions, 1998). Verses 73–79.
76. Shabistarī, *Garden of Mystery,* verses 428–429.
77. Mansūr al-Hallāj (d. 922) quoted in Annemarie Schimmel, *As Through a Veil: Mystical Poetry in Islam* (Oxford, UK: Oneworld, 2001), p. 32.
78. Jālāl al-Dīn Rūmī , *D ī w ā n-i Shams-i Tabr ī z ī* 21214, in Chittick: *The Sufi Path of Love,* p. 75.
79. Hātif Ishfahāni (d. 1784) quoted in Nasr, *Islamic Philosophy from its Origin to the Present*, p. 102.
80. Nasr, *Islamic Philosophy from its Origin to the Present*, p. 102.
81. As Martin Lings pointed out, Shayk Alawi used derivative words from the root of the word *‘aql* (reason or Intellect in Arabic) which means ‘to bind’ to suggest the role of Intellect as that which binds. Martin Lings, *A Sufi Saint of the Twentieth Century: His Spiritual Heritage and Legacy*, 3rd edition (Cambridge, UK: Islamic Text Society, 1993), 214 n3. Nasr has made the same suggestions only to be criticized for stretching the meanings of Arabic words. See Leif Stenberg, *The Islamization of Science: Four Muslim Positions Developing an Islamic Modernity*, Lund Studies in History of Religions, Vol. 6 (New York: Coronet Books, 1996), p. 121.
82. Shaykh Ahmad al-‘Alawī quoted in Lings, *Sufi Saint of the Twentieth Century*, p. 214. (accent ours).
83. Lings, *What is Sufism?,* p78.
84. See Annemarie Schimmel, *Mystical Dimensions of Islam* (Chapel Hill: The University of North Carolina Press, 1975), pp. 167–178. For an excellent exposition of the meaning and practice of *dhikr*, see Ibn ‘Atā’illāh al-Iskandarī, *The Key to Salvation — A Sufi Manual of Invocation*, trans. Mary A.K. Danner (Cambridge, UK: Islamic Texts Society, 1996).
85. *You have a good example in God’s Messenger, for whosoever hopes for God and the Last Day and remembers God frequently* (33:21). *Remember Me and I will remember you* (2:152). *Call upon Me and I will answer you* (40:60). *And remember the name of your Lord, and devote yourself to Him* (73:8). *Verily, in the remembrance of God hearts find their rest* (13:28). The Prophet Muhammad (peace be upon him) said “There is a polish for everything that takes away rust; and the polish of the heart is *dhikr,* the invocation of God.” See *Essential Sufism*, eds. James Fadiman and Robert Frager (New York: HarperCollins Publishers, 1997), p. 102.

86. Titus Burckhardt, *An Introduction to Sufi Doctrine*, Trans. D.M. Matheson, (Lahore: Sh. Muhammad Ashraf Publishers, 1996), pp. 115–116.
87. William Chittick, *Sufism: A Short Introduction* (Oxford: Oneworld Publications, 2001), p. 57.
88. Jālāl al-Dīn Rūmī, Diwan-i Shams-i Tabrizi, verse 30701, trans. William C. Chittick, in Chittick, *Sufi Path of Love*, p. 159.
89. See Introduction 0.6.1.
90. Al-Ghazzālī, *Niche of Lights*, pp. 26–27.
91. Hakīm at-Tirmidhī quoted in John Renard, Introduction to *Knowledge of God in Classical Sufism: Foundations of Islamic Mystical Theology* (New York: Paulist Press, 2004), p. 25.
92. Abū Nasr as-Sarrāj, "The Book of Flashes (*Kit ā b al-luma'*)," trans. John Renard in *Knowledge of God in Classical Sufism: Foundations of Islamic Mystical Theology,* The Classics of Western Spirituality Series (New York: Paulist Press, 2004), p. 82.
93. Ibid., p. 83.
94. "It must be always remembered that the greatest obligation of the Muslim is towards the Truth (*al- Haqq*), which is another name of Allāh. From this Truth, or *al-Haqīqah*, has issued not only a Sacred Law which guarantees human felicity on the plane of action, but also a wisdom which alone is the guarantee of correct knowledge. The loss of this wisdom cannot but affect the understanding and mode of attachment of men to the Sacred Law." Nasr, *Traditional Islam in the Modern World*, p. 224.
95. Al-Ghazzālī*, On Knowing Yourself a nd God*, p. 23. *Thus did we show Abraham the kingdom of the heavens and the earth so that he migh be one of those possessing certainty* (Q. 6:75).
96. Al-Ghazzālī, *Al-Ghazali's Path to Sufism,* p. 62.
97. *Abd al-muluk fi bayan haqa'iq al-tasawwuf* (The Manners of Kings: Explaining the Realities of Sufism), eds. Bernd Ratke, Beiruter Texte und Studien, 37 (Beirut/Stuttgart: Franz Steiner Verlag, 1991), pp. 5–6, quoted in Ernst, *The Shambala Guide to Sufism*, p. 25. It is important to note that the eminent historian Marshall Hodgson speculated that the widespread practice of the *Sharī'ā* in the traditional Islamic world was sustained by the influence of Sufism: "It is probable that without the subtle leaven of the Sufi orders, giving to Islam an inward personal thrust and to the Muslim community a sense of participation in a common spiritual venture quite apart from anyone's outward power, the mechanical arrangements of the *Sharī'ā* would not have maintained the loyalty essential to their effectiveness." Marshall G. S. Hodgson, *The Venture of Islam: Conscience and History in a World Civilization,* Vol. 2 (Chicago: The University of Chicago Press, 1977), p. 125.
98. See Chapter 6.
99. Nasr, *Religion and the Order of Nature*, p. 273.
100. Seyyed Hossein Nasr, "Contemplation and Nature in the Perspective of Sufism," in *Islamic Life and Thought* (Chicago: ABC International Group, Inc., 2001), p. 203.
101. See Chapter 2. 3.1c. "There exists a spiritual connection extending from the

human being to everything in the cosmos …. So there is nothing in the universe that does not have an influence on the human being, and on which the human being does not also have an influence." Ibn 'Arabī quoted in Morris, James Winston. *The Reflective Heart*, (Louisville, KY: Fons Vitae, 2005), pp. 286–287.
102. A funeral procession passed by the Prophet Muhammad who asked, "Relieved or relieving?" The people asked, "O Allāh's Apostle! What is relieved and relieving?" He said, "A believer is relieved (by death) from the troubles and hardships of the world and leaves for the Mercy of Allāh, while (the death of) a wicked person relieves the people, the land, the trees, (and) the animals from him." see *The Translation of the Meanings of Sahih al-Bukhari*, Vol 8, Book 76, Number 519, trans. Muhammad M Khan (Riyadh: Dar-us-Salaam Publications, 1997), p. 342.
103. Nasr, "Islam, the Contemporary Islamic World, and the Environmental Crisis," pp. 95, 100.
104. Rūmī, *Fīhi ma fīhi*, 39/40, in Chittick, *Sufi Path of Love,* p. 20.
105. See Q. 41:53.
106. Shaykh Muhammad Ibn al-Habīb, *The Diwan of Shaykh Muhammad Ibn al-Habīb* (Cape Town: Madinah Press, 2001), 69, in Khalid, "Applying Islamic Environmental Ethics," p. 90. Khalid points out that Ibn al-Habīb was not only a Sufi Master of the Darqawi-Qadiri Sufi Order in Morocco, but also a distinguished scholar of Islamic jurisprudence. Ibid., p. 91.
107. Rūmī, *Mathnaw ī*, VI 3640–3642, in Chittick, *Sufi path of Love*, p. 306.
108. The Sufi poet Sa'dī (d.1292) quoted in Nasr, "Islam, the Contemporary Islamic World, and the Environmental Crisis," p. 95,
109. Schimmel, *As Through a Veil*, p. 75.
110. Ibid., pp. 76–78. Also, see Schimmel, *Mystical Dimensions of Islam*, pp. 306–309.
111. Nasr, *The Pilgrimage of Life and the Wisdom of Rūmī*, p. 23.

Chapter 4
The Advent of Scientific Progressivism[1] and the Marginalization of Sufism

> If you look at the present Muslim World, whether the governments are pro-Western or monarchies or republics, whether the governments are the products of Islamic revolutions or are secular, they are all unified in their glorious hymning of the praises of modern science and technology. It is that attitude which has to change.[2]
> S. H. Nasr

> Since the 13th/19th century onward two forces in the Islamic world began to oppose Sufism and its vast influence upon all aspects of human society from economic guilds to music. These two forces were modernism and that puritanical rationalism identified mostly with Wahabi/Salafi movement….Sufi metaphysics, cosmology, psychology and spiritual methods as well as art, especially in the form of poetry and music, constitute the intellectual and spiritual heart of Islam.[3]
> S. H. Nasr

> One of the effects of modernism upon Islam has been to reduce Islam in the minds of many to only one of its dimensions, namely the *Sharī'ā*, and to divest it of those intellectual weapons which alone can ward off the assaults of modern thought upon its citadel…the intellectual challenges posed by modernism in the form of evolutionism, rationalism, existentialism, agnosticism and the like can only be answered intellectually and not juridically.[4]
> S. H. Nasr

While the previous chapter explores how the tradition of Sufism and the associated metaphysics play a crucial role in Muslims' faith and attachment to Islamic ethics, this chapter explores how those traditions have been steadily marginalized since the advent of scientific progressivism in the Muslim world in the mid-nineteenth century. First, we discuss Nasr's assessment of the general current attitude of Muslims regarding modern science and technology, the attitude that he wishes to change. This is followed by a brief discussion on the integral role of Sufism in the pre-modern view of Islam which for Nasr represents traditional Islam.[5] The rest of the chapter explores how this integral role of Sufism in pre-modern Islam has been steadily discredited and expunged both in the name of "progress" and in the name of Islam itself, by an intellectual climate shaped by scientific progressivism.

4.1 NASR ON THE CONTEMPORARY MUSLIM ATTITUDE TOWARDS MODERN SCIENCE AND TECHNOLOGY

Nasr laments that today, in imitation of the West, the Muslim world at large has been pursuing modern science and technology as fast as it can afford without considering its negative consequences either for the world of nature or for Islamic values. Nasr attributes this situation to three inter-related reasons: 1) Today, since economic, political and military power is driven by technology and dominated by the technologically superior West, [6] Muslim governments want "to become masters of modern technology as fast as possible" [7] to gain power in these sectors. If technological developments and applications can bring short-term gain in these sectors at the cost of environmental degradation, "even to talk about environmental crisis becomes threatening to governments;"[8] 2) At the ordinary level, people love technology for the conveniences and many lifesaving benefits;[9] 3) Muslim modernists[10] and many 'fundamentalists'[11] — the two groups Nasr has called the "most vociferous" [12] in the Muslim world — provide the ideological support for greater penetration of modern science and technology in Islamic society. Nasr has observed that in spite of the many differences between the modernists and the fundamentalists, they are one "in their complete and open-armed acceptance of modern technology."[13]

Indeed, scientific progressivism is clearly evident when we look at diverse Muslim countries such as Pakistan, Iran, Turkey, Saudi Arabi, Jordan or Egypt, each espousing a different interpretation of Islam.[14] This is not to say that Muslims have been more enthusiastic about modern science and technology than those from other religious traditions. Indeed, on average Muslim governments spend much smaller fraction of their GNP on research and development (R&D) in science than those of other developing or developed countries do.[15] However, there are signs that the financial support for R&D may be sharply increasing.[16] In any case, the lesser investment on R&D should not mislead us into thinking that the Muslim world does not desire modern technology.[17] We may conclude that no matter how far behind Muslim states might be in the advancement of scientific learning, there stands a prevalent conviction among Muslims that not only is modern science "in harmony"[18] with Islam, but that it is also an essential means of progress for human societies.

As an intellectual, Nasr views his main task as *not* being about "action by Muslim governments and companies in relation to technology." [19] Rather, he seeks to create "an awareness of what is really involved for [all] Muslims when it comes to the adoption of modern technology."[20] A significant part of his task amounts to providing intellectual refutations of the modernist and fundamentalist positions on modern science and technology.

According to Nasr, the root cause of the acceptance with open arms of modern science and technology by modernists and fundamentalists goes back to the views of

modernist reformist thinkers in the late nineteenth century who were convinced that modern science and technology were essential for the 'progress' of Muslim societies. The reformist thinkers that Nasr has in mind here are figures such as Jamāl al-Dīn al-Afghānī, Muhammad 'Abduh, and other Muslim thinkers who followed in their footsteps. As we will see, these reformists saw science and technology as "the secret of West's power" and stressed that modern science "could do no wrong."[21] According to Nasr, their views have been promoted by "teachers in classrooms and preachers from the pulpits in mosques…extolling Western science and technology and considering its mastery as practically a religious duty."[22]

Nasr carries out his intellectual task of refuting the modernist and fundamentalist positions on modern science and technology in three ways which we will discuss in chapters 5, 6 and 7, respectively: 1) By underlining the compatibility of the fundamental principles of traditional sciences and those of Islam; 2) By underlining the incompatibility of the philosophical assumptions of modern science and the metaphysical principles of Islam and the consequences of this incompatibility on the human soul and the environment; 3) By underlining the negative consequences of modern technology on the human soul and the environment.

Nasr's above-mentioned concerns with fundamental Islamic principles, the human soul, and the environment, clearly indicate the relevance of his responses to Sufism and the associated metaphysics we discussed in chapters 2 and 3. Hence, in order to fully appreciate Nasr's response it is vital to take a look at the way the scientific progressivism took root in the Muslim world both in the modernist and the fundamentalist camps and marginalized Sufism.

4.1.1 Sufism in the Pre-Modern Islamic World

In the traditional Islamic world the observance of the *Sharī'ā* was pervaded by Sufi ethos. As Carl Ernst, one of the leading Islamic scholars has observed, for pre-modern Muslims, "the multifarious activities that we subsume under the terms *Sufism* and *Islam* were not spheres of existence separate or separable from religious life in general."[23] Moreover, as the distinguished Islamic thinker and social critic Parvez Manzoor has noted, "The modern definition of religion as 'the exclusive zone' of human reality for the experience of the "holy" bears the distinctive insignia of the secular man and applies only to his world. The intellectual cosmos and life-world of the pre-modern man of faith is a unity: it knows of no religious and non-religious dominions."[24] Indeed, Marshall Hodgson, the eminent scholar of Islamic history, observed, that in the pre-modern Muslim societies across the world, "Sufism ... became the framework within which all popular Muslim piety flowed together; its saints…became the guarantors of the gentle and co-operative sides of social life. Guilds commonly came to have Sufi affiliations. Men's clubs claimed the patronage of Sufi saints."[25] In fact, Marshall Hodgson credited Sufism for the widespread sustained observance of the *Sharī'ā*.[26] For Nasr, traditional Islam is this example of

the historically lived Islam with its mutually sustaining inner and outer traditions which immensely influential figures such as al-Ghazzālī (d.1111), Ibn ‘Arabī (1165–1240) and their followers made possible.[27]

With regards to the natural world, the traditional ambience refers to that view of nature that, in the absence of modern scientific worldview, was informed by Islamic teachings including that of Sufism such that, as signs of God, the world of nature had a meaning beyond its material aspect and human interactions with it necessarily had a spiritual significance.[28] Hence, commenting on classical Islamic texts, Attilio Petruccioli, the distinguished scholar of Islamic architecture, asserts, “In reality, the religious Islamic literature favours the protection of nature either as an expression of the Divine or in support of human behaviour.”[29] According to Nasr, the view of nature as signs of God was to change with the advent of modern science in the Islamic world: “It is scientism which has destroyed to a large extent the spiritual reality that man always saw around him and has removed from nature what one might call the aspect of “enchantment” to which the Qur’ān refers so often, destroying the basic Islamic idea of the phenomena of nature as being signs of Allah, the *āyāt* which Allah manifests in His creation.”[30] With that in mind, we will see how scientific progressivism which is dependent upon scientism came to be adopted not only by the modernists, but also by the fundamentalists, and disrupted the traditional ambience in the following ways:

1. By letting modern science construct Muslims’ view of the natural world.
2. By discrediting and marginalizing Sufism.

As we noted in Chapter 3, Islamic ethics and Sufi teachings about the natural world are all based on the very nature of its reality as a sign of God. While metaphysics elucidates this reality, Sufism helps us realize it at the level of the heart as well as popularizing this view. That being so, we wish to highlight how scientific progressivism now is at the root of the intellectual difficulty in resorting either to Sufism or to Islamic ethics for the protection of the natural world.

4.2 THE ADVENT OF SCIENTIFIC PROGRESSIVISM

The ideology of scientific progressivism has had a different genesis in the Muslim world than it did in the West. It was partly imposed by the West and partly self-generated by Muslims in order to resist Western domination. It spread in the Muslim world in two ways:

1. By imposition of Western institutions and administrative patterns.
2. By Islamic reformists’ interpretations of Islam as a religion that is inherently pro-modern science.

4.2.1 Imposition of Western Institutions and Administrative Patterns

As indicated in Chapter 1, the ideology of scientific progressivism considers the rationalization of thoughts and activities to be part of the scientific means of human progress.[31] In fact, we can detect three fundamental tendencies in British activities in colonial India, for instance, that reflect scientific progressivism: 1) Making a distinction between secular and spiritual spheres of life;[32] 2) Utilitarian thinking that preferred the secular over the religious;[33] 3) Rationalizing or rigidifying of the legal and administrative systems.[34] These tendencies, as manifested in the various steps taken by colonial administrators, initiated disruption of the traditional ambience.[35] Similar steps were repeated by Muslims themselves in Egypt and Turkey, in anticipation of European aggression, even before Islamic modernist intellectual movements began in the 1870s.

The most frequent results of these efforts were the diminishing of the role of religion in public institutions through the establishment of secular schools, gradual exclusion of religious laws from public sphere, and mechanization of work habits or the workplace. In fact, for the Muslim world, the noted historian Francis Robinson has already demonstrated the validity of Max Weber's thesis that growth of secularism in human societies keeps pace with the adoption of science and technology and is initiated by "structural secularization" of the type we just mentioned.[36] The secularization process was soon to be accelerated by modernist Muslims themselves by their portrayal of scientific progressivism as an Islamic imperative.

4.2.2 Scientific Progressivism as an Islamic Ideal

As we have seen in Chapter 1, in the West, modern science itself was born out of a growing rebellion against the traditional hierarchic view of reality among the intellectual elite. Muslim encounter with modern science, however, did not begin in the midst of a doubt about its own hierarchic view of reality among either its intellectual elite or among the ordinary people. Muslims encountered modern science and technology as means of power when they were conquered by the technologically superior Western military powers. Muslim quest for modern science began as a quest for power to resist the domination by foreign powers.

All Muslim leaders in nineteenth century were acutely aware that Muslims were far behind the colonial powers in the mastery of modern sciences. Most were convinced that scientific knowledge was essential to resist the aggression of European powers. But up until the 1860s the secular schools established by the British in India or by Egyptians and Turks in their respective countries were not very successful in attracting Muslims to the learning of modern sciences. From the late 1860s a number of Muslim intellectuals from these nations began to consider redefining Islam itself as a more rational and worldly religion than it was conceived traditionally. The goal was to bring Islam more in line with the wholly rationalistic and empiricist discipline of modern science, in the hope that Muslims would show greater interest in achieving worldly success with the knowledge of the modern sciences and

leave behind the less dynamic and more spiritually focused way of traditional life which the reformists deemed unfit to defend Muslims against the technologically superior Western powers.

Given the limitation of space, we will confine our discussion to visions and activities of the group of Muslim reformist intellectuals associated with what is known as the Salafi movement which began in Egypt and have had the greatest influence on all Islamic reform movements across the Muslim world ever since. We will see that, without exception, these reformist intellectuals showed the influence of the Enlightenment or the ideology of scientific progressivism in their thought. However, unlike many Enlightenment thinkers, the Muslim intellectuals did not reject their religion. Instead, they sought to reinterpret Islam to accommodate the modern scientific spirit within the faith.

4.3 THE SALAFI MODERNISTS

The Salafi movement properly began with Muhammad ‘Abduh (1849–1905).[37] It professed to follow the examples of the pious ancestors (*salaf*) and promised to purify the Islamic tradition of what it had accrued in the way of interpretations over centuries and of the Sufi tradition. But the actual characteristics of the movement were already set in motion by Jamāl al-Dīn al-Afghānī (1838–97). Al-Afghānī, of Persian origin, had considerable knowledge of Islamic Peripatetic philosophy and was fiercely opposed to foreign domination of Muslim lands. He spoke to large audiences all across the Muslim world and argued for *ijtihād* — the rational re-examination of a legal precedent in light of legal principles — even by non-scholars (outside the ranks of the *‘ulamā’*) as long as they were well grounded in the knowledge of the Qur’ān, *Sunna* and the early history of Islam.[38]

Al-Afghānī clearly reveals his attachment to scientific progressivism in his response to the French thinker Ernst Renan’s assertion that Muslims did not posses the spirit of scientific inquiry: “I cannot keep from hoping that Muhammadan society will succeed someday in breaking its bonds and marching resolutely in the path of civilization after the manner of Western society.”[39] In the same spirit, he agreed with Francois Guizot (1787–1874), the French minister of the time, that human excellence is to be measured in part by the civilization he builds, as the West had done by removing obstruction to the scientific spirit, and asserted that true Islam possessed the spirit necessary for such a civilization because unlike other religions, Islam “censures belief without proof.”[40] It appears that in teaching and discussing Islamic peripatetic philosophy he hoped to foster the spirit of scientific inquiry, just as this philosophy had inspired scientific activities in the past.[41] He believed that science and Islam were not only compatible, but Islam itself had spurred scientific activities by Muslims in the past: “The early Muslims had no science, but thanks to the Islamic religion, a philosophic spirit arose among them.…This was why they acquired in a short time all the sciences…those who forbid science and knowledge in the belief that

they are safeguarding the Islamic religion are really the enemies of that religion."[42] But more than anything else, the fear of continued Western domination of Muslims would be the driving force for al-Afghānī's insistence on learning the modern sciences: "The Europeans have now everywhere put there hands on every part of the world. The English have reached Afghanistan; the French have seized Tunisia. In reality this usurpation, aggression, and conquest have not come from the French or the English. Rather it is science that everywhere manifests its greatness and power."[43]

For several years in the 1870s, early in his career as an intellectual and political activist, al-Afghānī shared his views with a group of al-Azhar students in Cairo whom he also taught Islamic peripatetic philosophy. One of these students, Muhammad 'Abduh (d. 1905), came to be his intellectual heir and most influential disciple; first, as his spokesperson, second, in disseminating similar views as a rector of al-Azhar (where he also reformed the traditional model of imparting education), and finally, as the grand mufti (chief jurisconsult) in Egypt. Although 'Abduh received a Sufi training in his youth, since his association with al-Afghānī, the ideas of scientific progressivism were to become most evident in his thought and actions as an activist, author and administrator.

In one of the first of his several visits to England, 'Abduh became personally acquainted with Herbert Spencer (1820–1903), the social Darwinist, and kept in touch with him ever since. He studied utilitarian and positivist thought and translated Spencer's book on education.[44] Spencer's scientific educational model was later to have an impact on his reformist vision.[45] According to Indira Falk Gesink, a noted historian of the nineteenth century Muslim reformists, during 'Abduh's brief exile in Paris in the early 1880s "he crafted a national education policy for Egypt that employed strikingly Spencerian motifs such as "utility" of certain subjects, "practical" education for self-preservation…and especially the necessity of scientific expertise for national strength."[46]

Like al-Afghānī, 'Abduh was convinced of the urgent need for Muslims to study the modern sciences to 'catch up' with Europe at least for the purpose military defence.[47] Commenting on contemporary European civilization, he stated, "We see no reason for their progress to wealth and power except the advancement of education and the sciences among them. Our first duty, then, is to endeavour with all our might and main to spread these sciences in our country."[48] With that goal in mind, like al-Afghānī before him,[49] he portrayed contemporary scientific truths to be the real meaning of certain Qur'ānic verses. His scientism ignored both traditional interpretations and the literal meanings of the verses. Thus, for instance, the invisible 'jinns' mentioned in the Qur'ān were really 'microbes' discovered by modern science.[50] Likewise, the Darwinian principles of 'the struggle for existence,' 'survival of the fittest' and 'natural selection' had to be very much a part of the Qur'ānic message.[51] In the same vein, for instance, Adam and Eve did not mean just one couple but many different couples which would explain the variations among different groups of humanity.[52] As 'Abduh suggests, "The Qur'ān itself is too elevated in character to be

in opposition to science,"[53] as though the Qur'ān's nobility was to be measured by its conformity to the conclusions of a totally materialistic science.

In *The Theology of Unity*, his *magnum opus*, 'Abduh tried to lay out a theoretical foundation for the pursuit of modern sciences in an Islamic theological and philosophical framework. His goal was to direct Muslim attention toward striving for success in worldly ventures. His strategy was to appeal to ordinary rationality,[54] and not to the heart or the Intellect. He depicted the reality of God as totally distinct from the created realm, such that Muslims would feel free to pursue modern empirical sciences without being concerned with spiritual implications. Using Ibn Sīnā's categorization of modes of being, he related God as the 'Necessary Being' who was totally unique from the created order which is contingent by virtue of its dependence on the Necessary Being.[55] He adopted the Mutazilite[56] theological view that God's attributes being uniquely His alone, cannot be grasped by human beings and should not be compared with any attributes that humans possessed.[57] Hence, people should remain content with knowing the accidental qualities of things and not bother with trying to know the meaning beyond it.[58] With such arguments, 'Abduh hoped Muslims would view the world as it appears from a rationalist standpoint and strive for material success. However, as we will see in the next chapter, Ibn Sina's vision never denied an ever present link between corporeal entities and the heavenly realms. Thus, to suggest that Ibn Sina would support a science that ignored higher realities had no basis.

'Abduh added that the function of religion was vital only for moral guidance,[59] and not for understanding the objective world nor for the learning of crafts.[60] The means of exploring, understanding and benefiting from the objective world were the sciences which religion ought to support.[61] Indeed, he reinterpreted traditional understanding of the Qur'ānic term *khalifa* (vicegerent) of God on earth to mean someone charged with the responsibility of "building and constructing" a civilization, like that of the modern European one, as al-Afghānī had emphasized.[62] This was to suggest, as though we could reveal more of God's glory by building physical infrastructures than by the much more arduous task of purifying our hearts, the task that the Qur'ān urges us on.

In arguing for *ijtihād* even by non-scholars, both al-Afghānī and 'Abduh cited the Protestant Reformation as a major factor behind the apparent scientific progress resulting in Europe.[63] Indeed, much like the Protestant Reformation's rejection of scholasticism, 'Abduh emphasized the need for *ijtihād* of the Qur'ānic text, without recourse to traditional commentaries.[64] By their rejection of the interpretive tradition, they claimed to be following the early Muslims, the pious ancestors (*salaf*) who had to rely solely on the Qur'ān and the Prophet's (peace be upon him) example (*sunna*), and hence came to be known as the *salafis.* In truth, al-Afghānī and 'Abduh believed that the spirit of *ijtihād,* in rejection of *taqlīd*[65] (imitation of tradition) would help to create a scientifically curious generation necessary for progress and civilization in the

modern sense.

Al-Afghānī and ‘Abduh addressed mostly pious Muslim societies with traditional values. They did not sense a crisis of values in Muslim societies but rather, a lack of desire for modern sciences. Naturally, emphasis on observing the *Sharī‘ā* was relatively absent in their discourses and writings. Instead, they were determined to see Muslims turn their attention to building a ‘civilization’ in the modern Western sense. To that end, they portrayed Islam as a religion that supported modern science by first redefining Islam itself more in rational terms through references to Ibn Sīnā ’s philosophy and Mutazilite theology, and by reinterpreting selective Qur’ānic verses and prophetic *hadīths* in utilitarian, Spencerian or Auguste Comtean positivist light.[66] Both al-Afghānī and ‘Abduh argued that Islam itself, when properly understood, as they had defined it, would pull out Muslims from their “backwardness.” Like al-Afghānī, ‘Abduh insisted that it was the sciences that Europeans had learned from true Muslims of the past, and not Christianity, that later gave the West the superior status.[67]

But the modernist reformists’ uncritical endorsement of modern science was in part due to a failure to see any fundamental distinction — which some among the *‘ulamā’* had obviously voiced — between traditional Islamic science and modern science. As al-Afghānī observed, “The strangest thing of all is that our ‘ulamā’ these days have divided science into two parts. One they call Muslim science, and one European science. Because of this they forbid others to teach some of the useful sciences. They have not understood that science is that noble thing that has no connection with any nation, and is not distinguished by anything but itself. Rather everything that is known is known through science, and every nation that becomes renowned becomes renowned through science…”[68]

4.3.1 Modernist Criticism of Sufism

In the nineteenth century, criticism of Sufism was aimed at only certain practices such as excessive veneration of Sufi masters, supplication at the tombs of dead masters, loud musical performances, etc., but not at the level of Sufi doctrines.[69] These criticisms were in line with efforts to reform populist Sufi practices in the eighteenth century all across the Muslim world by scholars who were often Sufis themselves.

‘Abduh went further by not only disapproving of many popular Sufi practices but also by rejecting its many fundamental doctrines. In supporting *ijtihād* by ordinary Muslims, he implicitly disapproved of the necessity of mediation between the human individual and God, challenging both the authority of the *‘ulamā,’* many of whom were Sufis and the fundamental Sufi emphasis on the need for a spiritual master. His denial of human mediation was inspired by the conviction that God being the “Necessary Being” was the “wholly other”[70] from the “contingent” reality of the world. By his emphasis on God’s transcendence (*tanzīh*), he questioned the benefit of trying to

know God's reality[71] and rejected the ability of any Sufi master to perform miracles.[72] Instead of relying on Sufi practices beyond the observance of the *Sharī'ā* or hoping for miracles from Sufi masters, he urged Muslims to work for material progress through learning the modern "useful" sciences while holding on to the moral teachings of the Qur'ān and the *Hadīth.* In fact his proposed reforms were, among other things, intended to eradicate faith in Sufism:

> In studying the social illnesses in the Orient, it can be found that among the causes are the beliefs and opinions introduced into Islam by different groups like Sufis and others. These beliefs and opinions took root in the souls of Oriental people and have wrought harmful results. The reformation will extract these beliefs from the nation. It will replace them with authentic Islamic beliefs those that call for resolution, work, perseverance, and determination in this life.[73]

As Nasr has pointed out, the reformists altered the meaning of what was considered beneficial knowledge in Islam to open a door for modern science; the reformists gave scientific knowledge equal significance to religious knowledge.[74] As Muzaffar Iqbal has observed, "Almost all the reformists translated the Arabic word *'ilm* (knowledge) as "science" (meaning modern science)."[75] More importantly, in their whole-hearted espousing of modern science, the modernists ignored the question of how scientific progress can aid in fulfilling the human purpose of realizing *tawhīd* (unity of God). In regards to Sufism, the Salafi modernists created a rationalist intellectual climate that sought to delegitimize it.

Salafi modernist rejection of Sufism as un-Islamic, as articulated by 'Abduh, also reflected the mistaken assumption of most Western orientalist scholars since the early nineteenth century that Sufism originated from non-Islamic sources. These scholars, convinced that Islam was only a "dry and legalistic religion," could not relate the "universal spirituality" of Sufism to Islam.[76] Perhaps 'Abduh himself was influenced by orientalist scholarship on Sufism because Sufi terms, references, and doctrines can be easily traced to the Qur'ān, the *Hadīth* or visions of Muslim saints of the past, and to the ways of many early Muslims including the companions of the Prophet.[77] Followers of 'Abduh, motivated by the desire to present Islam as a rational religion, were quick to condemn Sufi practices as un-Islamic.[78]

4.3.2 Modernist Salafist discourse on Modern Science and the Desacralization of Nature

In light of the above discussion, we can conclude with the distinguished sociologist Mansoor Moaddel that the reformists sought to reinterpret Islam "in light of the scientific rationality and modern social theory….[They] presented Islamic theology in a manner consistent with modernist rationalist ideas."[79] The view that emerged from the modernist reformist discourse on science and Islam, and continues

to this day among the many modernist and fundamentalist camps, may be summarized as follows:

1. The domain of religion was different from the worldly domain of physical sciences; they could not affect each other.
2. Islam did not neglect life of this world and so it was not against progress through scientific development.
3. Modern scientific truths and religious truths were of equal value; modern scientific truths were the real meanings of many Qur'ānic verses.
4. Islamic science was the background for modern science.
5. Islam was a totally rational religion, not based on miracles, and therefore totally compatible with modern science.
6. Islam emphasized action for building a materially prosperous civilization and not contemplation.
7. Beliefs and practices in the tradition that were not in agreement with the above, such as many aspects of Sufism, were keeping Muslims backward, and could not be part of the true Islam of the pious ancestors (*salaf*).

The modernist Salafi vision of al-Afghānī and 'Abduh, by its division of life into spiritual realm and the worldly realm — as we saw in British attempts at reforming traditional institutions in India — let modern science shape Muslims' view of the world of nature.

In their enthusiasm for modern science, they ignored the whole inner dimension which emphasizes the reality and need for knowledge by the heart. In effect, the modernist reformers stripped Islam of all epistemologies save the rationalistic or the scientific one. Most importantly, a scientific epistemology was bound to undermine all Islamic beliefs and practices that would not lend themselves to empirical study. But, if beliefs about the human soul and its relationship with God could remain relatively unscathed, the world of nature, which was the subject of study for the modern sciences, could not. Thus, a rationalistic or scientific epistemology could only have devastating consequences on faith in the Qur'ānic doctrine that the world of nature consisted of the signs of God.

The modernist Muslim stance regarding Islam's relationship to modern science continues to be similar to this day.[80] The Muslim fundamentalist position, as we will see, was formed for the most part as a reaction to the secularizing consequences of the modernist stance on modern science and secular thought.

4.4 CONSERVATIVE SALAFI REJECTION OF SECULARISM

Like 'Abduh himself, his most influential intellectual heir and younger colleague Rashīd Riḍā (d.1935) was a devout Muslim. Riḍā and his mentor had wanted Muslims to remain committed to the path of Islam while questioning *taqlīd* and pursuing the modern sciences.[81] But two factors made such an outcome unlikely for many of their

followers. First, not only was Egypt under British military and economic domination, but there was also the presence of large number of foreigners and their local admirers who openly preached superiority of secular Western culture over Islamic culture.[82] Second, in this intellectual climate, the reformists' encouragement for learning the modern sciences, their disdain for the traditional *'ulamā,'*[83] and their advocation of *ijtihād* by non-scholars, had in fact made many Muslims more vulnerable to various modern ideas associated with scientific progressivism and set them on the path of greater secularization.[84] As Joseph Lumbard has observed, the modernist reformers "tried to be modernist without being secularist, not realizing that the former opened the door to the latter."[85]

Riḍā grew disillusioned by the trends of secularization in Egyptian society led by former students of al-Afghānī and 'Abduh.[86] Alarmed by these trends, his views grew more conservative in defence of the Islamic norms that, he argued, ought to cover all aspects of life including politics.[87] His interpretation of Qur'ān drifted from the more rationalist approach of al-Afghānī and 'Abduh to being literalist.[88] In a break from his mentors, he came to favour literal truth of the Qur'ān over any scientific claims. On the other hand, his embrace of modern science also led to an effort, like that of al-Afghānī, to claim "scientific miracles" of the Qur'ān.[89] Also, he and his associates shared modernist bias against Sufis. [90] A new movement of Salafi conservatism that was now opposed to the secularism of the modernist Salafis, began to take shape around the teachings of Riḍā. On the question of modern science and Sufism, however, both of the groups were roughly on the same page.

Starting with Riḍā we see a recurring pattern of revivalist responses in the Muslim world with calls for a greater role of the *Sharī'ā* in public life in response to growing secularization and associated moral decadence from the Islamic standpoint. But in each case, the revivalists though generally more apprehensive of modern science than the modernists, banked on establishing the rule of the *Sharī'ā* both in the government and in public conduct as the bulwark against Western ideological influences. The secularizing character of modern science and technology, especially of the world of nature, almost completely escaped their attention. In their zeal to create a dynamic society ready to face modern Western challenges, the revivalists also looked down on Sufism, which emphasizes contemplation and self-purification, as an inadequate remnant from the past. We will see how this pattern is reflected in the revivalist/revolutionary Salafi movements that followed Riḍā.

4.5 REVIVALIST/REVOLUTIONARY SALAFI MOVEMENTS

Hasan al-Banna (1906–49) founded the Muslim Brotherhood in 1928, the first and still the most influential of the revivalist Salafi movements. He picked up from where the Salafi way of Riḍā left off, but with much greater ability at organization. Unlike Riḍā, he had a general appreciation for Sufis and showed more flexibility towards the *Sharī'ā* interpretations.[91] Like Riḍā, al-Banna was much troubled by the growing

secularist trends and the associated moral depravities in Egyptian society of his time.[92] According to David Commins, “an observer of Egyptian society during the 1920s might have concluded that the tide of Western secular culture would soon sweep away Egypt’s Muslim culture.”[93] Al-Banna concluded that the magnitude of the threat to Islamic norms and values had to be met with “an organized movement to undo the dangerous influence of Western culture.”[94] More than Riḍā, he exhorted his audience to live a virtuous life and return to observance of the *Sharī‘ā.*[95] But, in line with Salafi thought from al-Afghānī onward, Banna saw no conflict between Islam and modern science; in his view, science and religion occupied “different spheres of reality.”[96] Also, despite al-Banna’s appreciation for Sufism, his emphasis on social activism over a contemplative life, combined with the continued deep influence of al-Afghānī, ‘Abduh and Riḍā among his urban followers, resulted in a general disapproval of Sufism among the Brotherhood, similar to that of the modernists.[97] This disapproval would worsen as the Brotherhood drifted into an alliance, after al-Banna’s death, with the virulently anti-Sufi Wahhabism of the Arabian Peninsula in their common struggle to resist Marxist and socialist ideologies from spreading in the Arab world.

In 1941, thirteen years after the founding of Muslim Brotherhood, Abu’l ‘Alā’ Mawdūdī (1903–79), a journalist with traditional upbringing in India, established the *Jam‘at-i Islami,* an organized movement with a Salafi orientation similar to that of the Brotherhood. However, Mawdūdī’s intellectual activity began a decade earlier, at about the same time as al-Banna’s did. Like other Salafis as well as followers of the leading Indian modernist reformist Sayyid Ahmad Khan (1817–98), Mawdūdī rejected the interpretive traditions of the past. Like them, he would rely solely on the texts of the Qur’ān and the *Hadīth* to construct his vision of Islam, as he saw necessary, for the predicament of secularism and political impotence that Muslims of his time found themselves in.[98] However, his awareness of the philosophical foundations of modern science was deeper than that of any of his predecessors. In the mid-1930s, he observed that “from the very outset Western philosophy and science both went totally against any Divine existence.”[99] Unlike the Salafi modernists, he firmly rejected the notion that either rationalism or modern science could be the basis of any ultimate truth that religious interpretation should try to conform to.[100] Further, he observed that “The philosophy and science, which have nurtured the Western lifestyle, have been heading towards atheism, godlessness and materialism for the last five to six hundred years.”[101] Yet he believed in the progress that science could deliver and tried to reason how the fate of “godlessness and materialism” would not befall Muslims if they would only remain faithful to the Islam of the Qur’ān and the *Hadīth*.

It appears that Mawdūdī was unclear about the difference between the science that Islam would support and the modern science that began its journey in the seventeenth century. Thus, in contradiction to his assertion that Western science was “totally opposed to Divine existence,” he observed that religion by nature was not opposed to science: “In fact the study of universal laws, contemplation over its phenomena, and drawing results through analogy and reason is not at all against

religion."[102] To explain Western rebellion against religion, Mawdūdī tried to place the blame squarely on "the Church's resistance and brutal repression against scientific inquiry and free thinking during Renaissance."[103] But like the modernists, he argued that Islam, unlike Christianity, was a rational religion and was therefore not threatened by science.[104] Muslims, after all, were once leaders in the sciences which Europeans took up "to achieve progress which Muslims had forsaken."[105]

Mawdūdī argued that the good or evil effect of modern science and technology depended "on the nature of a given civilization."[106] Like 'Abduh, he argued that science and spirituality belonged to exclusively different domains such that experts of one domain could not have knowledge of the other domain.[107] By the same token, while science could not disprove religious truths, he recognized that it could challenge one's faith. He could find no cure against this predicament except in firm faith: "The only way out of this dilemma is the belief in the Unseen. Once you accept a person as your prophet, fully convinced that he is an authority on the matters relating to God and spiritualism…then there remains no possibility of doubt and uncertainty in the matters beyond your observation and experience."[108] Sayyid Quṭb(d. 1966), the most revolutionary of all Salafi thinkers, also put emphasis on faith by way of radical rejection of all human ideologies and authorities.

After a career as a renowned secular intellectual, Sayyid Quṭb joined the Muslim Brotherhood in defense of Islam against corruptions from the materialist and secularist thought and lifestyle that he experienced in Egypt and the USA.[109] Quṭb was heavily influneced by Mawdūdī 's thought. His views of modern sciences reveal many of the same assumptions and conclusions of Mawdūdī and other Salafis. The modern physical sciences were born in Islamic civilization and were based on Islamic principles about the world of nature: "One should not be unaware of this fact that the empirical sciences, which in the modern age are permeating the vitals of the industrial civilization of Europe, were not born in Europe. Their birthplaces were the Islamic Universities of Cordova and other Muslim countries of the orient. The fundamental principles of these sciences were drawn from the teachings and instructions of Islam in which clear indications are present about the universe and its nature."[110] A truly Muslim society should pursue modern science and technology "in a big measure."[111] Like Mawdūdī , he saw the empirical sciences to concern only with "worldly affairs," a different domain from what concerns "Muslim concepts about life and the universe or discuss man's responsibility and the nature of man's relations with surrounding universe and his relations with the Creator of life…morals and manners…." "Hence" as Quṭb continues, "the Muslim need not fear that by imbibing these learnings he would be vulnerable to any flaw in his faith or [that] he would revert to *jahiliyyah*,"[112] because these subjects "remain confined to practical experiments and results."[113] On the other hand, Muslims should stay away from philosophy, psychology, history and sociology, because they were products of "*jahili* beliefs" that can be traced to Europe's illogical hatred of religion in reaction to the tyranny of the Church against the

scholars.[114]

Mawdūdī was more aware of religion's metaphysical incompatibility with modern science than Quṭb was. Unlike Quṭb, Mawdūdī acknowledged that even peaceful technologies did not necessarily improve the human lot.[115] But he accepted this condition and emphasized on faith as the cure. With Quṭb, criticism of modern science is relatively absent;[116] his emphasis is on setting oneself apart from Western thought which was a product of human speculations, and on remaining absolutely obedient to God by following the *Sharī'ā.*[117] But, in line with scientific progressivism, Quṭb "interpreted the concept of *khilāfa* (vicegerency) as a mandate to exploit and develop the earth on behalf of God"[118] as al-Afghānī had done in the nineteenth century. And, in this regard their position was eerily similar to that of Francis Bacon at the start of the seventeenth century.[119]

4.5.1 Revivalist/Revolutionary Stance on Science and Sufism

Despite all their differences, both the modernists and the revivalists shared a disdain for tradition and endeavoured to give a new dynamic shape to Islam based solely on fresh interpretation of the Qur'ān and the *Hadīth* which they saw fit for the modern dynamic age. And concerning the question of modern science and technology, they were not as rationalist as the modernists, and rejected science if it clearly contradicted the Qur'ān. But both the modernist and the revivalist camps agreed on at least three following points:

1. The religious domain is different from the worldly domain of physical sciences, and therefore, they do not affect each other.
2. Islam does not neglect the life of this world and so it is not against progress through scientific development.
3. Islamic science was the background for modern science.

With regards to Sufism, all of the modernists and most of the early fundamentalists determined that it was unsuitable; its unsuitability was based on Sufism's emphasis on the contemplative life over activism to change outer circumstances, which the ideology of scientific progressivism required. 'Abduh, al-Banna and Mawdūdī turned away from an initial inclination towards Sufism when they found it inadequate to face the challenges of the day for the Muslim community.[120] Al-Banna was critical of certain Sufi practices without opposing Sufism per se.[121] Unlike 'Abduh, Mawdūdī' did not find Sufism un-Islamic but inadequate for the modern age. For him, Sufism, though not unlawful, was a "morbid attachment" that weakened Muslims from the activism necessary for the modern age:

> Just as a pure and lawful thing is prohibited when it is deemed to be harmful to a patient, similarly the cult of *taṣawwuf*, though allowable, needs to be eschewed

> and laid aside. For through it the Muslims have become addicted to a kind of intoxication which has lulled them into sleep and sapped them of life and reality for centuries. As soon as *bai'at* is performed, the disciples start developing a servile mentality which has become intimately associated with the system of discipleship…Now therefore, if somebody wishes and plans to revive Islam, he must shun the language and the terminology of the Sufis, their mystic allusions and metaphoric references, their dress and etiquette, the saint-disciple institution and all other things associated with it. Indeed he must make the Muslim abstain from these abuses just as a diabetic is warned to abstain from sugar.[122]

Quṭb did not write specifically against Sufism. But his emphasis on God's transcendence over everything of this world went against the Sufi emphasis on "seeing God" everywhere. He believed that the function of Islam was to set human beings completely free from obedience to any other entity but God, making the Sufi requirement for submission to the guide implicitly unacceptable.[123] He urged for radical activism to overthrow any government not based on the guidance of the Qur'ān. Contemplative life of Sufism could hardly be an ally in this struggle. Quṭb's radical stance, manifested in his writings while in the jail where he was tortured very badly from 1954 until his hanging in 1966, could be explained as result of his perception of the need to forcefully confront, more than by intellectual means, the brutally repressive secular governments that had adopted scientifically-inspired Marxist and socialist ideologies.[124]

Quṭb's radical intellectual retreat to the Qur'ān from every school of human thought brought the Salafi revolutionary position uncannily close to the rabidly anti-intellectual and anti-Sufi Wahhābī position. But while Wahhabism was a radical reaction against the Sufi practices based on the belief in God's *immanence* that sometimes lacked propriety, Quṭb's position was a radical rejection of the growing secularism supported by the state power that was marginalizing religion altogether. However, for both positions, the need to obey God, the *transcendent* One, was emphasized.

The march of secularism was not limited to the Arab world. In fact, in the 1950s and 60s, secularism spreaded unabated in Turkey, Iran, South Asia, and in other Muslim nations. As in the past, in reaction to the growing secularist trends, an alliance of fundamentalist movements was in progress in defence of Islam, as they defined it. This was an alliance of the revolutionary Salafis with the radically anti-Sufi Wahhābīs, an alliance which would prove devastating for Sufism across the world.

4.6 TRANSCENDENCE OF GOD AND THE GROWING AFFINITY BETWEEN WAHHĀBĪS AND SALAFIS

Muhammad 'Abd al-Wahhāb (d. 1792), the founder of what became known as the Wahhābī movement in the mid eighteenth century Arabia, posited God as an absolute other from His creation.[125] From the beginning, this doctrinal position has been

based on rejection of tradition by selective literal interpretation of the Qur'ān and the *Hadīth* alone. We say 'selective,' for the Qur'ān and the *Hadīth* speak not only of God's transcendence (*tanzīh*) but also of His immanence (*tashbīh*).[126]

Wahhāb was much less a theoretician than 'Abduh. His doctrinal stand appears to have been an extreme reaction against the veneration of living or past saints, tombs of prophets, or places associated with them, practices which had been popular in all Muslim societies for centuries, and that a number of Muslim scholars including Sufis were already trying to keep within proper limits. Initially, the Wahhābī movement gained strength not so much by the power of persuasion of its message but more by an alliance with a regional warlord Muhammad b. Sa'ud.[127] The resulting military campaign involved the destruction of all sacred sites associated with saints and prophets in the areas that came under Wahhābī control. Wahhāb saw all acts of worship of God except those prescribed in the Hanbali *Sharī'ā,* the most rigid of all schools of *Sharī'ā,* as unbelief (*kufr*). A true Muslim could only do his prescribed duties; any other way of relating to the absolutely transcendent God amounted to associating partnership to God (*shirk*) and were to be fought and eradicated by all means. Wahhābīs were firm in their conviction that their interpretation of Islam was the only true Islam as practiced by the early Muslims. Consequently, Sufi orders and practices were devastated in Wahhābī-dominated regions.

While the Salafis portrayed scientific progressivism as an Islamic imperative, the Wahhābīs until the 1950s showed no interest in the Western science or modern thought and had had little influence outside the Arabian Peninsula. The Wahhābīs did not remain isolated for too long due to the underlying affinity between them and the Salafis of all stripes in their common emphasis on absolute *transcendence* of God. As we argued earlier, 'Abduh's belief that God is the *Absolute other* was motivated by his intent to find a way for Muslims to separate their worship of God from their dealings with the world of nature which was science's preoccupation. Thus, both the modernism of 'Abduh and Wahhabism were based on a view of nature where God is either absent or unknowable and unapproachable, which, in turn, explains their rejection of the idea emphasized in Sufism that God is present wherever one looks. Wahhābī radical rejection of Sufism was already cited by Riḍā to be among his main reasons for supporting the Wahhābīs.[128] Riḍā's outspoken support for the Wahhābīs was the first political step that would initiate an eventual close alliance between the two movements.

Quṭb's radical intellectual retreat to the Qur'ān and the *Sharī'ā*, away from all schools of Western thought, brought the Salafis and the Wahhābī s even closer together ideologically. In the meantime, secularizing trends in Egypt and other Muslim states continued relentlessly and by the early 1950s, Egypt, Syria, and Iraq were under socialist rule. Against this political block, Salafis became natural allies of the fundamentalist Wahhābīs. Then, from the early 1960s, the Saudi monarchy, under pressure to modernize, embarked on the path of scientific progress and development and effectively brought the Wahhābī position another step closer to that of the Salafis. With their common stance against secular ideologies, the alliance between

the Wahhābīs and the Salafis grew stronger and, supported by Saudi oil money, the radical Wahhābī rejection of Sufism permeated revolutionary Salafism and other Salafi-inspired Islamic movements.[129] Thus, Wahhabism spread on the wings of revolutionary Salafism, which in turn had come to exist as a reaction against the spread of secular ideologies arising ultimately from scientific progressivism.

By the end of the 1960s, the failure of socialist governments to meet the needs of pious Arab masses became apparent. Especially after the total defeat of the secular Arab governments at the hands of Israel in 1967, Marxism and socialism came to be seen as failed ideologies. In its place, the more 'Islamically-oriented' Wahhābī or Salafi movements appeared as attractive alternatives. The waning influence of secular ideologies and greater acceptance of revivalist ideologies since the 1970s did not mean that modernists lost control in the Muslim world. In today's Muslim world at large, "Western-oriented secularists [continue to] constitute a high percentage of those in policy making positions."[130] Moreover, as the political scientist Beverley Milton-Edwards has observed, to this day "Secularism…has continued to symbolize the process of modernity that have defined and shaped societies and in [almost all] Muslim countries [throughout last century] there was a tacit assumption that modernity or modernization could only be achieved by jettisoning Islam."[131] However, in each of these states Islamic revivalist influence has grown since the late 1960s, resulting in greater acceptance of *Sharī'ā* in public space, and greater visibility of Islamic symbols.[132] On the other hand, as before, greater penetration of modern science and technology, coupled with the concomitant rise of secularism, has been met with a revivalist response in the Arab world and elsewhere.[133]

However, on the question of modern science and technology, modernist or secularist position is indistinguishable from the fundamentalist one to this day. Citing Rachid Gannoushi, the leading Tunisian follower of Salafi revivalists, Azam Tamimi has observed, "Like nineteenth-century Muslim modernists, many contemporary Islamic thinkers insist that the scientific and technological underpinnings of modern Western civilization are reducible to categories of knowledge and practice that Muslims can learn and benefit from without having to give up their cultural identity."[134] More recently, Yusuf al-Qaradawi, a widely popular intellectual of the Muslim Brotherhood, has asserted, "We want scientific thinking and scientific spirit to guide our life in every way."[135]

Not surprisingly, the growing role of the Salafi revivalist message has not meant revival of the traditional Islamic view of the world of nature. Those who have questioned the secularizing effect of modern science and technology by citing examples of the way revivalists have made effective use of the available technology since the 1980s to spread their message, have not considered that the very nature of modern science and technology, as we will see in chapters 6 and 7, cannot but have a secularizing effect on the human view of nature.[136] In light of this, the relative success of revivalists in persuading Muslim communities to observe the *Sharī'ā* to a

greater degree than before must be attributed mostly to the passion of the revivalists against secularism *in spite of* modern science and technology.

4.7 CHAPTER SUMMARY

In retrospect, we can observe that since the death of ‘Abduh, his modernist Salafism, with a scientific progressivist agenda marked by opposition to Sufism, opened the gates for secularization across the Arab world. This led to greater adoption of secular Western thought and lifestyle, and in time, resulted in the adoption of ideologies associated with radical scientific progressivism such as Marxism and socialism in Muslim world. In response, in each phase of greater secularization, there has been a parallel rise of Islamic revivalism which has become increasingly radicalized.[137] The revivalist response begins with the rise of Riḍā’s conservative Salafism that soon gives way to the revolutionary Salafism of al-Banna’s Muslim Brotherhood in Egypt and Mawdūdī ’s *Jam‘at-i Islami* in India. These came in response to the secularist trends that these two leaders felt had needed an organized and disciplined response in their respective countries.

The strategy of the revivalists involved criticizing Western ideologies and lifestyles on the one hand, and insisting on the observance of the *Sharī‘ā* on the basis of the argument that Islam was superior to all ideologies in its capacity for establishing a just, moral *and* scientifically progressive society, on the other. Most importantly, the scientific progressivism, which was initially inherited from the West through reformists like al-Afghānī and ‘Abduh, would not be given up but rather promoted as an Islamic ideal. The scientific progressivist agenda, however, has been accommodated by *rejecting God’s immanence* in the world, in deviation from the traditional doctrine of God’s simultaneous transcendence and immanence, which the Sufi tradition best preserves. Naturally, all forms of Salafism strive to marginalize Sufism and relegate the task of shaping Muslims’ view of the natural world to modern science. The alliance with Wahhabism only made Salafi rejectionist stance against Sufism much stronger. Whatever revival of Islam the fundamentalists have been able bring to the Muslim world, owing to their relatively uncritical embrace of modern science and technology, the Muslim view of the natural world continues to be shaped mostly by modern sciences that ignore the sanctity of the created order emphasized by Islam.

Today, after decades, we may be a witnessing a softening of the stance against Sufism among some segments of Salafis. During their struggle against secular dictators many Salafis have come to recognize many Sufis as their allies in matters of religion. Also, the Arab Spring appears to have mobilized Sufis to play a more active political role at least through exercising their voting rights. For the time being, the Muslim Brotherhood of Mohammad Morsi is being careful not to alienate the millions of Sufis in Egypt. But it will take more than political alliances against secularism to bring about a lasting spiritual revival.

Let us hope, more and more Salafis of every kind will recognize Sufism for what it is — Islam practiced with depth of understanding — and stop their blind opposition against its revival.

Indeed, for care and appreciation for nature to become part and parcel of contemporary Muslim piety, it is imperative that we revive the dimensions of the Islamic tradition that speak of God's simultaneous transcendence and immanence, namely Sufism and the associated metaphysics we discussed in chapters 2 and 3. At the same time, as we discussed in Chapter 3, Sufism would also help revive the deepest rationale for the observance of Islamic ethics including the *Sharī'ā* regarding the non-human world that Nasr and other Islamic environmentalists insist on. However, as we have seen, such a transformation of attitude towards nature in contemporary Muslim world would require, as Nasr holds, a thorough critique — from an Islamic intellectual perspective — of the assumptions held by both the modernists and fundamentalists regarding traditional Islamic sciences and the very nature of modern science and technology.[138] And it is to this critique that we turn to next.

NOTES

1. We have defined 'scientific progressivism' as the ideology that modern science and associated scientific rationality is, if not the only, then the most reliable means of human progress. See p. 89.
2. Seyyed Hossein Nasr, "Islam, Science, and Muslims," interview by Muzaffar Iqbal, in *Islam, Science, Muslims, and Technology: Seyyed Hossein Nasr in Conversation with Muzaffar Iqbal* (Alberta, Canada: Al-Qalam Publishing, 2007), pp. 58–59.
3. Nasr, *Islam and the Plight of Modern Man*, p. 253.
4. Nasr, *Traditional Islam in the Modern World*, p. 109.
5. See Introduction 0.7.
6. Nasr, *Need for a Sacred Science*, p. 140.
7. Nasr, "On the Environmental Crisis," p. 134.
8. Ibid., p. 137.
9. Seyyed Hossein Nasr, "Islam, Muslims, and Modern Technology," interview by Muzaffar Iqbal, *Islam & Science,* Vol. 3 (Winter 2005) No.2, pp. 110,117.
10. For Nasr, a modernist Muslim is the person whose outlook is shaped significantly by what is 'modern.' See Introduction 0.7.
11. Following Nasr, we have referred to Salafi conservatives, revivalists, Wahhābī s, or other groups inspired by them as "fundamentalists." See Nasr, *Traditional Islam in the Modern World*, pp. 12–22 and 75–95.
12. Nasr, *Need for Sacred Science*, p. 138.
13. Nasr, *Traditional Islam in the Modern World*, p. 19.
14. On the moderate and modernist Muslims' enthusiasm for modern science and technology, see Herwig Schopper, "Where are the New Patrons of Science," *Nature* Vol. 444, 2 Nov 2006, pp. 35-36.
On the fundamentalist Muslims' enthusiasm for modern science and technology, see Ehsan Masood, "An Islamist Revolution," in *Nature* Vol. 444, 2 Nov 2006, pp. 22–25.
15. Pervez A. Hoodbhoy, "Science and the Islamic World — The Quest for Rapprochement," *Physics Today*, August 7, 2007, p. 52.

16. Ibid., 53. See Toni Feder, “International Research University Open in Saudi Arabia,” *Physics Today*, November 2009. Likewise, Jordan is building a huge research facility known as SESAME modelled after the internationally acclaimed research facility in Europe known as CERN. See Schopper, “Where are the New Patrons of Science,” p. 36.
17. On the craze for modern technology among educated Muslims in Pakistan, see S. Nomanul Haq. “Science, Scientism, and the Liberal Arts,” *Islam and Science*, Vol. 1(December, 2003) No. 2, pp. 267–271. To the best of our knowledge, the situation is quite the same in the neighboring Bangladesh and other similar developing Muslim nations. The craze for modern technology is most blatantly evident in the oil rich Muslim states. As Herwig Schopper has observed, “Believing that oil money can simply buy Western technology, wealthy Arab states do little beyond consuming science and technology products.” Schopper, “Where are the New Patrons of Science,” p. 35.
18. According to his survey, Ehsan Masood has found that most Muslims see “science and Islam as being in harmony.” Masood, “An Islamist Revolution,” p. 23.
19. Nasr, “Islam, Muslims, and Modern Technology,” p. 110.
20. Ibid. However, in this connection, we should note that it was by Nasr’s initiative in the 1960s and 70s that the now famous national parks were established in Iran. Seyyed Hossein Nasr, *Islam and Ecology*, Speech given at Yale University, USA, 9 April 2011.
21. Nasr, *Need for a Sacred Science*, p. 139
22. Ibid., p. 139.
23. Ernst, *Shambala Guide to Sufism*, xv. This phenomenon is clearly evident in Egypt, the largest and most influential of Arab countries, at least until the end of the nineteenth century, see Malika Zeghal, “Recentering Religious Knowledge and Discourse: The Case of al-Azhar in the Twentieth-Century Egypt,” in *Schooling Islam: The Culture and Politics of Modern Muslim Education*, eds. Robert W. Hefner and Muhammad Qasim Zaman (Princeton: Princeton University Press, 2007), p. 115. Likewise, Marc Gabrieau has observed the same phenomenon for India, that is, the contemporary South Asia: “A radical breakaway from Sufi traditions by modernists and neo-fundamentalists starts in India in the second half of the nineteenth-century. Before this time Sufism was an integral part of Indian Islam, even if it was criticized for abuses and excesses.” Gabrieau, “Criticizing the Sufis: The Debate in Early-Nineteenth-Century India,” in *Islamic Mysticism Contested: Thirteen Centuries of Controversies and Polemics*, eds. Frederick De Jong & Bernd Radtke (Leiden: Brill, 1999), p. 452.
24. S. Parvez Manzoor, “Desacralising Secularism,” in *Islam and Secularism in the Middle East,* eds. John Esposito and Azzam Tamimi (London: C. Hurst & Co., 2000), p. 84. This was reflected in the pre-colonial India, a situation that colonial administrators tried to change. See Zaman, *Ulama in Contemporary Islam*, p. 63.
25. Hodgson, *Venture of Islam*, 125. Ira Lapidus dates the prevalence of Sufism in Muslim societies from the thirteenth century onward. See Ira M. Lapidus, *A History of*

Islamic Societies, 12th edition (Cambridge: Cambridge University Press, 1997), p. 254.
26. See Marshall Hodgson's comments in Chapter 3, n97.
27. For an earlier discussion of Nasr's vision of traditional Islam, see Introduction 0.7. For discussions on al-Ghazzālī and Ibn 'Arabī's metaphysical rationale for the *Sharī'ā*, see Chapter 3.2 and 3.3 respectively.
28. See Chapter 3.5. Speaking of traditional Muslims, Fazlun Khalid has observed that for them "Islamic environmentalism expressed itself in personal behaviour (*mu'amalat*: acting in public interest) It was an integral part of life, an expression of the existence in submission to the will of the Creator in harmony with the cosmic pattern, unfettered by the trappings of career and consumerism." Khalid., "Applying Islamic Environmental Ethics," p. 101; For past examples of explicit environmental behaviour influenced by Islam, see for instance, Ali Ahmad, "Nigeria," pp. 76–77.
29. Attilio Petruccioli, "Nature in Islamic Urbanism: The Garden in Practice and in Metaphor," in *Islam and Ecology: A Bestowed Trust,* eds. Richard C. Foltz, Frederick M. Denny, and Azizan Baharuddin (Cambridge, MA: Harvard University Press, 2003), p. 501.
30. Nasr, *Young Muslim's Guide to the Modern World,* pp. 187–88. We have defined 'scientism' as the view that modern science and scientific rationality constituted if not the only, at least the most reliable means to true knowledge. See Chapter 1.5.
31. See Chapter 1.5. Also, see Nasr, *Young Muslim's Guide*, p. 126.
32. Zaman, *Ulama in Contemporary Islam*, p. 63.
33. Ibid., pp. 64–66.
34. Ibid., pp. 21–27. See Jonathan P. Berkey, "Madrasas Medieval and Modern: Politics, Education, and the Problem of Muslim Identity," in *Schooling Islam:The Culture and Politics of Modern Muslim Education*, eds. Robert W. Hefner and Muhammad Qasim Zaman (Princeton: Princeton University Press, 2007), p. 51.
35. In the nineteenth century, "[The] secularist perspective was forcefully promoted in the Islamic world by [thinkers] like James Mill, Macaulay, Muir, Hunter, Cromer, Morier, Renan, and other Westernizers connected to British and French colonial administrators." See Mansoor Moaddel, *Islamic Modernism, Nationalism and Fundamentalism* (Chicago: University of Chicago Press, 2005), p. 338.
36. Francis Robinson, "Secularization, Weber and Islam," in *Max Weber and Islam*, eds. Toby E. Huff and Wolfgang Schluchter (New Brunswick, USA: Transaction Publishers, 1999), pp. 231–245.
37. Yovonne Haddad, "Muhammad 'Abduh: Pioneers of Islamic Reform," in *Pioneers of Islamic Revival* (London: Zed Books Ltd., 1994), p. 36.
38. According Indira Gesink, the juristic policy took shape gradually over centuries and it wanted to restrict "the use of *ijtihād* to high-level jurists and bound lesser scholars to follow the precedents — to follow *taqlīd,*" in order to protect the rule of law from "unbridled *ijtihād*." Indira Falk Gesink, "Islamic Reformation: A History of *Madrasa* Reform and Legal Change in Egypt," in *Islam and Education: Myths and Truth*, eds. Wadad Kadi and Victor Billeh (Chicago: University of Chicago, 2007), p.

26.
39. Jamāl al-Dīn Al-Afghānī, quoted in Nikki R. Keddie, *An Islamic Response to Imperialism* (Berkeley: University of California Press, 1983), p. 87.
40. Jamal al-Did Al-Afghānī, “Refutation of the Materialists,” in Keddie, *Islamic Response to Imperialism*, pp. 171–72.
41. See Keddie, *Islamic Response to Imperialism*, pp. 54–55.
42. Jamal al-Did al-Afghānī, “Lecture on Teaching and Learning,” in Keddie, *Islamic Response to Imperialism*, p. 105.
43. Jamāl al-Dīn al-Afghānī, “An Islamic Response to Imperialism,” in *Islam in Transition: Muslim Perspectives,* 2nd edition, eds. John J. Donohue and John L. Esposito (New York: Oxford University Press, 2006), p. 17. For similar views of ‘Abduh, see Haddad, “Muhammad ‘Abduh: Pioneers of Islamic Reform,” p. 35.
44. Aziz al-Azmeh, *Islams and Modernities* (London: Verso, 1996), pp. 102–3.
45. See Moaddel, *Islamic Modernism, Nationalism and Fundamentalism* , p. 91.
46. Gesink, “Islamic Reformation,” p. 29.
47. Charles C. Adams, *Islam and Modernism in Egypt* (London: Oxford University Press, 1933), p. 136 citing *al-Manar*, xii. pp. 408–409.
48. Muhammad ‘Abduh quoted in Adams, *Islam and Modernism in Egypt,* p. 135.
49. For examples al-Afghānī’s scientistic interpretations of many Qur’ānic verses, see Muhammad al-Makhzumi, *Khatirat Jamāl al-Dīn*, Beirut, 1931, pp. 161 ff. Cited in Adams, *Islam and Modernism,* p. 127.
50. ‘Abduh, *al-Manar*, ix. 334, 335. Cited in Adams, *Islam and Modernism in Egypt*, p.138.
51. ‘Abduh, *Tafsir al-Manar,* ii. 483 sqq.; also in *al-Manar*, viii. pp. 929–930. Cited in Adams, *Islam and Modernism in Egypt*, p. 142.
52. ‘Abduh, *al-Manar*, xii. 483 sqq. Cited in Adams, *Islam and Modernism in Egypt*, p. 139.
53. ‘Abduh, *al-Manar*, ix. pp. 334–335. Cited in Adams, *Islam and Modernism in Egypt*, p. 138.
54. Muhammad ‘Abduh, *The Theology of Unity,* trans by Ishaq Musa‘ad and Kenneth Cragg (London: George Allen and Unwin Ltd., 1966), p. 103.
55. Ibid., pp. 41–44.
56. See Nasr, *Islamic Philosophy from its Origin to the Present*, p. 122.
57. ‘Abduh, *Theology of Unity*, pp. 52–55.
58. Ibid., p. 54.
59. Ibid., p. 106.
60. Ibid., p. 103.
61. Ibid., p. 103.
62. Haddad, “Muhammad ‘Abduh,” pp. 38 and 46.
63. Jamāl al-Dīn al-Afghānī, “The Truth about the Neicheri Sect,” in Keddie, *Islamic Response to Imperialism*, 171–72. See ‘Abduh, *Theology of Unity*, pp. 127–128.
64. ‘Abduh, *Theology of Unity,* pp. 126–130.
65. As research over the last two decades have revealed, in pre-modern days, *taqlīd*

did not mean "*blind imitation*" as the reformists like Al-Afghānī and 'Abduh defined it, but it meant the giving of due consideration to precedent examples. See Zaman, *Ulama in Contemporary*, pp. 16–20. In fact, the traditional *'ulamā'* had many thoughtful and logical arguments against 'Abduh's proposal for rejecting *taqlīd.* see Gesink, "Islamic Reformation" pp. 31–36.
66. "Inspired by the Enlightenment, [Abduh] viewed Egypt's cultural predicament from a Comtean perspective." Moaddel, *Islamic Modernism, Nationalism and Fundamentalism,* p. 90.
67. Haddad, "Muhammad 'Abduh," p. 43. Also,'Abduh, *Theology of Unity,* pp. 127–28.
68. Jamāl al-Dīn al-Afghānī, "On Teaching and Learning," in Keddie, *Islamic Response to Imperialism*, p. 107.
69. Frederick De Jong, "Opposition to Sufism in Twentieth-Century Egypt (1900–1970): A Preliminary Survey," in *Islamic Mysticism Contested: Thirteen Centuries of Controversies and Polemics*, eds. Frederick De Jong & Bernd Radtke (Leiden: Brill, 1999), p. 310.
70. 'Abduh, *Theology of Unity*, pp. 54–55, 65.
71. Ibid., pp. 54–55.
72. Ibid., pp. 157–158.
73. Muhammad 'Abduh, "The True Reform and its Necessity for al-Azhar," *al-Manar*, vol. 10, no.28, (February 1906), pp.758–65, in *Modernist and Fundamentalist Debates in Islam*, eds. Mansoor Moaddel and Karman Talattof (New York: Palgrave Macmillan, 2002), p. 48.
74. Nasr, *Traditional Islam in the Modern World*, p.19.
75. Muzaffar Iqbal, *Islam and Science* (Hampshire and Burlington: Ashgate, 2002), p. 244.
76. Carl Ernst, *Rethinking Islam in the Contemporary World* (Edinburgh: Edinburgh University Press, 2004), p. 166.
77. See Chapter 3.4 and 3.4.1. Also, see Lumbard, "Decline of Knowledge and the Rise of Ideology in the Modern Islamic World," pp. 48–53.
78. Julian Johansen, *Sufism and Islamic Reform in Egypt: The Battle for Islamic Tradition* (Oxford: Clarendon Press, 1996), pp. 28–29.
79. Moaddel, *Islamic Modernism, Nationalism and Fundamentalism*, p. 2–3.
80. Most Muslim intellectuals educated in secular institutions share the modernist stance. See Suleman Dangor, "Islamization of Disciplines: Towards an indigenous educational system," in *Educational Philosophy and Theory,* Vol. 37, No.4, 2005, p. 520. In recent decades the most vocal proponents of this stance have been two Pakistani scientists, Dr. Pervez A. Hoodbhoy, a nuclear physicist and Prof. Abdus Salam, a Nobel Laureate in physics. Abdus Salam, "Islam and Science," in *Ideals and Realities: Selected Essays of Abdus Salam*, ed. C.H. Lai, 2nd edition (Singapore: World Scientific, 1987), pp. 179–213; Pervez A. Hoodbhoy, *Islam and Science: Religious Orthodoxy and the Battle for Rationality* (London: Zed Books Ltd., 1991).
81. Albert H. Hourani, *Arabic Thought in the Liberal Age 1798–1839* (Cambridge:

Cambridge University Press, 1983), p. 236.
82. David Commins, “Hasan al-Banna(1906–1949)” in *Islamic Pioneers*, ed. Ali Rahnema (London: Zed Books, 1994), p. 128.
83. Ana Belen Soage, “Rashid Rida’s Legacy,” *The Muslim World*, Vol. 98, January 2008, p. 5.
84. John Voll*, Islam: Continuity and Change in the Modern World*, 2nd edition (New York: Syracuse University Press, 1994), pp. 164–69.
85. Lumbard, “The Decline of Knowledge and the Rise of Ideology,” p. 40.
86. John Esposito, *Islam: The Straight Path* (Oxford: Oxford University Press, 1988), 136. Also see Soage, “Rashid Rida’s Legacy,” pp. 3 and 6.
87. Esposito, *Islam: The Straight Path*, p. 136. Also see Ana Soage, “Rashid Rida’s Legacy,” p. 15.
88. Soage, “Rashid Rida’s Legacy,” p. 6.
89. Ibid., p. 14.
90. Hourani, *Arabic Thought in the Liberal Age*, p. 232.
91. Hasan al-Banna, *Selected Writings of Hasan al-Banna Shaheed*, trans. S.A. Qureshi (Karachi: International Islamic Publishers, 1983), pp. 5, 177,178–79.
92. Banna, *Selected Writings of Banna*, pp. 155–159.
93. Commins, “Hasan al-Banna,” p. 128.
94. Hasan al-Banna, *The Memoirs of Hasan al-Banna Shaheed* (Karachi: International Islamic Publishers, 1981), p. 126; see John Zimmerman, “Roots of Conflict: The Islamist Critique of Western Value,” *The Journal of Social, Political and Economic Studies,* Vol. 30, Number 4, 2005, p. 427. Also, see Commins, “Hasan al-Banna,” pp. 127–28.
95. Banna, *Selected Writings of Banna*, pp. 134–138, 197, 202.
96. Commins, “Hasan al-Banna,” 135. See Charles Wendell, *Five Tracts of Hasan al-Banna*, pp.115–6.
97. Richard Mithchell, *The Society of Muslim Brothers* (Oxford: Oxford University Press, 1993), pp. 215–217 and 321–323.
98. Abu’l ‘Alā’ Mawdūdī, *West versus Islam*, translated by Waqar Ahmad Gardezi & Abdul Waheed Khan (Markazi Maktaba Islami Publishers, 2000), pp. 15 and 288.
99. Mawdūdī , *West versus Islam*, p. 8.
100. See Mawdūdī ’s arguments against rationalism in *West versus Islam*, 110–41. And against science’s ability to know of ultimate truth in *West versus Islam*, pp. 145–147.
101. Mawdūdī , *West versus Islam*, pp. 6, 8, 16–17.
102. Ibid, p. 6.
103. Ibid., pp. 7–8.
104. Ibid., .pp. 84–85.
105. Ibid., p. 37.
106. Ibid., p. 79.
107. Ibid., p. 154.
108. Ibid., pp. 156–57.

109. See Ahmad S. Mousalli, *Radical Islamic Fundamentalism* (Beirut: American University of Beirut, 1995), pp. 23–31.
110. Sayyid Quṭb, “Islam and Culture,” in *Milestones*, 2nd edition., translated by S. Badrul Hasan (Karachi: International Islamic Publishers Ltd., 1988, pp. 193–208. Cited in *Modernist and Fundamentalist Debates in Islam,* eds. Mansoor Moaddel and Karaman Talattof (New York: Palgrave Macmillan, 2002), p. 202.
111. Ibid., p. 200.
112. Ibid., p. 200. By the Arabic term *jahiliyyah* Quṭb meant the way of ignorance and disobedience to God.
113. Ibid.,p. 201.
114. Ibid., pp. 201 and 206.
115. Mawdūdī knew about the terrible destructive power of the modern weaponry and was aware that even many peaceful technologies did not did not necessarily translate into an improvement of the human condition. See Mawdūdī , *West versus Islam*, pp. 8, 70–71,78–79.
116. Quṭb makes one reference to Europe depriving itself of “Islamic method of experimental sciences of the guidance of God” during European rebellion against religion during the Renaissance which made European science *jahili,* that is, based on ignorance. He offers no further clarifications. See Quṭb, “Islam and Culture,” p. 202.
117. Sayyid Quṭb, *Milestones* (New Delhi: Published by Abdul Naeem forIslamic Book Service, 2007), pp. 58–59.
118. Llewellyn, “Basis for a Discipline of the Islamic Environmental Law,” p. 190.
119. See Chapter 1.3.1.
120. On Mawdūdī’s early Sufi orientation, see Seyyed Vali Reza Nasr, “Mawdūdī and the Jama’at-i Islami,” in *Pioneers of Islamic Revival*, ed. Ali Rahnema (London: Zed Books Ltd, 1994), pp. 28–31 and 110–113.
121. Al-Banna, *Selected Writings of Hasan al-Banna Shaheed*, pp. 3 and 5.
122. Abu’l ‘Alā’ Mawdūdī, *Short History of the Revivalist Movement in Islam*, trans. Al-Ash’ari (Lahore 1963, first published in Urdu in 1940), pp. 105–108. Quoted in Marc Gabrieau, “Criticizing the Sufis: The Debate in Early-Nineteenth-Century India,” pp. 452–453. *‘Taṣawwuf’* and *‘bai’at’* are Arabic terms that refer to ‘Sufism’ and the ‘initiatory rite’ for an spiritual aspirant into a Sufi Order, respectively.
123. Mousalli, *Radical Islamic Fundamentalism*, p. 121.
124. Voll*, Islam: Continuity and Change in the Modern World*, 175. Also, see Zeghal, “Recentering Religious Knowledge,” p. 120. In the 1950s new socialist governments’ of Syria and Iraq confiscated the *awqaf* (pious endowments) that supported many Sufi orders which forced these orders to eventually close. See Frederick De Jong and Bernd Radtke, Introduction to *Islamic Mysticism Contested: Thirteen Centuries of Controversies and Polemics,* eds. Frederick De Jong and Bernd Radtke (Leiden; Boston: Brill, 1999), p. 17.
125. Esther Peskes, “The Wahhābī yya and Sufism in the Eighteenth Century,” in *Islamic Mysticism Contested: Thirteen Centuries of Controversies and Polemics*, eds. Frederick De Jong & Bernd Radtke (Leiden: Brill, 1999), pp. 155–159.

126. For instance, see Q. 2:115, 4:126, 22:6, 57:3.
127. Peskes, "*Wahhābī yya and Sufism,*" p. 157.
128. Soage, "Rashid Rida's Legacy," p. 11.
129. By the 1990s or even earlier, in many parts of the Muslim world, Salafism became synonymous with Wahhabism, and the former's attitude towards Sufism became as uncompromising as that of the latter. See Alexander Knysh, "Contextualizing the Salafi-Sufi Conflict," *Middle Eastern Studies*, Vol. 43, No. 4, July 2007, pp. 503–530.
130. Bradley J. Cook, "Islamic Versus Western Conception of Education: Reflections on Egypt," *International Review of Education*, 45(3/4): 1999, p. 352.
131. Beverley Milton-Edwards, *Islamic Fundamentalism Since 1945* (New York: Routledge, 2005), p. 130. As the sociologist Moaddel has observed, for most of the twentieth century, across the Middle East "policy makers worked zealously to limit the sphere of activity of the Islamic groups, taking away their educational and social functions and bringing under the firm control of the government the economically resourceful institution of *awqaf* (charitable endowments)." Moaddel, *Islamic Modernism, Nationalism and Fundamentalism*, p. 340.
132. See John L. Esposito, *Unholy War: Terror in the Name of Islam* (New York: Oxford University Press, 2002), pp. 93–94 and 132–33.
133. See M.H. Hafez, "Explaining the Origins of Islamic Resurgence: Islamic Revivalism in Egypt and Indonesia," *The Journal of Social, Political, and Economic Studies*; Fall 1997, pp. 295–324; Knysh, "Contextualizing the Salafi-Sufi Conflict," pp. 517–518.
134. Azzam Tamimi, "The Origins of Arab Secularism," in *Islam and Secularism in the Middle East*, eds. John Esposito and Azzam Tamimi(London: C. Hurst & Co., 2000), p. 26.
135. Yusuf al-Qaradawi quoted in Masood, "An Islamist Revolution," p. 24.
136. For the doubts raised, see Robinson, "Secularization, Weber and Islam," p. 241; Lluis Oviedo, "Whom to blame for the Charge of Secularization," *Zygon,* vol. 40, no.2 (June 2005).
137. Mansoor Moaddel cites the history of Egypt, Syria, Algeria and Iran to illustrate this phenomenon. See Moaddel, *Islamic Modernism, Nationalism and Fundamentalism*, p. 337.
138. Nasr, *Need for a Sacred Science*, p. 143.

Chapter 5
The Perennial Principles and the Traditional Islamic Sciences

> If modern science and with it a civilization which gave and still gives itself absolute right of domination over the earth and even the heavens did not come into being in the Islamic world, it was not because of the lack of mathematical or astronomical knowledge. Rather, it was because the Islamic perspective excluded the possibility of the deification of the earthly man or the total secularization of nature. [1]
> Seyyed Hossein Nasr

Nasr's discussion of the traditional sciences seeks to dispel the notion that the history of science is just about "the progressive accumulation of techniques and the refinement of quantitative methods in the study of nature."[2] He thus by highlights the radical difference in philosophical foundations of Islamic science from those of modern science. By the same token, he implicitly refutes the unqualified assertions by modernist and fundamentalist Muslims that Islamic science laid the groundwork for modern science.

In this chapter, our purpose is *not* to recount the considerable Muslim contributions in the sciences which, seen from the perspective of their modern counterparts, are valued only for their quantitative aspects. Our goal here is to highlight the foundational role of the Islamic perennial principles in the traditional sciences. To achieve this objective, we will rely heavily on Nasr's *An Introduction to Islamic Cosmological Doctrines*[3] and *Science and Civilization in Islam* because the presentations of Islamic cosmological doctrines as well as the qualitative aspects of Islamic traditional sciences in these books remain to this day the most extensive and well-documented. In addition, we will use the works of the few other scholars such as Osman Bakar, William Chittick, Syed Nomanul Haq and Muzaffar Iqbal who have written, though not nearly as extensively, on the qualitative aspects of Islamic traditional sciences.

Most importantly, our goal is to underline the principle of *tawhīd* as the central and overarching perspective and objective of the traditional Islamic sciences. Also, we will briefly discuss how, according to Nasr, both the classification of the sciences in the Islamic intellectual tradition and the multidisciplinary expertise of Muslim scientists reflect the significance of the perennial principles in the traditional Islamic way of pursuing knowledge. We will fulfil our objective through brief presentations of the role of the perennial principles — the most important being *tawhīd* — in the following areas:

1. Traditional Islamic sciences

2. Classification of sciences in Islam
3. Multi-disciplinary expertise of Muslim scientists

5.1 TRADITIONAL ISLAMIC SCIENCES

The most influential metaphysical vision of the cosmos in the Islamic tradition is that of Ibn ‘Arabī.[4] It was being articulated around the same time as the fading away of the most intensive period of scientific activity which had been taking place in the Islamic world had began. Nasr points out that the principles of *tawhīd*, the hierarchy of reality, and the purposefulness of the universe, were already central to Islamic Peripatetic natural philosophy and the traditional sciences closely associated with it, though not as they are elaborated in Ibn ‘Arabī’s metaphysics discussed in chapter 2: “It is meaningful to speak of traditional science as a knowledge which, while *not* pure metaphysics, is traditional, that is, related to metaphysical principles.”[5]

As we will see, the principle of *tawhīd* in the traditional sciences is generally conveyed in the sense of unity of the origin as God or the Supreme Intelligence which is then reflected also in the vision of the unicity, that is, the interrelated wholeness of the cosmos, and not as *wahdat al-wujūd* (Unity of Being).[6] Then, the principle of the hierarchy of reality refers to the hierarchy of planetary spheres, angels, and the Intellect (*‘aql*), and not as levels of divine presence and Self-disclosures of God.[7] The meaning or purpose of any entity lay in its function in the cosmic unicity as determined by God, and not in its being His Self-disclosure. Nevertheless, the principles of traditional Islamic sciences can be seen as imperfect reflections of the Islamic metaphysical principles of unity of reality, hierarchy of reality, and purposefulness.

In modern times, many scholars argue that Greek sources constitute the cosmological foundation of Islamic sciences. However, as will see, the points of concurrence between these cosmologies and the principles of Islam are conspicuously left out of discussion. Seeking to fill this vacuum, Nasr contends that “Islamic science is not Islamic simply because it was cultivated by Muslims but because it is related to the principles of Islam.”[8]

Muzaffar Iqbal, one of the leading scholars of the history of Islamic science today, has provided a sound rebuttal of the Hungarian orientalist Ignaz Goldziher’s (1850–1921) hypothesis in a 1916 essay[9] that the Islamic sciences ought to be considered as “foreign sciences” that were rejected by the normative Islam of the medieval times. Iqbal contends that Goldziher’s hypothesis, which has been immensely influential in shaping scholarly opinion ever since its publication, was misleading for mainly two reasons: 1) a mistranslation of the term *‘ilm* (knowledge) as “foreign sciences” in a prophetic *hadīth* that urges people to avoid useless *‘ilm* and the unsubstantiated claim of frequent use of the *hadīth* by Muslim scholars to dissuade the public from pursuing those sciences;[10] 2) Whereas Greco-Alexandrian sciences were naturalized by the Islamic civilization, which was trying to live by its

principles through an “organic process that examined and re-examined [any non-Islamic] material from various angles,”[11] the slow pace of such a naturalization process, Iqbal argues, was misinterpreted by Goldziher as a sign of Islamic *opposition* to these sciences.

Among contemporary scholars of Islam a notable critic of the whole notion of Islamic science is Dimitri Gutas.[12] His main argument is that “there is no such thing as a monolithic, essential “Islam” which can be seen as the historical agent” for the development of Islamic science.[13] This is a misleading assertion because Islam is founded on a particular revelation, the teachings of a particular prophet (peace be upon him) and above all on certain ahistorical principles such as the unity of God, hierarchy of reality and beginning and the end of the world in God. Differences in interpretation of the Qur’ān and the sayings of the Prophet Muhammad (peace be upon him) did not include denying the Qur’ān as God’s revelation or the Prophet as God’s Messenger. Moreover, the differences among Muslims did not include denial of the aforementioned ahistorical metaphysical principles which, as we will see, the various Islamic sciences were mindful of. We may say that Gutas has a positivist outlook that ignores traditional metaphysical principles and their relevance altogether. However, the foundational role of metaphysical principles in the traditional sciences, as illustrated in this chapter, should suffice to put the arguments of the likes of Gutas to rest.[14]

The Qur’ān declares that every nation on earth had been sent Messengers with the message of *tawhīd* by the one and the same God.[15] So long as visions from a non-Muslim civilization were rooted in a unitary vision of reality they were seen to convey some essential truth and could be integrated with some modifications within the Islamic worldview.[16] Hinting at the quest for knowledge relevant to Islamic principles as the motivating factor for Muslim interest in non-Islamic sciences, Nasr argues that “The Muslims had no military, economic or political compulsion to study Aristotle or Indian medicine. They already possessed perhaps the most powerful empire on earth. Nor could turning to these sciences have been merely utilitarian.”[17] Rather, Islam’s “confidence that it was expressing the Truth at the heart of revelations, permitted Islam to absorb ideas from many sources…This was especially true in regard to the sciences of nature, because most of the ancient cosmological sciences had sought to express the unity of nature.”[18] Evidently, for Nasr, even when Muslims borrowed symbols and concepts from the cosmological systems of the Greeks or the Persians, the synthesis they produced was essentially Islamic. The Islamic intellectual tradition did integrate much from the teachings of Pythagoras, Plato, Aristotle, Hippocrates and Galen, but Nasr argues that this was mainly because of the fundamental resonance of the Islamic worldview with theirs. To be sure, Nasr points out, Islam rejected “other schools of Greek thought, such as [those of] the Epicurean or the Sophists,”[19] whose worldview clashed in foundational ways with that of Islam.

With Nasr’s arguments in mind, we will briefly discuss five of the most well known

Islamic traditional sciences. We will begin with a discussion of traditional Islamic cosmology which Nasr has called, “the mother or matrix of all sciences.”[20] This is because traditional cosmology — as opposed to modern scientific cosmology which is solely concerned with the material dimension of the cosmos[21] — defines one’s outlook of *all* levels of reality in the cosmos which Islamic sciences are concerned with.[22]

The other four traditional sciences that we will discuss are mathematics, astronomy, alchemy, and medicine. Our main objective is *not* to prove how specific conclusions in these traditional sciences were based on Islamic doctrines. Rather we will analyze how the traditional sciences shared the three perennial principles of Islam for reality as such — unity of reality, hierarchy of reality, and ultimate meaningfulness or purposefulness of the cosmos — closely.

5.1.1 Islamic Cosmology

For most people in the pre-modern world, the Qur’ān and the *Hadīth* alone provided a sufficient basis to form a general Islamic cosmology or worldview in mind. Moreover, a number of scholarly and popular cosmologies that were solely based on the Qur’ān and the *Hadīth* were developed. As Nasr observes, “The Qur’ān speaks of the seven earths and seven heavens, of the Divine Pedestal (*kursī*) and the Throne *(‘arsh*), of the cosmic mountain *Qāf*, and the cosmic tree, all of which became important elements of Islamic cosmology.”[23] The Throne verse (2:255) and the Light verse (24:35) were especially subject to cosmological interpretation.[24]

However, since the eighth-century, Muslims had been in contact with Greco-Alexandrian science and cosmology. The already existing resonance between these cosmologies and the perennial principles of Islam led Muslims to modify them in ways that gave them a specifically Islamic character. The most notable attempts were made first, by Abū Yūsuf al-Kindī (801–873), followed by his eminent successors Abū Naṣr al-Fārābī (890–950) and Abū ‘Alī al-Hussain Ibn Sīnā (980–1037). To the degree that Muslims modified the Greco-Alexandrian cosmologies, Muslims sought to modify the Greco-Alexandrian sciences as well, and in effect, produced what we know as Islamic sciences. Thus, Islamic cosmologies associated with traditional Islamic sciences in the Middle Ages had more in common with the Greco-Alexandrian cosmologies than with cosmologies based on the Qur’ān and *Hadīth*. The cosmology conceived by Ibn Sīnā was the culmination of the attempt by Islamic Peripatetic philosophers to develop a cosmology in harmony with Islamic perennial principles. Its tremendous influence in Islamic thought and traditional sciences cannot be overemphasized, and thus a brief look at its metaphysical assumptions is important.

5*.1.1a Ibn Sīnā’s Cosmology*

Ibn Sīnā makes a philosophical distinction between God as Necessary Being

(*wājib al- wujūd*)[25] and all that is not God as contingent beings (*mumkin al-wujūd*), a distinction that conforms closely with the general Islamic principle that all things are utterly dependent on God who alone is independent. Following Aristotle, Ibn Sīnā defines the 'sub-lunar' region as the world of corruption and what is above it as the heaven of perfection. In his cosmological vision, there is a hierarchy of Intelligences or Intellects — also identified as Archangels — by which God creates the rest of the universe. As the Necessary Being contemplates Itself, the First Intellect, also identified as the Supreme Archangel through which God creates everything, is created. [26] Each Intellect emanates from the one above it, from the First Intellect above the First Heaven down to the Tenth Intellect or the Active Intellect. This 'Active Intellect' is seen as the Archangel Gabriel who had conveyed the Qur'ān to the Prophet Muhammad and is at the ninth heavenly sphere corresponding to the Moon. The Fourth Intellect and Third Heaven onward each descending sphere corresponds also to one of the seven planets known at the time, namely Saturn, Jupiter, Mars, Sun, Venus, Mercury and the Moon. The Tenth Intellect is the Active Intellect which contains the intelligible realities or 'forms' of all entities in the sub-lunar region of imperfect world.[27] In addition, the generations from each of the Intellects result from love (*'ishq*).[28] In turn, as Nasr points out, this cosmological vision is marked by an intense love for the Necessary Being inherent in all the bodies of the universe such that "love is the moving force of the universe." [29] It is this love for the Necessary Being that gradually actualizes the potential of each entity.

5*.1.1b Generation of the Four Fundamental Qualities and the Unicity of the Cosmos*

In Ibn Sīnā's cosmology, by Divine Command the heavenly Intellects created the four fundamental qualities of heat, cold, dryness, and humidity. [30] From these fundamental qualities four fundamental elements of earth, fire, air and water were created which in turn, became bodies receptive of mineral souls, plant souls, animal souls or human souls with rational power, according to the degree of perfection in the mixing of the four elements.[31] Thus, Ibn Sīnā's cosmogenesis provides a vision wherein God is at the origin of all levels of creation. As such, for Ibn Sīnā the earthly domain "mirrors heavenly perfection" and is therefore full of meaning and purpose.[32] Also, the levels of creation are interrelated in that they are all constituted from the same four elements essentially originating in God. This vision of unicity is the theoretical basis of various traditional sciences, especially, Islamic medicine and alchemy.

According to Peter Heath, a distinguished scholar of Ibn Sīnā, "Avicenna's cosmology rests upon several fundamental assumptions. The philosopher postulates that the cosmos is a unified whole…that is arranged in a highly orderly and seamless system (a hierarchic multiplicity) that is real, true, and eternal."[33] Heath emphasizes its Neoplatonic and Aristotelian character.[34] Certainly, the idea of the Intellect

emerging from God resembles the Neoplatonic vision of the Intellect emanating from the First Cause,[35] and of the universe emerging from that Intellect. Likewise, several other fundamental elements of Ibn Sīnā's cosmology are Aristotelian-based.[36] Certainly, this cosmological vision says nothing about the creation story found both in the Genesis and the Qur'ān.

On the other hand, there is the well-known prophetic *hadīth*, "The first thing God created was the Intellect," and God is described in the Qur'ān as the All-Encompassing(*al-Muhīt*), the All-Knowing (*al-'Ālīm*), the One (*al-Ahad*) and the Real (*al-Haqq*) who is *The First and the Last*.[37] In addition, the Qur'ān speaks of seven heavens placed in a hierarchical order, of angels carrying out God's command, and of the mutual love between God and His creation.[38] While Ibn Sīnā's cosmology has many a similarity with that of Aristotle, his idea of the Necessary Being is bound to the created order by mutual love and thus, radically differs from Aristotle's vision of God.[39] And while Ibn Sīnā and the Neoplatonists both share the concept of emanation, for Ibn Sīnā, the emanation does not happen unless God wills it.[40] Thus, in light of the above discussion, we can conclude that Ibn Sīnā's cosmology is a rational attempt to conceptualize all domains of existence as being in harmony with fundamental Islamic metaphysical doctrines of reality as such: the unity of reality, the hierarchy of reality, and the ultimate meaningfulness or purposefulness of the cosmos.

5.1.1c Cosmology as a Road-Map for Spiritual Orientation and Journey

Nasr suggests that cosmology is like a road-map for spiritual progress, something which is clearly affirmed by Ibn Sīnā in his two successive visionary recitals, *Hayy Ibn Yaqzān* ('Living son of the Awake') and *Risālat al-ṭair* ('Recital of the Bird') where Ibn Sīnā portrays the hierarchy of reality in the cosmos specifically as many steps in a seeker's journey to God.[41] Indeed, for Henry Corbin, the foremost commentator on Ibn Sīnā's visionary recitals in the West, the recitals were expressions of the philosopher's direct experience of his own inner world, which he had not been consciously aware of beforehand. Ibn Sīnā's philosophical system, Corbin believes, was only an outer reflection of that inner world.[42]

In *Hayy Ibn Yaqzān,* the journey begins only after the orientation provided by the Active Intellect[43] in the form of Archangel Gabriel is able to sufficiently transform the seeker's consciousness, thus enabling him to see the whole cosmos qualitatively, with the seven celestial spheres as hierarchically placed stations of knowledge and realizations, on the way to the presence of God beyond the ninth heaven of fixed Zodiac stars.[44] Along the way, the seeker internalizes the wisdom that each sphere offers.[45] Inwardly and on the earthly plane, this would also involve traversing the material, mineral, plant, animal kingdoms[46] and finally overcoming reliance on the senses and indulgence in lower passions inherent in the human state, before the seeker can reach the angelic realms.[47] The orientation provides the seeker with a

transformed consciousness, to be like the bird in *Risālat al-ṭair* which has the ability fly into the heavenly realms above. The celestial journey through the nine spheres is now symbolized by a terrestrial journey through the natural world with nine hierarchic mountain tops, symbolizing the stations of knowledge and realizations on the path God.[48] The inward journey is also a journey of the human intellect in its phases of actualization of its potential as we see in Ibn Sīnā's interpretation of the Light verse of the Qur'ān.[49]

Nasr argues that the symbolic nature of the visible cosmos does not alter by greater knowledge of the physical domain because the relation between the symbol and the symbolized is between their qualitative essences, not their material conditions.[50] For instance, as Nasr states, in the Qur'ān the Prophet Abraham is mentioned to have wondered if the stars, moon or the sun,[51] and not some earthly entity, could be his Lord only because the "celestial, no matter how much we reduce it to intergalactic gas and so forth, is a symbol of the spiritual world."[52] Furthermore, according to the metaphysics of the relationship between different planes of reality, greater knowledge of the material and quantitative type does not alter the reality of the higher planes.[53]

5.1.2 Other Traditional Sciences

The four other traditional Islamic sciences, namely mathematics, astronomy, alchemy, and medicine also have much in common with the sciences developed in the Greco-Alexandrian tradition. But as with the cosmological scheme we discussed above, they were sufficiently Islamized to embody a fundamentally Islamic worldview.

5.1.2a Mathematics

The qualitative or symbolic understanding of numbers in Islam can be traced to the Qur'ān and the *Hadīth*.[54] The symbolism of numbers began to manifest in the sciences starting with the science of the alphabet associated with Ja'far al-Ṣādiq (d.765), the influential Sufi master.[55] While the quantitative aspects of numbers are necessary for the quantitative analysis of multiplicity, the symbolism is essential to relate qualitative aspects. As Nasr has observed, "Unity[of Reality]…can only be symbolized."[56]

Nasr draws attention to the symbolic view of numbers manifested most extensively in the natural philosophy of the *Ikhwān al-Ṣafā* (Brotherhood of Purity), a group of Muslim mystics in the tenth-century who were inspired by the Pythagorean symbolism of numbers. For the *Ikhwān*, numbers provided the key to understanding the unitarian perspective of *tawhīd* in the seeming multiplicity of entities in the cosmos. In their view, the number '1' was symbolic of the Creator. Since all other numbers can be seen as so many additions of '1,' for the *Ikhwān*, they were seen as symbols of

various entities in the natural world manifested by God, the One (*al-Ahad*).[57] Thus, the *Ikhwān* envisioned a cosmos defined by the symbolism of numbers and their interrelationships. In addition to the fundamental agreements with the principles of unity, hierarchy, and meaningfulness or purposefulness, the *Ikhwān's* view of the cosmos adhered to other characteristics of the Islamic worldview.[58]

The symbolic dimension of numbers has survived through Islamic geometric art[59] both in plastic forms and through great architectural wonders like the Alhambra and the Taj Mahal.[60] It is not likely that the Muslim mathematicians who made immense contribution to the field of mathematics in the middle ages remained impervious to the symbolic aspect of numbers. Nasr cites the celebrated Sufi poet and mathematician 'Umar Khayyām (1048–1131) and his works on geometry and algebra. Khayyām preserves "the relation between the unknowns, numbers and geometrical forms, thereby maintaining the link between mathematics and the metaphysical significance inherent in Euclidean geometry."[61] Similarly, Osman Bakar cites the evident restraints in Khayyām and Naṣīr al-Dīn al-Ṭūsī's (1201–74) efforts to prove Euclid's fifth postulate, in spite of their immense skill and power of imagination, so as not to violate the boundary of the Euclidean universe which had a symbolic metaphysical value.[62]

5.1.2b Astronomy

Muslim astronomers were thinking within the framework of the Peripatetic cosmology we discussed above. For the medieval Muslim astronomers, the planets and the stars belonged to the realm of the heavens, incorruptible and closest to the pure essence of God. So the study of the positions, sizes, and motions of the planets and stars was also a study of the heavens, and therefore, considered a most noble preoccupation.[63] They did not study the heavenly bodies as inanimate masses in space, as in modern astronomy, but as entities in heaven possessing intelligences.

The view that Islamic astronomy was shaped by the Islamic world view is completely rejected by George Saliba, the leading historian of Islamic astronomy today. [64] However, as Saliba himself admits, his rejection is shaped partly by an understanding of Islamic scientific history that favors "modern development."[65] Moreover, as we will see next, he makes certain observations which, in our view, betray his conclusion.

Ptolemy in his *Almagest* sought to provide an account of the planetary motions as observed from the earth that would also conform to the Aristotelian cosmology. Saliba recounts faithfully how Muslim astronomers from the ninth-century onward found Ptolemy's mathematical models inadequate and introduced a series of increasingly sophisticated mathematical models of their own to better account for the observed patterns of planetary movements. These contributions eventually resulted in the works of 'Ala al-Dīn Ibn al-Shāṭir (d.1375) — a time keeper of the daily prayers at

the Ummayad mosque in Damascus — whose lunar model was critical for Copernicus's formulation of the heliocentric model of the universe two centuries later.[66] However, to explain the failure of Muslim astronomers to discover the heliocentric model, Saliba observes that "The Islamic civilization did not seem to have produced a rigorous astronomical criticism of the type that would have questioned the *natural philosophical foundations* of the Greek astronomy themselves."[67]

In other words, Muslim astronomers were unhappy with Ptolemy's mathematical models, but in spite of their brilliance, they were content with Aristotle's cosmology which they knew in its Islamicized version of Farabi or Ibn Sīnā.[68] They disagreed with Ptolemy's models for predicting planetary movements but not with the value and meaning contained in the Islamic versions of the geocentric Greco-Alexandrian cosmologies. Besides, the popular and the strictly Qur'ān-and-*Hadīth*-based cosmologies were not only geocentric, but also full of angels as Ibn Sīnā's cosmology was.[69] In fact, Ibn al-Shāṭir (d.1375) himself was a firm believer in the geocentric model of the universe.[70] For Nasr, as in the example where Khayyām remained within the bounds of the traditional worldview,[71] the Muslim 'failure' to 'discover' the heliocentric model of the universe was a result of the deep-seated vision of the hierarchy of knowledge and existence which Islamic civilization sought to maintain in order to facilitate spiritual growth.[72] Likewise, Philip Sherrard, the renowned Orthodox theologian, offered a very similar explanation for the slow pace of scientific progress in the Europe of the Middle Ages. [73] Indeed, Neil Postman (d. 2003), one of the leading critics of modern technology, observed that in the pre-modern society "Theology, not technology, provided people with authorization for what to think … making it almost impossible for techniques to subordinate people to its own needs."[74]

5.1.2c Alchemy

In Nasr's view, although modern science tends to consider alchemy as the precursor to modern chemistry, it is only the purely physical aspect of alchemy, and not its underlying goal of spiritual transformation, which can be linked to the subject of modern chemistry today.[75] Nasr is not alone in seeing modern chemistry as a subset of alchemy. Acording to Alisha Rankin, a noted historian of early modern science, "The emphasis on empiricism and experiment in the study of alchemy had become ingrained by the late seventeenth-century [Europe] …. In this manner [modern] chemistry slowly found itself an existence of its own, detached from its historical origins *as a subset* of alchemy."[76] According to Nasr, while alchemy as a systemized discipline began in Alexandria, its view of the unicity and sanctity of the cosmos,[77] and the identification of Hermes as the Prophet Idris,[78] all contributed to its integration in the Islamic inner tradition earlier than many other sciences.[79]

In Alexandrian alchemy, metals were regarded as coagulation of the four

fundamental elements, namely, fire, air, water, and earth, proportionate to the influences of the seven planets. Indeed, astrological symbols for planets were also used to represent seven metals used in antiquity: lead for Saturn, tin for Jupiter, iron for Mars, gold for Sun, copper for Venus, quicksilver for Mercury, and silver for Moon. Aristotelian hylomorphism[80] was already part and parcel of alchemy. Thus, alchemy was a way of relating to the world of nature in terms of its essential elements and as a reflection of the heavens. Alchemy within the Islamic world reached its peak in the hands of Jābir ibn Hayyan (d.800), a student of Ja'far al-Ṣādiq, who had introduced a symbolic science of numbers for the Arabic alphabet.[81]

Jābir introduced the vision of the four universal qualities as the origin of four fundamental elements and challenged the prevalent convention of having four degrees for each universal quality. He wanted to make the qualitative measurements more exact and sought to harmonize them with the science of the Arabic alphabet. In Jābir's alchemy each of the 4 universal natures or qualities[82] has 4 degrees with 7 subdivisions such that for each quality there are 4*7=28 parts.[83] Thus, each of the 28 letters of the Arabic alphabet represents a particular qualitative measure of one of the 4 fundamental qualities: dryness, moistness, heat and cold. The proportion of different qualities in a particular metal was determined by numerical values corresponding to the first 4 letters of the Arabic name of the metal in accordance with the science of the alphabet.[84] In effect, according to the leading scholar of Jābir, Syed Nomanul Haq, "[Jābir] simply rejects empiricism in favor of [a] philosophical system of eternal truths which alone, he believes, could serve as the theoretical foundation of scientific knowledge." [85]

The association of letters to numerical values in Jābir's alchemy was partly determined by the ratio 1:3:5:8 related to the Pythagorean harmonic series for music, but which Jābir argued would apply to language as well. This, Jābir suggests, is because language is not accidental but based on "the natural intention of the soul"[86] and because "language and music were governed by the same principles."[87] Thus, we can conclude that alchemy was profoundly affected by a vision of the unicity of nature in terms of the four fundamental qualities, numbers, and the letters of the Arabic alphabet.

Having determined the qualitative proportions for each metal it would then be possible to apply the methods of alchemy in order to transmute metals. At the outer level, alchemy involved stages of dissolution of the base metal followed by coagulation and finally crystallization into its transmuted form. At the inner level, alchemical process symbolized the way of purification and transmutation of the soul. Moreover, according to Nasr, it is only after the transformation of the soul that the alchemist can experience "the power of the Spirit" flow through him, allowing him to perform a metal transmutation.[88] As the German alchemist Cornelius Agrippa (1486–1535) said in paraphrasing Jābir, "No one can excel in the alchemical art without knowing the principles in himself."[89] In fact, many Sufis like Jābir have long been associated with alchemy, which acts as a spiritual aid on the path of their own

spiritual transformation.[90]

5.1.2d Islamic medicine

Traditional Islamic medicine was practiced in a world dominated by faith and piety. Nasr emphasizes that prayer, fasting, and the teachings of the Qur'ān have always been at the heart of Islamic medicine. Islamic medicine upholds the conviction that God alone is *as-Shafi*, the Healer.[91] Nasr also explains that the regular ritual cleaning and dietary restrictions required by the *Sharī'ā* are integral to Islamic medicine.[92] In addition, Islamic medicine speaks of the Prophetic Medicine, a recount of the Prophet Muhammad's health habits, which includes dietary or herbal recommendations for maintenance of health, and cures of certain illnesses. All of this suggests recognition of a higher knowledge in God and His Prophet which can maintain health and cure sickness. However, in discussing the metaphysical background of Islamic medicine, Nasr refers to the systematized medical tradition associated with Ibn Sīnā's cosmology. Moreover, a notable contemporary practitioner of Islamic medicine Muhammad Salim Khan's exposition of Islamic medicine, as it has been practiced for long, suggests that the theories which Muslims had adopted from the Greeks have been so fully integrated within Islam's worldview that the Greek elements are no more obvious.[93]

Ibn Sīnā's theory behind Islamic medicine is contained in his cosmology that concerns the sub-lunar world of generation and corruption. The Divine Command creates four fundamental natures — hot, cold, dry and humid — wherefrom four fundamental elements — earth, water, air and fire — are generated. These four elements combine in certain proportions to produce four basic humors in the human body: black bile, phlegm, yellow bile, and blood.[94] The humors in turn are the main constituents of "simple" members of the body such as flesh, bones, and nerves, and "compound" members such as the hands and the feet. The diagnosis of an illness is thus based on the condition and the harmony among the four humors. The cure lies in using various means for the body and the soul to restore the condition and the harmony among the humors. [95]

Since the world of generation and corruption, ultimately gained its existence from God, the Necessary Being, and since the bodies on earth were composed in various proportions from the same four elements of earth, water, air and fire, which in turn were derived from the four universal qualities, there is a vision of unicity in the manifested order. Islamic physicians see this vision as a reflection of the doctrine of *tawhīd*. As Khan explains, *tawhīd* is "a primordial concept of oneness and unity of all creation…upon which Islamic sciences in general, and medicine in particular, rests."[96]

Yet, in their recent book *Medieval Islamic Medicine*, Peter Pormann and Emille Savage-Smith,[97] conclude that the underlying principles of Islamic medicine were

"secular."[98] At the same time, they acknowledge that Islamic physicians generally "wed philosophy with medicine" [99] and that Ibn Sīnā produced a "much modified and elaborated"[100] medical system from what was inherited from the Greeks and set the tone of Islamic medicine henceforth. In fact, the labelling of the medicinal theories of Hippocrates and Galen as "secular" to suggest that the result was only of human effort must be reconsidered in light of (1) the way it was perceived by aforementioned men of medicine and (2) the intellectual elites of their times: "Some say (craft of medicine) to mankind came through inspiration. The representatives of this theory follow the opinions of Galen, Hippocrates, all the Theorists, and the Greek Poets."[101] This point of view has been shared by major Muslim thinkers.[102] In the same vein, as Nasr demonstrates, in choosing a medical theory embedded in the cosmology, Islamic medicine "sought the principles of medicine in the sciences dealing with the Principle and its manifestations."[103] In Ibn Sīnā's words,

> One must presuppose a knowledge of the accepted principles of the respective sciences of origins, in order to know whether they are worthy of credence or not; and one makes inferences from the other sciences which are logically antecedent to these. In this manner one passes up step by step until one reaches the very beginnings of all knowledge — namely pure philosophy; to wit, metaphysics.[104]

In light of our discussion of Ibn Sīnā's cosmology, if he did not specifically use the term *tawhīd* to portray his vision of the cosmos, that is not a proof that he didn't consider the principle of *tawhīd* in forming his unitary vision of the cosmos. Since the affinity between Ibn Sīnā's cosmology and the doctrine of *tawhīd* has hardly been noticed by contemporary scholars, it is crucial that we consider William Chittick's argument that while most of the philosophers were "well versed in the transmitted religious learning, and some even wrote Qur'ān commentaries and juridical works …. They wanted to develop their own intellectual vision by working out the implications of *tawhīd* in theory and in practice."[105]

In summary, Islamic cosmology and the traditional sciences are highly inter-related. Also, certain elements recur in both in addition to the common basis of the unity of origin and unicity of the cosmos. For instance, the theory of the four fundamental qualities and elements behind the creation of the cosmos found in the alchemy of Jābir Ibn Hayyan is carried forward in the cosmology of Ibn Sīnā as well as in the science of medicine. The symbolic conception of numbers in Jābir's alchemy is seen again in the cosmology of the *Ikhwān* and in Islamic geometric art. Whether in terms of the four universal qualities or in terms of the symbolic meaning of numbers, in traditional Islamic sciences, "the particular knowledge is always related to the whole and the harmony of the parts vis-à-vis the whole is always preserved."[106] As such, "The aim of all the Islamic sciences…is to show the interrelatedness of all that exists, so that, in contemplating the unity of the cosmos, man may be led to the unity of the Divine Principle, of which the unity of Nature is the image."[107] As Osman

Bakar asserts, “In the traditional view, the question of methodology is conceptually inseparable from the ultimate purpose of human cognition, which has to do with the question of the spiritual destiny of man.”[108]

While the observational aspects of the Islamic traditional sciences enabled the emergence of modern sciences, these sciences set the precedent for a scientific tradition that upheld the sense of the sacred by affirming that the origin of the cosmos lay in the transcendent realm, in the Necessary Being, and acknowledged Its effect on the entire cosmos through a hierarchic structure of reality and authority. Thus, in addition to providing for some material need, they were helpful to the human being for meeting his spiritual needs as well.[109] As such, traditional sciences were not “purely utilitarian in the modern sense.”[110]

Nasr dismisses suggestions that he idealizes traditional sciences.[111] Rather, he believes that he draws attention to what were the *prevailing* models of investigation into nature and their philosophical effects on human consciousness in the traditional world: “There is always at the core of the sciences in traditional civilizations an orientation towards the sacred, but there are also here and there purely human speculations or observations of a scientific order in the contemporary sense.”[112]

5.2 CLASSIFICATION OF SCIENCES

Having recognized the unity and the hierarchy of reality, Muslim thinkers and scientists went on to classify the study of different domains of knowledge according to their position in the hierarchic scale as they envisioned it. The main purpose for the classification was to help prioritize the pursuit of knowledge in a manner that is both systematic and holistic. As such, in pursuing any branch of knowledge, the classification provided the seeker a sense of the relation between different domains of knowledge and their limits, as well as, the vision of unity of reality (*tawhīd*).[113] Nasr has illustrated the relationship between the doctrine of *tawhīd* and the classifications as follows: “Starting from …[the] intuition of the unity of various disciplines, the sciences have come to be regarded a so many branches of a single tree, which grows and sends forth leaves and fruit in conformity with the nature of the tree itself.”[114] Further, Muzaffar Iqbal has argued that even though the study of the natural sciences did not have the same spiritual value as the study of the Qur’ān or metaphysics, they were seen as branches of knowledge of the ‘tree’ that grew from the foundation of *tawhīd*.[115] As Chittick maintains, “If the philosophers analyzed the souls of plants, animals, humans, and even angels, and if they described all possibilities of human becoming in ethical terms, their purpose was to integrate everything into the grand, hierarchical vision of *tawhīd*.” [116]

A brief look at the classifications of sciences by two very influential Muslim philosopher-scientists, namely Abu Nasr al-Fārābī (870–950) who marks the early stages of development of Islamic science and philosophy and Quṭb al-Dīn al-Shīrāzī (1236–1311) who appears towards the end of the most intense period Islamic

scientific activity in the pre-modern age can illustrate the general outlook. Their classifications of the sciences reveal both a continuation of the adherence to core objectives, as well as, the effects of greater mystical orientation in Islamic philosophy in the intervening centuries.

Most importantly, the classifications by both al-Fārābī and al-Shīrāzī were based on ontological hierarchy of the subject domains from the terrestrial to the Divine, such that mathematics occupies an intermediate level in the hierarchy between natural sciences below and metaphysics above.[117] The unity of reality is implicit in the very acknowledgement of relations between diverse sciences. In fact, in every traditional Islamic philosopher-scientist's classification there is a hierarchy of order which reflects Ibn Sīnā's conclusion, discussed above, that the knowledge of metaphysics ought to be the ultimate foundation of every branch of science.

5.3 EXAMPLE OF THE TRADITIONAL SCIENTISTS

Nasr argues that since Muslim scientists, philosophers and mystics operated essentially within the same worldview of *tawhīd*, the hierarchy of reality, and ultimate purposefulness of the cosmos, they considered the various sciences to constitute different paths on the central quest to realize *tawhīd*.[118] This consideration, according to Nasr, led most influential philosophers, Sufis, or religious scholars, to pursue one or more branches of science.[119]

For example, before engaging in philosophy, math, and music, Al-Fārābī had been an Islamic judge (*qādī*).[120] He also lived as a Sufi and wrote treatises on astrology, alchemy and dream interpretation.[121] In another example, Ibn Sīnā, was not only a master of Peripatetic philosophy, he was also the most influential person of medicine in Islamic history. Even though he is mostly known as a Peripatetic philosopher, his oriental philosophy exemplified by his later writings has a decisively mystical bent that calls for a way beyond mere rational inquiry into truth. Quṭb al-Dīn Shīrāzī (1236–1311) was an ardent Sufi since his childhood, and studied Ibn Sīnā, Shihāb al-Dīn Suhrawardī (d.1191) and Ibn 'Arabī extensively.[122] In addition, he was not only one of the greatest astronomers,[123] but he retained a lifelong passion for the science of medicine and wrote a famous commentary on Ibn Sīnā's *Canon of Medicine*.[124] Moreover, it is believed that Suhrawardī's *Hikmat al-Ishrāq* (*Theosophy of the Orient of Light*) on which he wrote a popular commentary, influenced his work on optics, a neglected science which he had revived.[125]

Abū Raihān al-Birūni (973–1051) the great mathematician, astronomer, astrologist, and historian, was a devout Muslim. Though not inclined to Sufism, his approach to nature was similar to what we now associate only with Sufis. For instance, he viewed the sensible cosmos as means of knowledge about God: "Sight," he contends, "connects what we see to the signs of Divine Wisdom in creatures and demonstrates the being of the Creator from his creation."[126] Moreover, al-Birūni states that the two sense organs that are involved the most in conveying sensory

data are the eyes and ears which are connected to the heart. [127] As such, he suggests that the senses alone are not sufficient to perceive the signs of God but require also the perception by the heart.

Nasr explicates how al-Birūni's deep faith in Islam affected his conclusions about the corporeal world.[128] It is also clear that al-Birūni used strict logic and observations to refute commonly-held ideas, some of which were conclusions arrived at by Aristotle.[129] Nasr concludes that in al-Biruni's view, the role of reason "lay in leading naturally to the Transcendent Cause of all things. We see again and again in his study of mathematics, geography, or astronomy how the most technical mathematical discussion or rational discourse leads naturally to the affirmation of some attribute of the Creator."[130]

5.4 CHAPTER SUMMARY

In summary, it can be conclusively demonstrated that the pursuit of science in the traditional Islamic world, as Nasr contends, were essentially carried out within a worldview defined by the principles of the unicity of the cosmos, of a hierarchy of reality, and of purposefulness of the cosmos, principles very closely related to the metaphysical principles of Islam.

As the destructive effects of modern science on the natural environment are beginning to be seriously felt, traditional Islamic science, according to Nasr, serves as an inspiration for a grand new Islamic science that he envisions within the framework of a natural philosophy akin to the metaphysics of nature discussed in Chapter 2. As such, Nasr envisions an Islamic science much more in harmony with the Qur'ān and the *Hadīth* than even the traditional sciences based on natural philosophies of Islamic Peripatetic philosophers were.[131] As we will see in the next two chapters, the need to base a new science on pure metaphysics, one that can relate the nature of reality in all domains of existence, is necessitated by the problem that scientism poses in relying on modern science only for objective knowledge of the universe.

NOTES

1. Nasr, *Need for a Sacred Science*, p. 136.
2. Nasr, *Science and Civilization in Islam*, p. 21
3. Nasr, *An Introduction to Islamic Cosmological Doctrines* (1964).
4. See Introduction 0.8.1 and Chapter 2.2.
5. Nasr, *Need for a Sacred Science*, p. 95. (accent ours)
6. Chapter 2.2.1b.
7. Chapter 2.2.1a.
8. Nasr, *Science and Civilization in Islam*, xv.
9. See Ignaz Goldziher, "The Attitude of Orthodox Islam Toward the Ancient Sciences," in *Studies in Islam,* trans. and ed. M. L. Swartz (New York: Oxford University Press, 1981).
10. Iqbal, *Islam and Science*, pp. 76–81.
11. Ibid., p. 82.
12. See Dimitri Gutas, "Islam and Science: A False Statement of the Problem," *Islam & Science,* Vol 1 (December 2003) No. 2, pp. 215–220.
13. Ibid., p. 216.
14. See Muzaffar Iqbal's rebuttal of Dimitri Gutas in Muzaffar Iqbal, "Islam and Science: Responding to a False Approach," *Islam and Science*, Vol. 1 (December 2003) No. 2, pp. 221–237.
15. Q. 10:47; 4:164; 21:25; 14:4; 16:36.
16. According to Abu al-Faraj al-Nadim (d. 987), Caliph al-Mamun (r. 813–833) had a dream of Aristotle in which the Greek sage instructed him to "be sure to follow

tawhīd" following which al-Mamun sent experienced members of the House of Wisdom to the king of Byzantium to *select* which books to translate. See George Saliba, *Islamic Science and the Making of the European Renaissance* (Cambridge, MA: The MIT Press, 2007), p. 48.
17. Nasr, *Traditional Islam in the Modern World*, p. 130.
18. Nasr, *Science and Civilization in Islam*, p. 30.
19. Seyyed Hossein Nasr, *Islamic Science: An Illustrated Study* (World of Islam Festival Publishing Company, 1976), p. 159. "The Greek texts that were translated into Arabic simply enforced some pre-selected directions." Saliba, *Islamic Science and the Making of the European Renaissance*, p. 125.
20. Nasr, *Need for a Sacred Science*, p. 99.
21. See, for instance, Steven Weinberg, *Cosmology* (Oxford and New York: Oxford University Press, 2008), pp. v–vi.
22. For a general discussion of traditional cosmology and worldview, and their significance in Nasr's approach, see Introduction 0.6.2.
23. Nasr, *Science and Civilization in Islam*, p. 95.
24. One of the most influential cosmological schemes has been Abū Hāmid al-Ghazzālī's abstraction of an Islamic cosmology based on the Light verse in his *Mishkāt al-anwār* (The Niche of Lights). Nasr points out that al-Fārābī, Ibn Sīnā and Mulla Sadra also provided commentaries on the Light verse. For Ibn Sīnā's cosmological interpretation of the same verse, see Nasr, *Science and Civilization in Islam,* p. 96. Also, see some verses related to the order of creation, the hierarchy of the heavens, and the function of the stars: Q. 7:54–56, 25:59, 2:29, 67:5, 6:97, 39.5.
25. The 'Necessary Being' is that which must exist because if it did not there would be a logical contradiction.
26. On the hierarchical order of generation of the Intellects from the Necessary Being, see Seyyed Hossein Nasr, "Cosmology," in *Different Aspects of Islamic Culture* (Part I), ed. A.Y. al-Hassan (Paris: UNESCO Publishing, 2001), pp. 367–371; Peter Heath, *Allegory and Philosophy in Avicenna* (Philadelphia: University of Pennsylvania Press, 1992), pp. 38–39.
27. Here 'form' refers to the Aristotelian essence of any entity which when combined with 'matter,' — a pure potentiality — brings about the corporeal existence of that entity.
28. Heath, *Allegory and Philosophy in Avicenna,* p. 39.
29. Nasr, "*Cosmology*," p. 370.
30. Nasr, *Introduction to Islamic Cosmological Doctrines*, p. 206.
31. Ibid., pp. 206–207.
32. Attilio Petruccioli, "Nature in Islamic Urbanism: The Garden in Practice and in Metaphor," in *Islam and Ecology: A Bestowed Trust,* eds. Richard C. Foltz, Frederick M. Denny, and Azizan Baharuddin (Cambridge, MA: Harvard University Press, 2003), p. 500.
33. Heath, *Allegory and Philosophy in Avicenna,* p. 39.
34. For Heath, the foundation of Ibn Sīnā's cosmology was "the tradition of

philosophical discourse inherited from the late Hellenistic synthesis of late Aristotelianism and Neoplatonism, as worked out in Alexandria into Muslim culture." See Heath, *Allegory and Philosophy in Avicenna,* p. 156.
35. For a discussion of Neoplatonic philosopher Plotinus's vision of the relationship between the Intellect and the One or the First Cause, see Georgios Lekkas, "Plotinus: Towards an Ontology of Likeness (On the One and the Nous)," *International Journal of Philosophical Studies,* vol. 13(1), pp. 53–68.
36. "Ibn Sīnā envisioned the cosmos in an Aristotelian manner, used his terminology (form, matter, accidents), and defined change as the passage from potency to act." Muzaffar Iqbal, *Science and Islam* (Westport, CT and London: Greenwood Press, 2007), p. 87.
37. Q. 4:126, 2:224, 22:6, 57:3.
38. Q. 2:29, 16:50, 5:59.
39. As the distinguished historian Edward Grant has observed, in the purely Aristotelian cosmology, "God has no knowledge of our world's existence, but is wholly absorbed in thinking about himself." Edward Grant, *Science and Religion: 400 BC – AD 1550* (Baltimore, MD: The Johns Hopkins University Press, 2004), p. 43.
40. "And this thing [what emanates from the principle] is that which is willed .... He is the willer of his essence." Avicenna, *Metaphysics* VIII.7, 366 line 12 quoted in Rahim Acar, "Avicenna's position concerning the Basis of the Divine Creative Action," *The Muslim World*, Vol. 94, January 2004, p. 68.
41. Nasr, *Introduction to Islamic Cosmological Doctrines*, pp. 263–274. An analogy can be drawn to the traditional accounts of the Night Journey of the Prophet Muhammad through different heavenly planes where he meets the previous prophets, before he reaches the Divine Presence.
42. Henry Corbin, *Avicenna and the Visionary Recital*, trans. Willard R. Trask (New York: Pantheon Books Inc., 1960), p. 8.
43. In Ibn Sīnā's cosmology, the Active Intellect — personified by the Archangel Gabriel — is the Intellect at the lowest level of the celestial realm. It serves as the source of all the intelligible essences of entities on the earthly plane and as the means to higher realms of knowledge for the human being.
44. Ibn Sīnā, "Recital of *Hayy ibn Yaqzan*," in Henry Corbin, *Avicenna and the Visionary Recital*, trans. Willard R. Trask (London: Routledge & Kegan Paul, 1960), pp. 143–145.
45. Corbin, *Avicenna and the Visionary Recital*, p. 33; Peter Heath does not see the recitals as Ibn Sīnā's own spiritual experience but as allegories representing a spiritual journey through the philosopher's rationally-structured cosmology. See Heath, *Allegory and Philosophy in Avicenna,* p. 48.
46. Ibn Sīnā, "Recital of *Hayy ibn Yaqzan*," p. 145. For Ibn Sīnā the human soul subsumes qualities of the mineral, plant, and animal souls.
47. Ibid., pp. 146–149. Ibn Sīnā elucidates the inner path with a description of nine steps in his *Remarks and Admonitions* that appears to correspond with the journey through nine celestial spheres. See Ibn Sīnā, *Remarks and Admonitions*, Part Four,

trans. Shams Inati in *Ibn Sīnā and Mysticism: Remarks and Admonitions: Part Four* (London: Kegan Paul International, 1996), pp. 86–88.
48. Ibn Sīnā, “Translation of the Recital of the Bird,” in Henry Corbin, *Avicenna and the Visionary Recital,* trans. Willard R. Trask (New York: Pantheon Books Inc., 1960), pp. 189–191.
49. Ibn Sīnā, *The Book of Directives and Remarks*, translated and quoted in Nasr, *Science and Civilization in Islam*, p. 96.
50. Seyyed Hossein Nasr, “Traditional Cosmology and Modern Science: Interview with Seyyed Hossein Nasr,” in *Parabola*, Vol. 8.4, pp. 109–110. “The angels have diverse levels in their luminosity. Hence, in their similitude with the visible world, it is appropriate for their world to be the sun, the moon, and the stars.” Al-Ghazzali, *The Niche of Lights*, p. 27.
51. Q. 6:76–79.
52. Nasr, “Traditional Cosmology and Modern Science, 110–111. Likewise, Nasr affirms that the masculine and feminine qualities of every dimension of the cosmos, visible and invisible, are also symbolized by the two visible bodies, the sun and the moon. Lest we take the symbolism lightly, Nasr asks, “Do you ever wonder why we don’t have three of these bodies, and how different human existence would have been if we did?” Ibid., p. 111.
53. See Chapter 2.2.2. As Titus Burckhardt — one of the foremost traditionalist thinkers of the twentieth-century observed, “The medieval man, who saw the heavens as concentric spheres extending from the earth (viewed as the centre) to the limitless sphere of the Divine Spirit, were no doubt mistaken regarding the true disposition and proportions of the sensible universe. On the other hand, they were fully conscious of the fact — infinitely more important — that this corporeal world is not the whole of reality, and that it is as if surrounded and pervaded by a reality, both greater and more subtle, that in its turn is contained in the Spirit.” Titus Burckhardt, “Traditional Cosmology and Modern Science,” in *Mirror of the Intellect: Essays on Traditional Science and Sacred Art*, trans. and ed. William Stoddart (Cambridge, England: Quinta Essentia, 1987), p. 31.
54. Annemarie Schimmel, *Deciphering the Signs of God: A Phenomenological Approach to Islam* (Albany, NY: State University of New York Press, 1994), pp. 76–83. Also see the Q. 74:30; 12:4; 13:3; 89; 3; 90; 8; 7:54; 69:17; 17:44; 15:87.
55. Ja‘far al-Ṣādiq assigned a mystical symbolic numerical value to each of the Arabic alphabet to derive from them meanings of words, names and verses. See John Eberley, *Al-Kimia: The mystical Islamic Essence of the Sacred Art of Alchemy* (Hillsdale, NY: Sophia Perennis, 2004), p. 13; According to the traditional science of the alphabet (*ilm al-huruf*), the letters of the Arabic alphabet represent universal archetypes because the Qur’ān is like a mirror of the cosmos, reflecting the signs (*āyāt*) of God. The letters provide the keys to the Qur’ān and to the cosmos. See pp. 106–107.
56. Nasr, *Science and Civilization in Islam*, p. 25.
57. See *Ikhwān al-Ṣafā* quoted in Nasr, *Science and Civilization in Islam*, p. 155.

58. The *Ikhwān* rejects Aristotelian view of the eternity of the cosmos. The Intellect itself does its creative work "with the permission of Allah." The *Ikhwān* uses the Qur'ānic symbols of *kursi* (pedestal) and *'arsh* (throne) to refer to the heaven of the fixed stars and the ninth heaven of their cosmology respectively. The Zodiac is located in the outermost sphere of the heaven or *Muhit* which Muslims added to the Ptolemaic cosmology. The angels that fill the Islamic universe move the planets and make the heavens beautiful. Nasr, *Introduction to Islamic Cosmological Doctrines*, pp. 76, 81–82.
59. Nasr, *Islamic Art and Spirituality*, pp. 7–8. For extensive discussion on the symbolic meaning of Islamic geometric art, see Keith Critchlow, *Islamic Patterns: an Analytical and Cosmological Approach* (Rochester, VT: Inner Traditions International, 1999); Keith Critchlow*, Order in Space* (New York: Thames and Hudson Inc., 1969).
60. For a discussion on symbolism of numbers and their geometric representations in Islamic architecture, as well as cosmological symbolism in the mosques, see Nasr, *Islamic Art and Spirituality*, 40–41; Nader Ardalan and Laleh Bakhtiar, The *Sense of Unity* (Chicago: The University of Chicago Press, 1973); The abstract nature of mathematics, as the distinguished scholar of Islamic philosophy Oliver Leaman observes, "provided [Muslims] a fitting texture of symbols for the universe — symbols that were keys to open the cosmic text." Oliver Leaman, "In search of Tradition: Islamic Art and Science in the thought of Seyyed Hossein Nasr," in *Beacon of Knowledge: Essays in Honor of Seyyed Hossein Nasr*, ed. Mohammad H. Faghfoory (Louisville, Kentucky: Fons Vitae, 2003), *306.*
61. Nasr, *Science and Civilization in Islam*, p. 160.
62. Osman Bakar, "'Umar Khayyām's Criticism of Euclid's Theory of Parallels," in *The History and Philosophy of Islamic Science* (Cambridge, UK: Islamic Texts Society, 1999), pp. 160–172.
63. "As regards that [subject] which excels over others because of the nobility of its subject matter, it is like astronomy (*'ilm al-nujum*)." Al-Fārābī quoted in Osman Bakar, *Classification of Knowledge in Islam: A Study in Islamic Philosophies of Science* (Cambridge, UK: Islamic Texts Society, 1998), p. 46; Likewise, the famous astronomer Mu'ayyad al-Dīn 'Urdī (d.1266) states, "It's subject matter is the most amazing of God's achievements, the most magnificent of His creations…It leads to theology and demonstrates the magnificence of the Creator, the wisdom of the Maker, and the immensity of His power." Quoted in Saliba, *Islamic Science and the Making of the European Renaissance*, 278 n 3.
64. Saliba, *Islamic Science and the Making of the European Renaissance*, pp. viii–ix.
65. Ibid., ix.
66. Ibid., p. 164.
67. Ibid., p. 129. (accent is ours)
68. Islamic philosophers and astronomers were well aware of each others thoughts and arguments. See Saliba, *Islamic Science and the Making of the European Renaissance,* pp. 95–96.
69. Nasr, "Cosmology," 397–400. Saliba reports that the greatest of Muslim

astronomers were also outstanding religious scholars, leaders, and even mystics. However, he attributes their pious pronouncements about exploring the signs of God in the celestial world as self-protection against the sentiments of a religious society rather than being founded on convictions about the nature of reality based on the Qur'ānic revelation or on Islamic cosmologies. However, Saliba does not explain why it would not have been enough for these astronomers to end with a few pious pronouncements rather than go on to be religious luminaries of their times. See Saliba, *Islamic Science and the Making of the European Renaissance,* pp. 171–191.
70. Saliba, *Islamic Science and the Making of the European Renaissance,* p. 164.
71. See section 5.1.2a.
72. Nasr, *Science and Civilization in Islam*, 174. Here, it is significant to note that, at least since al-Birūni's time, Muslims have been aware of the possibility of the heliocentric universe. However, they found it unnecessary to reject the geocentric model. See Nasr, *Introduction to the Cosmological Doctrines*, p. 135; Saliba, *Islamic Science and the Making of the European Renaissance,* p. 120.
73. Sherrard, *Rape of Man and Nature*, p. 65.
74. Neil Postman, *Technopoly: The Surrender of Culture to Technology* (New York: Vintage Books, 1993), p. 26.
75. Seyyed Hossein Nasr, *Islamic Science: An Illustrated Study* (World of Islam Festival Publishing Company, 1976), 200. For a contemporary example of scholars who deny any authentic spiritual dimension of alchemy, see Bruce T. Moran, *Distilling Knowledge: Alchemy, Chemistry, and the Scientific Revolution* (Cambridge, MA: Harvard University Press, 2005).
76. Alisha Rankin, review of *Distilling Knowledge: Alchemy, Chemistry, and the Scientific Revolution*, by Bruce T. Moran, *Early Science and Medicine* 13 (2008), p.395.
77. Nasr, *Islamic Science: An Illustrated Study*, p. 194.
78. Nasr draws attention to the fact that many Muslim philosophers and scientists identified Hermes — credited for founding alchemy — with the Prophet Idris mentioned in the Qur'ān. Nasr, *Islamic Life and Thought*, pp. 105–6.
79. Nasr, *Islamic Science: An Illustrated Study*, pp. 197, 201–204.
80. See Chapter 1.3.1.
81. On Jābir's status as Ja'far al-Ṣādiq's student, see Syed Nomanul Haq, Introduction to *Names , Natures and Things: The Alchemist and his Kit ā b al-A h j ā r (Book of Stones)*, trans. Syed Nomanul Haq (Boston: Kluwer Academic Publishers, 1994), pp. 14–20.
82. Haq, *Names, Natures and Things*, p. 59.
83. E.J. Holmyard, *Alchemy* (New York: Dover Publications, 1990), p. 77.
84. Ibid.; Nasr, *Science and Civilization in Islam*, pp. 261–64.
Just as the bodies were constituted from the four fundamental natures, Jābir saw letters of the alphabet as the foundation of language and corresponding to the four universal natures. Haq, *Names, Natures and Things*, pp. 89–90.
85. Haq, *Names, Natures and Things*, p. 66.

86. Jābir Ibn Hayyān quoted in Haq, *Names, Natures and Things*, p. 89.
87. Ibid., pp. 84–85.
88. Nasr, *Islamic Science: An Illustrated Study*, p. 194. It appears that the alchemists sought to protect alchemy from misuse from the spiritually immature and revealed there methods only to those who would not misuse it. Jābir deliberately attempted to keep his alchemical studies secret: "As always, we deliberately abrogate in one book what we say in another. The purpose is to baffle and lead into error everyone except those whom God loves and provides for!" Jābir Ibn Hayyān, *Kit ā b al-A h j ā r* (Book of Stones), quoted in Haq, *Names, Natures and Things*, p. 166.
89. Cornelius Agrippa quoted in Julius Evola, *The Hermetic Tradition: Symbols and Teachings of the Royal Art* (Rochester: Inner Traditions, 1995), p. 25. Indeed, Jābir's work on Islamic alchemy and the translations of his works into Latin in twelfth and the thirteenth centuries had a tremendous impact on European intellectual elite. According to the eminent historian of alchemy E.J. Holmyard, Jābir's theory that all metals were, formed out of the union of sulfur and mercury, two active and passive natures was generally accepted until the end of the seventeenth-century. See Holmyard, *Alchemy,* p. 75.
90. On Sufi involvement in alchemy, see Nasr, *Islamic Science: An Illustrated Study*, pp. 199–204; See Eberley, *Al-Kimia;* Given Sufism is a living reality, some alchemists are still likely to be found today. Both Nasr and Holmyard have encountered practicing alchemists in Iran and Pakistan. See Nasr, *Islamic Science: An Illustrated Study*, pp. 205–206 and Holmyard, Alchemy*,* p. 104.
91. Nasr, *Islamic Science: An Illustrated Study*, p. 172; see Q. 3:49; 26:146. The Prophet was heard praying for a sick person, "You [oh Allah] are the Healer. None brings about healing but You." see *The Translation of the Meanings of Sahih al-Bukhari*, Vol. 7, Book 71. Number. 638, trans. Muhammad M Khan (Riyadh: Dar-us-Salaam Publications, 1997).
92. Nasr, *Islamic Science: An Illustrated Study*, p. 166.
93. See Muhammad Salim Khan, *Islamic Medicine* (London: Routledge, 2008).
94. Nasr, *Introduction to Islamic Cosmological Doctrines*, pp. 205, 253–254.
95. Osman Bakar, "An Introduction to the Philosophy of Islamic Medicine," in *History and Philosophy of Islamic Science* (Cambridge, UK: Islamic Texts Society, 1999), pp. 116–123.
96. Khan, *Islamic Medicine* , p. 25.
97. Peter Pormann and Emille Savage-Smith, *Medieval Islamic Medicine* (Edinburgh: Edinburgh University Press, 2007).
98. Porman and Savage-Smith, *Medieval Islamic Medicine,* p. 181. See Abu Hatim Razi, "Science of Prophecy," in *An Anthology of Philosophy in Persia: From Ancient Times to Umar Khayyam*, Vol. II, eds. Seyyed Hossein Nasr and Mehdi Amin Razavi (Lahore: Suhail Academy, 2005), pp. 142–143.
99. Porman and Savage-Smith, *Medieval Islamic Medicine*, pp. 41–71 and 71.
100. Ibid., p. 70
101. Ibn Abi Usaybiah account of the history of medicine based on *Galen's*

Commentary on the Book of the Oaths by Hippocrates quoted in Franz Rosenthal, *Science and Medicine in Islam: A concise Collection of Essays* (Brookfield, VT: Ashgate Publishing Ltd., 1998), p. 56.
102. See, for instance, Abu Hatim Razi, "Science of Prophecy," in *An Anthology of Philosophy in Persia: From Ancient Times to Umar Khayyam*, Vol. II, eds. Seyyed Hossein Nasr and Mehdi Amin Razavi (Lahore: Suhail Academy, 2005), pp. 142–143.
103. Nasr, *Islamic Science: An Illustrated Study*, p. 159.
104. See Ibn Sīnā, *A Treatise on the Canon of Medicine, Incorporating a Translation of the First Book*, translated and commented on by O.C. Gruner (London: Luzac & Co., 1930), pp. 31–32 quoted in Nasr, *Introduction to the Islamic Cosmological Doctrines*, p. 252.
105. Chittick, *Science of the Cosmos, Science of the Soul*, p. 114.
106. Nasr, *Need for a Sacred Science*, p. 81.
107. Nasr, *Science and Civilization in Islam*, p. 22.
108. Osman Bakar, "The Question of Methodology in Islamic Science," in *History and Philosophy of Islamic Science* (Cambridge, UK: Islamic Texts Society, 1999), p. 17.
109. Nasr, *Traditional Islam in the Modern World,* p. 138.
110. Nasr, *Need for a Sacred Science*, p. 98.
111. See Stenberg, *Islamization of Science*, p. 103.
112. Nasr, *Need for a Sacred Science*, p. 96.
113. Bakar, *Classification of Knowledge in Islam*, p. 124.
114. Nasr, *Science and Civilization in Islam*, p. 59.
115. Iqbal, *Islam and Science*, p. 72. Further, this very basis of all branches of knowledge in *tawhīd*, made it unnecessary for thinkers and scientists to actively try to show the relation between the natural sciences and Islam.
116. Chittick, *Science of the Cosmos, Science of the Soul*, p. 124.
117. Bakar, *Classification of Knowledge in Islam*, pp. 95–103, 252–53 and further clarified in Ibid., p. 266.
118. Ibid.
119. This also explains why, as Saliba has observed, most of the great astronomers were also illustrious men of religion or even Sufis. See n69.
120. Bakar, *Classification of Knowledge in Islam*, pp. 13, 21–26.
121. Ibid., pp. 20, 26, 30.
122. Ibid., pp. 229–236.
123. Saliba, *Islamic Sciences and the Making of the European Sciences*, pp. 158–161.
124. Bakar, *Classification of Knowledge in Islam*, p. 235.
125. Ibid., p. 239.
126. Al-Birūni, *Kitāb al-Jamāhir*, p.5 quoted in Nasr, *Introduction to Islamic Cosmological Doctrines,* p. 150.
127. Nasr, *Introduction to Islamic Cosmological Doctrines,* p. 150. On Sufi view of the role of the heart, see Chapter 3.4.
128. We will cite just two of the many examples Nasr provides:

1) Al-Birūni sharply rejected the views of the Greeks where they contradicted the Qur'ānic doctrines. He suggested, "that which is limitless cannot be bound by anything," thereby rejecting the Aristotelian view that the cosmos and time could be eternal with God. Al-Birūni quoted in A.Z. Validi Togan, *Biruni's Picture of the World* (Calcutta, 1937–38), pp. 53–54 quoted in Nasr, *Introduction to Islamic Cosmological Doctrines*, p. 117.
2) Biruni quotes the Qur'ān to argue that time will cease to be only when the universe also collapses: "Both [cessation of time and of the universe] do not happen together except at the time of the total collapse of the universe as the Almighty has said: *Then when the sight shall be dazzled and the moon shall be eclipsed and the Sun and the Moon shall be in conjunction*." Al-Birūni, *Kitāb al-Jamāhir* …, "Chapter on Pearls…," trans. F. Krenkow, Islamic Culture 15:421 (1941) quoted in Nasr, *Introduction to Islamic Cosmological Doctrines,* p. 120.
129. Nasr, *Introduction to Islamic Cosmological Doctrines,* pp. 125–126, 168–170.
130. Ibid., p. 115.
131. See Chapter 8.

Chapter 6
Nasr's Critique of Modern Science and Scientism

Say: Behold all that is in the heavens and the earth.
But neither Signs nor Warners profit those who do not believe.(10:101)

> The first step in the Islamic world must be to criticize th[e] stifling scientistic view of reality and to demonstrate why it is opposed to the authentic Islamic and more generally religious point of view as such.[1]
> Seyyed Hossein Nasr

While Chapter 5 demonstrates that the principles of unicity and hierarchy of reality were integral to the traditional sciences, in this chapter we present Nasr's critique of modern science and scientism by highlighting the consequences of the complete absence of any role for those principles in modern science. In particular, we discuss how for Nasr, the absence of those foundational principles from modern science is the cause of its various limitations and how disregard of those limitations by a Muslim, in turn, gradually shapes for him a worldview that is characterized by the lack of the same principles. How a Muslim with such a worldview is most likely to pursue a materialistic lifestyle and thus contribute to the exploitation of nature is the final point of our discussion.

In effect, to ignore the limitations of modern science is to ignore the message of the Qur'ān. Commenting on the verse quoted above the renowned Sufi Ibn 'Atā'illāh al-Iskandarī (d. 1309) said in his *Book of Wisdom*,

> It is permitted for you to contemplate created beings — 'Behold what is in the heavens' — the door of inspiration will then open for you. It did not say simply 'Behold the Earth' so that you not be guided unto mere physical bodies, for the physical forms are like shells over pearls of the archetypes. Whoever stops at the shell is veiled from the beauty of the innermost pearls. [2]

In other words, according to al-Iskandarī, the material world must be studied in light of the immutable principles or the ultimate realities of the "heavens," as the traditional sciences had tried to do, though imperfectly, in the pre-modern days. However, in ignoring the realities of the heavens, we not only reduce signs of God in the non-human world to their "physical bodies," but, we also ignore the higher nature of the human being himself as God's vicegerent or 'image.'

Hence, we find al-Ghazzālī reminding us that the primary conditions for understanding the signs of God were to accept the higher realities of both the objective pole of nature and the subjective pole of the human self: 1) with regard to

the objective pole, “there is a parallel between the visible world and the world of dominion;”[3] 2) with regard to subjective pole, there are “layers of the spirits of the human clay; and the levels of their lights…” [4] Nasr relates this in contemporary language in stressing the need to recognize the Intellect or the ‘eye of the heart’ of the human subject as well as the non-physical higher realities of the objective world that only the pure heart can perceive.[5]

The traditional insights such as those of al-Iskandarī and al-Ghazzālī are evident, directly or indirectly, in Nasr’s critique of modern science in a number ways. This is evident first in the way Nasr’s philosophy of science differs from those of the positivists and of their contemporary opponents. Second, in what Nasr holds to be the limitations of modern science. Third, most importantly, by what Nasr suggests are the spiritual consequences of scientism for Muslims, especially in the way it can incline their thoughts and actions away from *tawhīd* and its implications, and by the same token, lead them to have a destructive attitude towards nature. Hence, in discussing them we will discuss Nasr’s critique of modern science.

6.1 NASR AND THE PHILOSOPHY OF SCIENCE

Nasr is not a religious scholar who judges modern science and its history as an outsider. He was a brilliant student of physics, mathematics and geology at M.I.T and later of the History of Science at the Harvard University. Beginning with his doctoral thesis completed in 1958 and titled *Conceptions of Nature in Islamic Thought*[6] (later published as the book *An Introduction to Islamic Cosmological Doctrines*[7]), Nasr pointed out the possibility of natural sciences, exemplified by medieval Muslim scientists’ way of studying nature, grounded in metaphysics and ontology. He pointed out how such natural sciences could be one of the means for knowing God also.[8] In this manner, in an age when the philosophy of science was dominated first by logical positivism[9] followed by the naturalism[10] of John Dewey (1859–1952), W.V.O. Quine (1908–2000) and their followers,[11] Nasr proceeded to demonstrate that the fundamental premises of the natural sciences were dependent on the prevalent worldview of the people who develop them and could not be properly appreciated by those who have a radically different worldview, as illustrated by the lack of proper appreciation of Islamic sciences by modern scientists and philosophers of the time.[12] This line of thought regarding the relevance of worldviews in the pursuit of science was soon to become widely known through the writings of another philosopher of science Thomas Kuhn (1922–96) in his *The Structure of Scientific Revolutions*, first published in 1962.[13]

Later, in his Rockefellar lectures at the University of Chicago in 1966, Nasr faulted the secularization of nature by the modern scientific worldview for the environmental crisis, and again in his *Science and Civilization in Islam,*[14] parts of which he completed even before he finished his PhD thesis,[15] Nasr continued to stress how a people’s prevalent worldview shape the sciences they produce. While

Nasr and Kuhn share similar views on the question of the relevance of worldviews in the scientific enterprise, unlike Nasr, Kuhn does not believe either in the possibility of an objective truth, scientific or not, nor in the existence of any transcendent reality.[16] For Kuhn and his followers like Paul Feyerabend, a worldview or paradigm, as the Kuhnians refer to it, is determined by history and culture, not by immutable ahistorical principles. For them, since knowledge is dependent on a given paradigm or worldview, we cannot speak of the truth of a knowledge without speaking of the associated paradigm. Further, for them, any two paradigms are *incommensurable* in the sense that a theory in any paradigm cannot be fully understood from the perspective of another, confounding the empiricist assertion that a new paradigm only results from progress in science's quest for truth.[17] In this manner, Kuhnians argue that modern science is no more objective than any other branch of human enterprise.

While the positivists and empiricists — who make up the vast majority of the scientists and the philosophers of science — deny that the observing human self has any role in the determination of the objective scientific knowledge, the Kuhnian relativists in opposition attribute all knowledge to the perceiving self conditioned by history and culture. Moreover, in so doing, as Ibrahim Kalin has observed, the relativists deny any objective reality to the world of nature.[18] On the other hand, in denying any transcendent reality, both the Kuhnians and their empiricist or positivist opposition deny the reality of the Intellect,[19] and by the same token, reduce the essence of the individual self to its ordinary reason and senses.

For Nasr, the difference between the paradigms of traditional science and modern science is wholly related to the active role of the Intellect and the revelation in the former and their absence in the later. For this reason, according to Nasr, Islamic traditional sciences founded on principles akin to the perennial principles,[20] cannot be appreciated by the modern scientific paradigm which denies any transcendent reality and, by the same token, the existence of the Intellect beyond ordinary reason. However, the reverse is not true because the Intellect functioning in the traditional paradigm does not deny the reality of ordinary reason and the knowledge accessible to it at the material plane as valid for that plane. Hence, we can say that from the perspective of the traditional paradigm, the doctrine of *incommensurability* between it and modern science does not exist. The traditional paradigm knows to confine modern scientific views to where they belong, that is, at the level of the material plane.

For Nasr, contrary to the perspectives of empiricists and Kuhnians of every stripe, there are immutable ahistorical principles of truth contained in the metaphysics of every religious tradition which can serve as the criteria for measuring the objectivity of our knowledge in any branch of human enterprise irrespective of cultural norms and historical events. Thus, Nasr's position stands in stark contrast to the positivist or even the Kuhnian relativist positions which are all committed to the empiricist and rationalist approach to knowledge of modern science.[21]

6.2 LIMITATIONS OF MODERN SCIENCE

The various limitations of modern science that Nasr speaks of are all interrelated. That is because, for Nasr, all of these limitations stem from modern science's denial of, in al-Iskandarī's language, the "pearls of archetypes," that is, the ultimate reality of the idea of 'forms'[22] conveying meanings, to settle instead for their corresponding "shells" or "physical" realities. These limitations could as well be attributed to modern science's lack of any role for the heart or the Intellect, which al-Ghazzālī held was necessary for the true understanding of the signs of God. Accordingly, for Nasr, the limitations that are reflected in modern science may be broadly categorized as follows:

6.2.1 'Matter' is the fundamental basis for all phenomena

In modern science there is an unstated assumption that matter is the basis of all that exists in nature. It is assumed that if there are 'forces' in nature they are necessarily material-based. As Nasr puts it, "[Scientific] reductionism has become part and parcel of the modern and even post-modern mindset. People believe that it is possible to understand a thing only through analysis and the breaking up of that thing to its fundamental parts, which are material."[23]

Yet, findings of Quantum physics suggest the possibility of an empirically imperceptible origin for the universe.[24] "Today's postmodern science," as Huston Smith observes," speaks increasingly of the unseen, and does so respectfully."[25] Nasr is cognizant of such post-classical developments of modern physics which do not necessarily see 'matter' in the Newtonian sense to be the fundamental basis for the visible cosmos but he warns of the general mindset: "despite the total rejection of the classical view of matter in modern quantum mechanics, there still lingers in the public arena reliance upon a materialistic perspective which ultimately reduces all things to 'matter.'"[26] Moreover, modern science remains, by the logic of its need for demonstration, in search of phenomena perceptible by ordinary rationality and senses.[27]

The focus on material factors is a consequence of rationalism which rejected the doctrine of hylomorphism: the doctrine that states that any corporeal entity is the combination of its 'form'— the aggregate of the qualities of an entity — and 'matter,' a pure potentiality. As Mullā Sadrā (d.1640) observed, "the dog is a dog because of its animal form, not because of its particular matter; and the pig, too, is a pig because of its form, not its matter."[28]

6.2.2 The whole is just the sum of its parts

Nasr maintains that those who have been affected by the scientific worldview are generally "led to believe that the whole is nothing more than some of its parts, and

physicists continue to search for the ultimate particles or building blocks of the universe, which the less sophisticated public envisages as minute billiard balls which are then accumulated together to create all the beings of the universe."[29]

In mathematics the number '1' can be represented as the sum of its fractions. However, the qualitative reality of an entity is not the sum of the qualitative realities of its fractions. As Nasr observes, "qualities do not add up as do quantities."[30] For instance, even for something as simple as a brick, two halves of a brick together do not mean the same thing qualitatively as the whole brick before the split. Neither does one third of a flower equal third of the whole flower qualitatively. Yet, the mechanistic model of classical physics — followed by the majority in the scientific community and even the more gullible public — functions as though the whole is just the sum of its parts. Modern science thrives in the task of analyzing quantitative parts of the whole; seeing the whole or making any qualitative sense of the whole, or even of the parts, is beyond the scope of modern science.[31] As observed in the case of modern science's exclusive focus on 'matter,' this problem also can be traced to rationalism, which ignores the 'form' of any entity.

6.2.3 Quantification of Observations

In Nasr's words, "By taking away from corporeal existence all its qualitative aspects and reducing it to pure quantity, [modern science] created a worldview in which there was such a thing as pure inert matter divorced totally from life and consciousness…"[32]

Modern science can only know of the physical reality or material factors. Hence, its observations consist only of what is quantifiable. As Huston Smith notes, "quality itself is unmeasurable. Either it is perceived for what it is or it is not, and nothing can convey its nature to anyone who cannot perceive it directly."[33] As such, modern science can be used only as the means to measure a physical manifestation that has been predetermined by us as an indicator of a particular value, quality, or meaning. To cite an example, modern science cannot distinguish between life and death, but it can provide physical signs of life or death as predetermined by us. In other words, modern science can only provide knowledge of the purely physical reality in terms of numbers without the qualitative aspect of corporeal existence. In fact, as Wolfgang Smith suggests, since there is no corporeal entity that does not possess value, quality, or meaning, the physical entity that modern science knows is not what is actually perceived.[34]

6.2.4 Exclusion of the Self

"Modern science," Nasr suggests, "depicts a universe in which man as spirit, mind and even psyche has no place and the Universe thus appears as 'inhuman' and not related to the human state."[35] Indeed, in all the investigations made by modern

science the role of the perceiving human self or soul is always absent, as though our perception of the universe is wholly independent of what we believe or know.

Modern science's exclusion of the self happens in two ways. First, modern science is not, for the most part, based on immediate experience of the world.[36] Neither the workings of electricity nor the chemical reactions or the law of gravitation are strictly observable facts; they are based on data measured under special conditions and by special instruments. Second, modern science excludes from consideration the values and meanings we humans either believe in or perceive of the cosmos. For instance, modern science would use the same approach to determine the reality of the *ka'ba* in Mecca as it does for any corporeal object.

Using various instruments modern science can indeed measure the height of a mountain, the heat generated by a fire, or the depth of a lake. But it can say nothing qualitative about them because the qualities, like beauty or meaning, cannot be quantified. That is the task of the human Intellect or heart which sees beyond the physical reality into the meaning of entities.[37]

6.2.5 Modern Science is only Partially Objective

According to Nasr, "The success of applied science … is no reason for accepting the infallibility of the scientific theories involved."[38] In this respect, his position hints of the doctrine of 'underdetermination,' which stipulates that a set of data can be explained by a number of different theories, as discussed in the modern philosophy of science since early in the twentieth century.[39] Objectivity in modern science, thus, is limited within the framework of a particular set of conditions and assumptions such that a particular observation can be ascribed to a specific cause.

The doctrine of underdetermination becomes all the more evident when we consider theories that are based partly on intuitive knowledge. For instance, a particular patient may be cured from a certain sickness based on a diagnosis and treatment according to traditional Islamic medicinal theories, as well as, by those based on empirically-based theories of modern medicine.

For Nasr, scientism amounts to blindness to the aforementioned limitations of modern science. In order to see how scientism affects Islamic values, we will discuss in the next few pages, in light of the Islamic metaphysics discussed in Chapter 2, how scientism denies the perennial principles of Islam and induces the mind and the soul to turn away from the vision of unity which reflects *tawhīd*.

6.3 SCIENTISM DENIES *TAWHĪD* AND THE HIERARCHY OF REALITY

In the Peripatetic cosmology of Ibn Sīnā the hierarchy of Intellects or Archangels, each presiding over a heavenly sphere below it indicates a hierarchical structure of knowledge and awareness. This vision is explored at a deeper level in Ibn 'Arabī's cosmological vision where hierarchy is determined by the intensity of disclosure of

divine qualities in entities.[40] The higher a level of reality is, the more infused it is with Absolute Being or Awareness. As Nasr observes, “Islamic philosophers consider being to be inseparable from knowledge and therefore awareness, and consider cosmic level of existence also to be levels of knowledge and awareness.”[41] Thus, Islamic cosmological schemes depict the relation between God and His infinite creation, or between the One (*al-Ahad*) and the many, in terms of a hierarchy of existence and awareness of the qualities of God. We may conclude that in Islamic philosophy and metaphysics, the unity of reality is the precondition for any relationship between realities at different levels. In other words, in Islam, *tawhīd* is the basis of all metaphysics.

Hence, so far as “matter” in the classical Newtonian sense is assumed to be the basis of all phenomena, modern science denies the Islamic vision of God as Being and Awareness pervading all levels of reality, and by the same token, denies the unity and the hierarchy of reality. At the same time, modern science’s preoccupation with the purely physical reality makes the “the existence of God redundant” to the scientific enterprise. [42]

Thus, from Nasr’s metaphysical perspective, when modernist and fundamentalist Muslims champion modern science they let modern science define the cosmos as a material reality alone. In effect, for the believer, the corporeal world becomes “an independent reality which can be studied and known in an ultimate sense without any reference to a higher reality.”[43] Thus, while the modernists and the fundamentalists hold onto their faith in God, their scientism obscures their vision of God as the all pervasive one reality,[44] because to “To understand God as [the all pervasive] Reality, it is necessary to understand that there are levels of reality” within the single indivisible reality of God.[45] In this way, as scientism denies the hierarchy of reality, God becomes an absolute ‘other’ to the natural world, even for the believer.

In summary, by relying on matter or material forces as the basis of all phenomena, scientism in effect denies *tawhīd* in the sense of the one all-pervasive reality or awareness. This leads to denying the hierarchy of reality, and by the same token, also leads one to believe in God only as a transcendent reality, if belief in God is entertained at all. As a result, for one persuaded by scientism, the human being and cosmos are viewed neither in the microcosmic-macrocosmic relationship nor as reflections of God’s qualities.[46] Instead of offering a vision of unity that can aid in the contemplation of *tawhīd*, the cosmos presents itself as a multiplicity of entities with no ontological bond among themselves or between them and God. For a believer, the meaning of the natural order as so many Signs of God pointing to higher realities is reduced to being signs of God’s kindness and generosity in terms of their utilitarian value for human beings, and not as means to higher knowledge of God and of oneself.

6.4 SCIENTISM DENIES ANY ULTIMATE MEANING OR PURPOSE

In light of the hierarchic structure of reality where all levels of reality are mere reflections of the immutable archetypes in God's knowledge,[47] the ultimate meaning of any entity lies in God alone. Hence, Nasr concludes, "There can in fact be no ultimate meaning without the acceptance of the ultimate in the metaphysical sense."[48]

By the same token, since the ultimate realities of entities cannot belong to more than *one* plane of reality, the acceptance of *tawhīd* is essential if we are to see the ultimate meaning of the natural world. However, since modern science can provide only knowledge of the physical reality, modern science obviously cannot help in the realization of the ultimate meaning of the natural world, and by the same token, cannot help in the realization of *tawhīd*. On the contrary, by ignoring the hierarchy of reality, modern science draws our attention to the multiplicity of existents in the material plane and away from a sense of unity.

6.4.1 Verification (*tahqīq*) in Traditional Science and Modern Science

Theoretically, if ultimate realities of natural entities are the immutable archetypes in God, how would one know them? As we saw in Chapter 5, the traditional sciences, for the most part, were limited to providing the image of unicity in the cosmos, an icon of the interrelatedness of everything in the cosmos which emerges from the one God. The vision of unicity could be seen as an aid in a Muslim's contemplation of *tawhīd* or the unity of reality. However, Nasr's discussions of the traditional Islamic sciences suggest that apart from this outer dimension of traditional Islamic science there was a complementary inner approach to the knowledge of the objective world by means of the purification of the self or the heart.[49] Indeed, as a Sufi, al-Ghazzālī observed that when the heart is made pure through the Sufi way the knowledge of the true or higher nature of a thing comes to the heart without any outer effort.[50]

Accordingly, traditional scientists aspired to know things "as they really are" with purified hearts, an objective that for Nasr, has its precedence in a prayer of the Prophet Muhammad (peace be upon him).[51] The aim is nothing short of a desire to know the reality of each thing in God.[52] Nasr points out that no less a figure than 'Umar Khayyām (1048–1131), the great mathematician and Sufi poet, confirmed the existence of this inner approach to knowledge among scientists, many of whom were also Sufis,[53] and argued for its superiority over the mere rational approach:

> The Sufis…do not seek knowledge by meditation or discursive thinking, but by purgation of their inner being and purifying of their dispositions. They cleanse the rational soul of the impurities of nature and bodily form, until it becomes pure substance. It then comes face to face with the spiritual world, so that the forms of that world become truly reflected in it, without doubt or ambiguity. This is the best of all ways, because none of the perfections of God are kept away from it, and there are no obstacles or veils put before it. Therefore, whatever (ignorance)

> comes to man is due to the impurity of his nature; if the veil be lifted and the screen and obstacle removed, the truth of things as they are will become manifest. And the Master [the Prophet Muhammad] — upon whom be peace — indicated this when he said: "Truly, during the days of your existence, inspirations come from God. Do you not want to follow them?" Tell unto the reasoners that, for the lovers of God [Gnostics], intuition is guide, not discursive thought.[54]

The Sufi way of knowledge of the reality (*haqq*) that Khayyām describes above is known as *tahqīq*[55] which amounts to the knowing of the reality of things by the heart, leaving no "doubt or ambiguity." He speaks of the need to "cleanse the rational soul" which amounts to gaining the 'eye of the heart' or freeing the Intellect from obstructions such that it can receive "forms" of the "spiritual world."[56] Khayyām assures that this way of knowledge was the best of all methodologies for knowing things in their essential realities or "as they are." Moreover, he does not distinguish between the knowledge of "perfections of God" and "the truth of things as they are," thus highlighting the essential unity of reality (*tawhīd*).

However, adoption of this inner approach to knowledge did not mean that Jābir Ibn Hayyān (d.800), 'Umar Khayyām (1048–1131), Nasīr al-Dīn al-Tūsī(1201–74), Qutb al-Dīn Shīrāzī (1236–1311), Bahā' al-Dīn 'Āmilī (1546–1621) and other great scientists who were all Sufis and believed in a hierarchy of reality for all entities, abandoned their rational and empirical methods of investigation.[57] Instead, believing in a hierarchy of reality, traditional Islamic science used multiple methodologies — rational, empirical, illumination through self-purification and revelation[58] — in its investigations into the nature of things. In contrast, by limiting itself to only the rational and empirical methodologies, modern science deprives us of deeper realities of entities in nature.

Commenting on the contrast between *tahqīq* and modern science's verification by empirical methods, Chittick explains that, for the most part, the scientific community builds on knowledge by "hearsay."[59] Not every scientist has the necessary expertise and equipments to verify the numerous theories that he takes for granted. His certainty is built on consensus reached by earlier scientists, which is based on yet those of others. Even those scientists who have verified the claims in their laboratories, do not know with certitude at the level of their *hearts*:

> It can be argued that a modern scientist who makes a new discovery has "verified" and "realized" it for himself. The Muslim intellectual tradition would not have called this *tahqīq*, however, because it does not extend deeply enough into the depths of the soul and spirit to recognize the real nature of things.[60]

For instance, there have been at least a few religious luminaries such as the Prophets and certain saints who claimed to have realized in their *hearts* the truth of the unity of reality (*tawhīd*). But even scientists cannot claim to have realized

Newton's theory of gravitation in their *hearts*, that is, at the centre of their beings. The scientific proof is always external.

In contrast to modern sciences, the traditional sciences and the Sufi way together provide the means for a unified vision of reality; while the framework of traditional science at least recognized higher realities of corporeal entities, the Sufi way sought to know their realities at the deepest level in God. In any case, both the traditional sciences and the Sufi way were means of retreat from the consciousness of multiplicity towards the reality of unicity or unity.

6.5 SCIENTISM IN ACTION

We have discussed how scientism denies the principles of unity of reality, hierarchy of reality, and of the ultimate meaningfulness or purposefulness of the cosmos in metaphysical terms. To shed more light on the nature of this predicament we will now discuss the consequences that scientism could have on the human mind with examples. Scientific knowledge reflects all the limitations of modern science. To the extent that we let scientific knowledge shape our view of the nature of reality we fall into the trap of scientism. It is this situation in the contemporary world that Nasr refers to when he states that "Young Muslim students in traditional *madrassahs* did not cease to perform their prayers upon reading the algebra of Khayyām or the alchemical treatises of Jābir Ibn Hayyān as so many present-day students lose their religious moorings upon studying modern mathematics and chemistry."[61]

As we discussed in Chapter 3, if we are to fulfill our purpose as human beings, that is, to act as God's vicegerent on earth, we ought to know the essential realities of all things so that we may treat them with right awareness. Since human beings can respond to any entity only according to their knowledge of it, when that knowledge comes directly from God, the giver of reality (*haqq*), they ought to be the most efficacious gateways for knowing the entity in its essential reality. So if the Qur'ān or the gnostics, who have knowledge of higher realities, tell us that the earth is *a resting place* (40:64), that the sky is a *well-guarded canopy* (21:32) and that water is a blessing from heaven (2:22), those terms would be the most efficacious ways for us to relate to them irrespective of their scientific descriptions. Besides, these descriptions of the earth, the sky and water not only have meanings that we can relate to, but they also convey God's love and care for us. This way of understanding the cosmos has been the traditional way. It gives meaning and purpose to all things in the cosmos, and most of all to our human lives.

In contrast, in the modern world dominated by the scientific worldview the sky is *no more than* gaseous particles reflecting the color blue; stars are *no more than* distant gaseous substances giving light produced by nuclear fusions of unimaginable magnitude; and water is *no more than* two atoms of hydrogen combined with one of oxygen, that is, H_2O. The scientific knowledge overtly challenges the religious vision of reality. At the same time, the scientific knowledge of these entities say nothing about the stars, sky and the water that our souls can relate to. Such knowledge

neither conveys God's nearness nor tells us how to relate to Him. Water as simply H2O does not convey anything about the existence of any qualitative relationship of water with the human being, God or with other entities in the universe.[62] Thus, by replacing traditional knowledge with scientific knowledge, the human being is deprived of a means to relate to God. In addition, scientific knowledge encourages the view that the natural world is nothing more than a mere multiplicity of phenomena with no essential bond with the human being or with God.

For Nasr, among various scientific theories those that challenge the grand narratives of religions about the origin and the end of life and the universe are among the most consequential. Based on certain observations of the physical universe, scientists develop theories on how the cosmos began, how long ago it began, and how it may come to end. First of all, the very existence of several theories to explain the origin and the end of the cosmos, such as the Multiple-universes theory, Big Bang theory, and String theory, indicates, as Nasr has observed, the "conjectural" nature of modern science.[63] Second, the scientific theories categorically deny the religious or metaphysical vision of the origin and the end of the cosmos. Third, as Nasr has observed, even if a conjecture tries to restore God by granting Him the originating role, it reduces the relation between God and the world "to a purely material one."[64] Moreover, by ignoring the hierarchy of realities between God and the material plane, the scientific theories of cosmogenesis, even when God is assumed to be the initiator in each case, cut "the 'Hands' of God from His creation."[65]

Likewise, when it comes to the end of the cosmos, scientific theories, unlike the religious or metaphysical visions, do not bring the end of things back to their origin in God at a higher plane of being.[66] Instead, scientific theories "speculate" that the end of entities will take place as a "final death."[67] Thus, the cosmos has no ultimate purpose. In summary, by denying the three perennial principles of Islam, the modern scientific theories concerning the origin and end of the cosmos deny the very foundation of Islamic faith.

It is important to note, however, that Nasr does not advocate for the outright rejection of the observations of modern science. It is scientism, which ignores the limitations of scientific knowledge, that he stands against. He argues that the symbolic view of nature offered by religion and traditional sciences cannot be negated by the scientific knowledge: "It is not true to say that the sun is only incandescent gas, although this is an aspect of its reality. It is also as true to say that the sun is the symbol of the intelligible principle in the Universe and this element is as much an aspect of its ontological reality as the physical features discovered by modern astronomy."[68]

While modern scientific theories about the nature of reality deny *tawhīd*, hierarchy of reality, and ultimate meaningfulness or purposefulness of the cosmos, they have a relatively sound basis — though not totally free of conjectures — at the material level. However, with regard to the theory of evolution, for Nasr, most fantastic conjectures, rather than necessary observations at the material plane, seem

to constitute its foundation. More importantly, according to Nasr, due to the "pervasive nature [of evolutionism] in the modern world,"[69] and because of its denial of faith in the spiritual origin and purpose of life, it is necessary for Muslims to refute this theory "from the scientific as well as the metaphysical, philosophical, logical and religious points of view."[70] We will summarize his arguments against the theory of evolution from these different perspectives.

6.6 NASR'S ARGUMENTS AGAINST THE THEORY OF EVOLUTION

From a strictly Qur'ānic view, as Nasr outlines, God is not only *Al-Ahad* (The One), but also, *Al-Hayy* (The Living), *Al-Muhyī* (The Giver of Life), and *Al-Khāliq* (The Creator). Thus, from an Islamic point of view the idea of the origin of life being an 'accident' must be rejected by Muslims because "no other power in the universe can bestow existence except the Source of existence."[71] Nasr points out that for those who believe in a theistic evolution, arguing that God created and then allowed for the natural transformation of species, deny God's role as *Al-Muhyī* and *Al-Khāliq*.[72] Moreover, modern science can neither prove that God did not create a particular entity, nor can any laboratory make that entity non-existent.[73] By the same token, Nasr suggests that the theory of evolution denies consciousness at the origin of corporeal reality; life and consciousness in living entities are presumed as "epiphenomena of material factors," and as such, the theory stands in complete opposition to the Islamic faith.[74]

In supporting the immutability of a species, Nasr argues that if all beings are indeed in the process of evolution from one species to another, then what we call an 'ant,' for instance, is only "a certain part of temporal sequence."[75] If the 'ant' is evolving and if reality implies something permanent, as it must, there is no reality of the 'ant' as a species to be known by God as the Qur'ān asserts He does.[76]

In regard to the scientific 'evidence' for evolution, Nasr points out that according to a number of eminent biologists, any unbiased examination of paleontological records would suggest that species have appeared on the earth *suddenly* and not through gradual evolution from what were there before.[77] In fact, Darwin's nineteenth century thesis was not accepted at the time for any rigorous scientific evidence provided for it, but rather, for the thesis's affinity with the "philosophical idea of progress"[78] as advancement on the material domain which had been in vogue among most emerging European intellectual circles since the Enlightenment, and "to satisfy the materialists' need for causality"[79] in the absence of God. Indeed, as the geologist and philosopher of science Stephen Meyer has observed, from the time that the theory of evolution was introduced, "Unobservable transitional forms of life were postulated to explain observable biological observations — as Darwin himself explained."[80] But such transitional forms, however, were never found.[81] In fact, Darwin's assumption about the foundational single cell as an utterly simple entity — an assumption that encouraged the speculation that complex beings evolved from a

simple cell in time — has turned out to be totally false.[82] Furthermore, the eminent microbiologist Michael Behe, in arguing for an Intelligent Designer behind what he sees as the evidence of irreducible complexity of even single cells, says, given that numerous features of a single cell appear to work in harmony for every function, "Even if someone could envision some long, convoluted gradual route to such complexity, it is not biologically reasonable to suppose random mutation traversed it."[83]

Whatever the scientists for and against the theory of evolution may conclude in the long run,[84] the theory only concerns the material aspect of any living entity. But Nasr argues that in Islam and other religions, a living entity is always more than its physical aspect.[85] The fact that an animal's DNA may closely resemble the human DNA, does not necessarily prove that the former evolved into the later species.[86] Even when we notice certain characteristics of one species repeating in another more complex species, this does not prove that biological 'evolution' must have taken place. This phenomenon was observed in the traditional Muslim world by great scientists like Ibn Sīnā, who interpreted it to mean that complex life forms "contain within themselves" the aptitudes of the less complex animals and more. [87]

Nasr argues that if logical concepts remain unchanged over the course of time, during that period, any species 'A' cannot evolve into another species 'B.' As Nasr argues, "In logic no A can become B unless B is already in some way contained in A, and surely B can never come out of A if it possesses something more or is greater than A."[88] There is thus no way of glossing over this logical lacuna without denying the existence of the "greater." This argument is also the essence of the metaphysical argument: The "higher" cannot evolve from the "lower" unless, as in the case of the human mind, the potential of the higher reality is already contained in the "lower." From the perspective of the metaphysics of the hierarchy of reality, the corporeal forms are only lesser reflections of their immutable and greater realities in the higher planes of reality.[89] Existence 'descends,' as it were, from the immutable and greater reality 'above,' not the contrary. By the same token, a corporeal entity on the earthly plane cannot change beyond the *scope* of its immutable archetype,[90] and thus, while micro-evolution is possible, transformation from one species to another, that is, macro-evolution, is impossible:

> There is the possibility of micro-evolution, but not macro-evolution. Now micro-evolution is still possible within the possibilities of the archetype…Each species has a width, a range, a reality greater than a particular individual in that species. So other individuals can appear in that species with other characteristics and even change according to environmental conditions, without one species becoming another.[91]

In summary, Nasr suggests that the theory of evolution is wrong on a religious basis, has no scientific evidence, and is logically and metaphysically impossible as

well. The scientific theory of evolution abandons both the metaphysical vision that all things originate from immutable archetypes in the knowledge of God and are unto Him returning, and the 'ordinary' religious vision of all things being created by God and returning to Him. Instead, the theory of evolution offers a vision of an inexplicable beginning of life from matter and of development and multiplication over time in unpredictable ways with no ultimate purpose or meaning. Thus, while the religious or metaphysical vision offers a vision of *tawhīd*, the theory of evolution, as one of the central pillars of the modern scientific worldview, offers a vision of multiplicity with no ultimate purpose or meaning.

For Nasr, denying living things their sacred origin and ultimate purpose is bound to have destructive consequences.[92] Indeed, the eminent philosopher George Grant holds, like Nasr, that "the era in which Darwin's explanations have had such power in the life sciences has also been the era in which human beings have been responsible for the destruction of more species than at any other period .... At a deeper level it may be said that the same technological destiny brought forth Darwin's science and the human conquest of the environment." [93]

However, it is important to note that there are environmentalists who do not criticize modern science, and directly or indirectly find inspiration in the theory of evolution which Nasr rejects. Not surprisingly, they question Nasr's premise that religious worldviews, or the lack of them, can have a decisive impact on human behavior towards the environment. These environmentalists come in two main categories: the evolutionists who openly base their views on Darwin's theory, and the pragmatists who support the theory indirectly. Hence, it is important to understand their perspectives and imagine how Nasr would respond to them.

6.6.1 Evolutionist and Pragmatist Criticisms of Nasr's Approach

Bron Taylor has summarized and voiced the criticisms of the evolutionists against the religious worldview approach in the *Encyclopedia of Religion and Nature* compiled and edited by him with the aim of presenting the views of this group.[94] Taylor seems to be supportive of the premise about worldviews when it comes to "nature-oriented spirituality"[95] or "dark green religion"[96] by which he seems to imply religions based on direct human experience of nature. Accordingly, he has no qualms about endorsing new religions based on Darwinian "evolutionary worldview."[97] Otherwise, for him, the premise that religious worldviews have a decisively positive effect on human behavior towards the environment is an "undemonstrated idealism,"[98] particularly for monotheistic religions such as Christianity and Islam. However, during the last two decades the successes of Islamic environmental activism in the Muslim world[99] and much more widespread environmental activism from within avowedly Christian communities[100] leave no doubt about the truth of the premise that religious worldviews make a positive difference.

Taylor ignores the effect of "religious attitudes" of mainstream religions in

protecting the environment but focuses instead on the “new ethical forms that began to flower in the wake of Darwinian thought. These values quite easily deduced from an evolutionary worldview…promotes a sense of kinship grounded in an understanding that all life shares a common ancestor and came into existence through the same survival struggle. These values displace human beings from an isolated place, alone at the centre of moral concern.”[101]

The feeling of oneness with nature that Taylor often identifies as a hallmark of his ‘dark green religion’[102] is not knowledge or evidence of the theory of evolution, as he suggests.[103] The saintly individuals who represent the mainstream religious traditions have confirmed, repeatedly and over centuries, the essential unity of reality by inner experiential evidence, and have supported the outer ethical teachings of religions based on metaphysical knowledge acquired by such inner experiences.[104] In the essential reality of these traditions, which Nasr’s traditional religious vision articulates in contemporary language, the bond between the human being and nature is traced to their common origin in God and thus goes deeper than Taylor's attempt to find it in a “common ancestor.” With God seen as the origin as well as the ontological connection for nature and the human being in the *present*, the mainstream religions, especially their inner dimensions, are theocentric and urge for the observance of God’s will. As such, the human is not at “the centre of moral concern,” as Taylor would have it.

Ben Minteer and James Collins, two of the leading philosophers of environmental pragmatism, acknowledge that “ontology and metaphysics” constitute the “foundational work on environmental value theory,”[105] and thus help us to know of the intrinsic value of nature. However, their support of metaphysics is based on shaky grounds, as evidenced in their inability to respond to colleagues who question the usefulness of metaphysics. [106]

Furthermore, if we look more closely at the thought of pragmatist philosophers, we find that for them, nature’s intrinsic value has empirical naturalistic foundations, not ones in a higher metaphysical reality as understood in any traditional metaphysics. For instance, Minteer considers the natural piety of John Dewey (1859–1952), an ardent believer of Darwin’s theory of evolution,[107] to be the ideal attitude for environmental pragmatism.[108] In the same vein, Bryan Norton, another leading pragmatist, appreciates the approach of the pioneering secular environmentalist Aldo Leopold (1887–1948) who took the theory of evolution for granted,[109] and like Leopold, “supports a naturalistic epistemology of environmental values”[110]

In effect, from Nasr’s perspective, both the pragmatists and the evolutionists reject the predetermined spiritual quality of nature. While their environmentalism, owing to their interest in the physical reality of nature, can have a positive impact in the short term, they offer no vision of ultimate meaning and purpose for nature. On the contrary, by their focus on the material domain alone and obvious support for the theory of evolution, the pragmatists and evolutionists deny the unity and hierarchy of reality.[111] Such a denial can only contribute to a fragmented materialistic vision of reality which, as we will see soon, may indeed bode ill for the survival of the natural

world. As Shaya Isenberg and Gene Thursby have noted, “Some environmentalists criticize mystical approaches to the environmental crisis as other-worldly and useless, but they have yet to respond to the claim of the perennial philosophers that every form of activism is based on metaphysical assumptions and that if the assumptions are inadequate, then the activism will be inadequate.”[112]

6.7 MODERN SCIENCE AS A WAY OF *TAKTHĪR*

Nasr has characterized the shift from traditional perspective to one of modern science as a “plunge in sheer multiplicity” away from the “knowledge of the whole of Reality” or “the Truth in its universal aspect” which relates to *tawhīd* and its implications.[113] In Islamic metaphysical language this amounts to the movement of consciousness away from *tawhīd* and to *takthīr* (“to make things many” [114]), that is, from ‘seeing’ unity to seeing multiplicity, division or unrelatedness in our understanding of the world around us. Whereas *tawhīd* serves as the central perspective as well as the central objective in the traditional approaches to knowledge of the natural world,[115] knowledge provided by modern science is not guided by any comparable unitary vision and is limited to the physical dimension. As such, modern scientific knowledge denies the perennial principles and offers *takthīr*, or a vision of multiplicity instead of unity, in every situation.[116] As we have seen, modern science, by its very nature, calls for a quantitative study of the world; it cannot engage one in seeking the qualitative meaning of any entity as a whole. Hence, continued investigation by modern science can only result in further division and specialization of any entity it investigates. In a word, *takthīr* is what modern science can offer.

As previously discussed, higher realities of entities, or by the same token, metaphysical doctrines of unity cannot be known by ordinary reason but by reason’s higher reality in the human being, namely by the Intellect or the heart.[117] Already in the seventeenth century, Mullā Sadrā (d.1640) warned of *takthīr* if we shun the use of the Intellect, when he said, “it is in the nature of the intellect to make many one (*tawhīd al-kathīr*) and of the senses [to make] one many(*takthīr al-wahīd*).”[118] Today, the prevalence of empiricism, the rationalism confined to the world of the senses and the defining methodology of modern science, has proved Sadrā right.

By ignoring the limitation of modern science, scientism keeps us away from the contemplation of *tawhīd* and consequently deprives us of any sense of the ultimate meaning and purpose in what we pursue through modern science. The situation can be reversed not by further investigation with modern science as it is, but by beginning the scientific quest with the perspective of unity. “Fragmented knowledge” as Nasr put it, “can be related to the whole only when there is already an intellectual vision of the whole.”[119] That new beginning would require faith in the message of unity of reality, which is found in the revelation or in the Intellection of the sages.[120]

6.8 *TAKTHĪR*, THE ENVIRONMENTAL CRISIS, AND THE PREDICAMENT

To the degree one is persuaded by scienism, one is guided in life by the vision of *takthīr.* In contrast to the traditional world where modern science did not exist, for one persuaded by scientism, one sees his own faculty of perception limited to his ordinary reason. Scientism also encourages the notion that the cosmos has no living connection with God, even if God exists, and has no relevance to one except as the source of one's material wants and needs. As the vision of unity by virtue of an ontological interconnectedness among everything in the universe crumbles under the gaze of modern science, scientism can only encourage self-interested and materialistic thoughts and activities.[121] As such, the rationalistic Promethean human[122] with a scientistic mind becomes oblivious of the religious or metaphysical principles concerning the natural world, and consequently feels free to transform his natural surroundings as his own reason and self-interest see fit.[123] Thus, for Nasr, the shift in the relationship between the human being and nature from the traditional one, in which everything in nature had a sacred significance for him, to the one constructed by scientism in which nature is merely the source of his material needs and wants, has been the primary cause for the human's destructive attitude towards nature.[124]

Even when a Muslim influenced by scientism still retains his faith in a transcendent God and the *Sharī'ā*, his mind cannot be completely impervious to scientific views for long. For instance, he cannot remain completely unaffected by the way modern science theorizes, in the fashion of the theories of cosmogenesis or the theory of evolution. Nasr warns that even if someone is pious, "the effect of a secularized science so blatantly opposed to the Qur'ānic vision of the created order must be felt. One cannot forget such basic problems which at first might appear to be more theoretical and less immediate on the pretext that society has immediate needs."[125]

If a Muslim rejects certain theories simply on account of his faith, he remains vulnerable to the scientific worldview just by virtue of living in the modern world. He is still affected by modern science's inherent nature of causing *takthīr* in every domain it is applied on. Far from being an aid to the realization of *tawhīd*, the scientific method of investigation leads to ever increasing goals to pursue, all of which remain confined to the material or psychological plane that requires no more than ordinary reason and senses to perceive.[126] Here, we are referring to not just the ever increasing opportunities for scientific explorations in the physical sciences, which always remain outwardly focused and bound to the material dimension, but also to the "social sciences and human sciences each trying to emulate the methods of physical sciences by becoming as quantitative and 'exact' as possible."[127] In addition, a great deal of literature today also shares the secularized worldview of the natural sciences and is not in the least concerned with the unity of reality.[128] Modern science and scientism have effectively created an intellectual climate where the worldview of

takthīr prevails. In such a climate, a Muslim's consciousness cannot remain impervious to the effect of the scientific worldview simply by rejecting certain scientific claims because whichever modern profession he chooses he cannot escape picking up the mental habits of that profession, which is already affected by scientism.

As we discussed in Chapter 3, the vision of *tawhīd* is at the foundation of meaning and ethics in Islam. Accordingly, Nasr relates the prevalence of the vision of *takthīr* and the consequent sense of a loss of direction and purpose to the loss of "the principial knowledge."[129] Since *tawhīd* is the foundational principle of Islam, prevalence of *takthīr* not only has outer environmental consequences, but also poses the greatest danger to Islamic values and ethics: "However dangerous the separative tendencies of modern sciences may be for the West," Nasr claims, "it is doubly fatal for Islam, whose sole *raison d'être* is to assert the doctrine of unity (*al-tawhīd*) and to apply it to every aspect of life."[130] If a Muslim wishes to retain authentic Islamic values and care for nature accordingly, he cannot do so without being constantly aware of the limitations of modern science.

6.9 CHAPTER SUMMARY

A vision of *takthir* is facilitated by modern science due to the latter's various limitations rooted in the exclusion of the principles of the unity of reality, hierarchy of reality, and the ultimate meaningfulness of the cosmos from its worldview. Various scientific theories, some of which are very conjectural, promote a view of the world consisting of a multiplicity of distinct entities whose essential realities are material in origin. Thus, scientism, the attitude that ignores the limitations of modern science, undermines fundamental values of Islam which are founded on the doctrines of unity and hierarchy of reality. As such, unless the problems with scientism are widely recognized, as scientism gradually undermines their faith and secularizes their view of nature, Muslims at large are most likely to follow an increasingly more materialistic lifestyle and further worsen the environmental crisis. What's more, as we will see next, a re-evaluation of modern science and scientism should include a re-evaluation of modern technology, the most concrete applications of modern science.

NOTES

1. Nasr, "Islam, the Contemporary Islamic World, and the Environmental Crisis," p. 100.
2. Shaykh Ibn 'Atā'illāh al-Iskandarī, *The Book of Wisdom*, quoted in Fatima al-Yashrutiyya, "Selections from the Works of Fatima al-Yashrutiyya," in *Two who Attained,* trans. Leslie Cadavid (Louisville, KY: Fons Vitae, 2005), pp. 178–79.
3. Abū Hāmid al-Ghazzālī, *The Niche of Lights*, p. 25. By the "world of dominion" al-Ghazzālī refers to the spiritual plane of reality in the hierarchic structure of reality in the Islamic view of the cosmos.
4. Ibid., p. 25.
5. Nasr, *Islam and the Plight of Modern Man*, pp. 13–14 and 10. Nasr uses the same criteria in his diagnosis of the problems of the post-medieval West. See Chapter 1.2.
6. Nasr, "Intellectual Autobiography," p. 29.
7. Nasr, *Introduction to Islamic Cosmological Doctrines* (1964).
8. The great Muslim scientists and scholars "consider the study of Nature not as an end in itself but as means to an end, as a *scientia* which leads to *sapientia* ... the reason why they consider the pursuit of sciences to be legitimate is that the purpose of human life is to gain knowledge of the Creator Whose wisdom is reflected in His creation in such a way that the study of this reflected wisdom leads to the knowledge of the Creator Himself." Nasr, *Introduction to Islamic Cosmological Doctrines*, p. 277.
9. Logical positivism fundamentally believes, like empiricists, that only that which can be experienced by the senses are true. Accordingly, logical positivists "dismissed a lot of traditional philosophy as meaningless." Godfrey-Smith, *Theory and Reality*, p. 237.
10. "Naturalism rejects the claim that philosophy provides a priori foundations for

science, and instead attempts to solve philosophical problems by exploiting theories in natural science." Alex Rosenberg, *Philosophy of Science*, p. 198.
11. Ibid., pp. 15–51.
12. Nasr, *Introduction to Islamic Cosmological Doctrines*, p. xix.
13. Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd edition (Chicago and London: The University of Chicago Press, 1996).
14. Nasr, *Science and Civilization in Islam* (2007).
15. Nasr, "Intellectual Autobiography," p. 30.
16. Throughout his *The Structure of Scientific Revolutions* Kuhn concerns himself with paradigm shifts in the physical sense only. There is never any suggestion that there could be a higher reality beyond the measurable one. On the contrary, he questions even the quest for a preset "goal" of knowledge and gives Darwin's example of rejecting teleological explanations as a model to follow to overcome "vexing problems." See Kuhn, *The Structure of Scientific Revolutions*, pp. 170–71. Peter Godfrey-Smith, a philosopher of science, agrees with this assessment when he asserts that for Kuhn, scientific procedures were superior to non-scientific ones — those that involve intuition or intellection such those pertaining to traditional sciences — in human quest for knowledge. See Godfrey-Smith, *Theory and Reality*, p. 96.
17. For Feyerabend, the doctrine of incommensurablity also applies to any two theories within the same paradigm. See Paul Feyerabend, *Against Method,* 4th edition (London: Verso, 2010), pp. 211–213.
18. Ibrahim Kalin, "Three Views of Science in the Islamic World," in *God, Life and the Cosmos: Christian and Islamic Perspectives,* eds. Ted Peters, Muzaffar Iqbal and Syed Nomanul Haq (Aldershot,UK: Ashgate, 2002), pp. 58–59.
19. See Introduction 0.6.1.
20. See Chapter 5.1.
21. "The [modern Western] philosophy of science…having surrendered itself to the fruits of the experimental and analytical methods…cannot itself be an independent judge of modern science." Nasr, *Man and Nature*, p. 115.
22. For a discussion on the meaning of 'form', see Chapter 1.3.1.
23. Seyyed Hossein Nasr, "In the Beginning was Consciousness," in *The Essential Seyyed Hossein Nasr*, ed. William C. Chittick (Bloomington, IN: World Wisdom, 2007), p. 225.
24. Henry Stapp, *Mindful Universe: Quantum Mechanics and the Participating Observer* (New York: Springer, 2011).
25. Huston Smith, "The Ambiguity of Matter," *Sophia*, Vol. 3 No. 2 Winter, 1997, p. 20.
26. Nasr, "In the Beginning was Consciousness," p. 224.
27. Nasr, *Religion and the Order of Nature*, p. 152.
28. Sadr al-Dīn Shīrāzī, *Wisdom of the Throne*, p. 146. Here, for Sadrā, "material forms are nothing but icons and moulds of [the archetypes]." Mullā Sadrā, *Afsar*, I, 3, p.304, quoted in Ibrahim Kalin, *Knowledge in Later Islamic Philosophy* (Oxford: Oxford University Press, 2010), p. 104. Emphasizing the importance of the meaning

of an entity over its quantitative description Nasr argues that “to know the archetype — the essence — of an animal is a higher form of knowing than to know its weight, anatomy and mating habits.” Seyyed Hossein Nasr, “Traditonal Man, Modern man, and the Environmental Crisis,” *Sophia*, vol 12, No. 2, Fall/Winter 2006, p. 32.
29. Ibid., 225. Also, see Wolfgang Smith, “The Plague of Scientistic Belief,” in *Science and the Myth of Progress* (Bloomington, IN: World Wisdom, 2003), p. 223.
30. Nasr, *Knowledge and the Sacred*, p. 236.
31. “What we do not do is passively contemplate the whole. We do not reverence creation, we break it open like a child to see how it works. And we cannot put it back together again. Classical physics has not merely misled us in our laboratories and observatories, it has made us wrong in our world.” Appleyard, *Understanding the Present*, 191.
32. Nasr, “In the Beginning was Consciousness,” p. 224.
33. Smith, *Forgotten Truth*, p. 16.
34. Wolfgang Smith, “*Sophia Perennis* and Modern Science,” in *The Philosophy of Seyyed Hossein Nasr,* The Library of Living Philosophers, Volume XXVII, eds. Lewis Edwin Hahn, Randall E. Auxier, Lucian W. Stone, Jr. (Chicago: Open Court Publishing Company, 2001), p. 473.
35. Nasr, *Traditional Islam in the Modern World*, p. 99.
36. Smith, *Forgotten Truth*, p. 98. While religion also claims that things are more than they appear to be, it promises knowledge by the ‘eye of the heart’ *within us*. See Chapter 3.4–3.4.1. Modern science, on the other hand, resorts to modern technologies *outside of us* to prove its claims.
37. See Chapter 3.4.
38. Nasr, *Man and Nature*, p. 115.
39. See Richard Dewitt, *Worldviews: An Introduction to the History and Philosophy of Science* (Oxford, UK: Blackwell, 2004), pp. 48–49; In fact, René Guénon observed as early as in 1927 that “Modern experimentalism also involves the curious illusion that a theory can be proven by facts, whereas in reality the same facts can always be equally well explained by several different theories.” Guénon, *Crisis of the Modern World*, p. 47.
40. See Chapter 2.2.2.
41. Nasr, “In the Beginning was Consciousness,” p. 223.
42. Nasr, “Islamic Worldview and Modern Science,” pp.11–12.
43. Nasr, *Young Muslim’s Guide to the Modern World*, p. 182.
44. See Chapters 4.3.2, 4.5.1 and 4.6.
45. Nasr, *Need for a Sacred Science*, p. 11.
46. Chapter 2.2.1
47. See Chapter 2.2.2
48. Nasr, “In the Beginning was Consciousness,” p. 227. “Values and meaning cannot be volatile, they must endure. If nothing in science endures, it can offer no meaning.” Appleyard, *Understanding the Present*, p. 195.
49. Seyyed Hossein Nasr, “Reflections on Methodology in the Islamic Sciences,”

Hamdard Islamicus, Vol. III No.3, (1980), pp. 3–13.
50. See al-Ghazzālī, “The Elaboration of the Marvels of the Heart,” p. 301.
51. Nasr, *Science and Civilization in Islam*, pp. 352–353. Nasr observes that the famous prayer by the Prophet Muhammad, “ O Lord show us things as they really are,” set the course for Islamic quest for knowledge at the deepest level for all entities in the cosmos.
52. See Chapters 2.2 and 3.4-3.4.1.
53. See Chapter 5.3.
54. ‘Umar Khayyām quoted in Nasr, *Science and Civilization in Islam*, p. 34.
55. In the Islamic intellectual tradition, the term *tahqīq* means to realize the reality (*haqq*) of something in one’s heart. See Chittick, *Science of the Cosmos, Science of the Soul*, pp. 23–24. According to Chittick, “The goal of *tahqīq* is to see the face of God wherever you turn, in every creature and in oneself, and then to act according to the *haqq* of God’s face. If we understand anything in the universe without taking the Divine face into account, then we have lost the thing’s *haqq*. By losing sight of the thing’s *haqq*, we have lost sight of God, we have lost sight of *tawhīd*.” William Chittick, “Time, Space and Objectivity of Ethical Norms: The Teachings of of Ibn al-‘Arabi,” *Islamic Studies* 39, no.4 (2000), p. 585. Likewise, James Morris describes traditional understanding of *tahqīq* as “the inseparably moral, spiritual and intellectual tasks of both discovering and investigating — and actually realizing or “making real” — everything that is demanded of us by the *haqq* which we are striving to know.” James Morris, “Communications and Spiritual Pedagogy: Exploring the Methods of Investigation in Classical Islamic Thought,” unpublished manuscript of a lecture, p. 2; available from http://www.ibnarabisociety.org/articlespdf/sp_communication.pdf Internet; accessed 10 September 2010.
56. See Introduction 0.6.1 and Chapter 3.4–3.4.1.
57. For a brief discussion of how the Sufi scientists employed diverse methodologies, see Nasr, “Reflections on Methodology in the Islamic Sciences,” pp. 7–10.
58. Ibid., 8. Also, see Osman Bakar, “Reformulating A Comprehensive Relationship Between Religion and Science: An Islamic Perspective,” *Islam and Science*, Vol. 1 (June 2003) No. 1, pp. 35–36.
59. Chittick, *Science of the Cosmos*, *Science of the Soul*, p. 24.
60. Ibid.
61. Seyyed Hossein Nasr,”Islam and Modern Science,” in *Islam and Contemporary Society,* ed. Salem Azzam (London: Longman Group, 1982), p. 179.
62. Chittick cites the example of how traditional qualitative meanings of the four fundamental elements of nature, namely earth, water, air and fire, have been shed with the advent of modern science. Chittick, *Science of the Cosmos*, *Science of the Soul,* p. 100.
63. Seyyed Hossein Nasr, “The Question of Cosmogenesis — The Cosmos as a Subject of Scientific Study,” *Islam and Science*, Vol. 4(Summer 2006) No.1, p. 53
64. Ibid., p. 54.
65. Ibid.

66. Ibid.
67. Ibid.
68. Nasr, *Man and Nature*, p. 120.
69. Nasr, *Traditional Islam in the Modern World*, p. 105.
70. Ibid., p. 106.
71. Seyyed Hossein Nasr, “On Biological Origins,” interview by Muzaffar Iqbal, in *Islam, Science, Muslims, and Technology: Seyyed Hossein Nasr in Conversation with Muzaffar Iqbal* (Alberta, Canada: Al-Qalam Publishing, 2007), p. 153. Nasr has criticized the theory of evolution in most of his works. However, since it is in this interview that Nasr has explained his point of view most extensively, we have chosen to focus on this source.
72. Ibid., p. 152.
73. Ibid., p. 152. Nasr implies that laboratories can transform an entity (i.e. reduce it to dust or vapour) but cannot make it non-existent. Ibid.
74. Nasr, “In the Beginning was Consciousness,” p. 225. And as the Qur’ān states existence of any entity is initiated by God’s command “Be!” (36:82).
75. Ibid., p. 164.
76. Ibid., p. 164–165. Q. 3:29; 20:98.
77. Ibid., p. 155.
78. Osman Bakar, “The Nature and Extent of Criticism of Evolutionary Theory,” in *Science and the Myth of Progress* (Bloomington, IN: World Wisdom, 2003), p. 174.
79. Frithjof Schuon, *Form and Substance in the Religions* (Bloomington, IN: World Wisdom, 2002), 65, quoted in Bakar, “The Nature and Extent of Criticism of Evolutionary Theory,” p. 169.
80. Stephen Meyer, *Signature in the Cell: DNA and the evidence for Intelligent Design* (New York: HarperCollins, 2009), p. 424; Nasr, *Knowledge and the Scared*, pp. 237,239.
81. David Berlinski, *The Devil’s Delusion: Atheism and Its Scientific Pretensions* (New York: Crown Forum, 2008), 188–193. Titus Burckhardt has argued that if the transitional forms cannot be found, it contradicts “with the principle of selection that is supposed to be operative factor in the evolution of species: the trial forms should be incomparably more numerous than the ancestors having already acquired a definitive form.” See Burckhardt, *Mirror of the Intellect*, p. 35.
82. Meyer has observed that for the scientists of the time of Darwin, single cells were seen as “amorphous sacs of chemical jelly, not intricate structures manifesting the appearance of design.” Meyer, *Signature in the Cell,* p. 44.
83. Michael J. Behe, *The Edge of Evolution: The Search for the Limits of Darwinism* (New York: Free Press, 2007), p. 119.
84. Bakar has provided an excellent summary of the growing dissention among biologists against the theory of evolution. See Bakar, “The Nature and Extent of Criticism of Evolutionary Theory,” pp. 174–179
85. Nasr, “On Biological Origins,” pp. 162–163.
86. Ibid.

87. Nasr, “On Biological Origins,” p. 163. In Ibn Sīnā’s cosmology for instance, the rational soul of the human being subsumes the animal soul and the vegetable soul. See Nasr, *Introduction to Islamic Cosmological Doctrines*, 249–252. Generally, the vision of the human being as a microcosm of the macrocosm expresses the view that realities of all beings in the cosmos are contained in the human microcosm. See Chapter 2.2.1c.
88. Nasr, *Knowledge and the Sacred*, p. 237.
89. See Chapter 2.2.2. In this connection, as Osman Bakar has observed, “no amount of facts accumulated by biology can in any way affect the truth of this metaphysical criticism.” Bakar, “The Nature and Extent of Criticism of Evolutionary Theory,” p. 169.
90. See Chapter 2.2.1a.
91. Nasr, “On Biological Origins,” p. 154. Bakar has pointed out that in the positivist intellectual climate of the second half of the nineteenth century metaphysical ‘ideas’ such as divine archetypes, design in nature, etc., were understood at their theological level and rejected for being scientifically meaningless. Bakar suggests that Traditionalists, including Nasr, has presented these ideas in a more rigorous intellectual fashion that deserves attention. Bakar, “The Nature and Extent of Criticism of Evolutionary Theory,” pp. 166–167.
92. Nasr, *Religion and the Order of Nature*, p. 216.
93. George Grant, *Technology and Justice* (Concord, Ontario: Anansi Press, 1986), p. 65.
94. *The Encyclopedia of Religion and Nature*, ed. Bron Taylor (New York: Thoemmes Continuum, 2005). See Taylor “Religious Studies and Environmental Concern” in *The Encylopedia of Religion and Nature*, p. 1375.
95. Bron Taylor, “Religious Studies and Environmental Concern,” pp. 1375–1376.
96. See Bron Taylor, *Dark Green Religion: Nature, Spirituality and the Planetary Future* (`Berkley, Los Angeles, London: University of California Press, 2010), Chapter 2.
97. Bron Taylor, Introduction to *The Encyclopedia of Religion and Nature*, ed. Bron Taylor (New York: Thoemmes Continuum, 2005), p. xx.
98. Taylor, “Religious Studies and Environmental Concern,” p. 1376.
99. See Introduction, n211–212 and n215–217. Also, for contemporary examples of Islam inspired environmental activism around the world, see the magazine *Eco-Islam* at http://ifees.org.uk/.
100. For numerous examples of Christian environmental activism, see Willis Jenkins, “After Lynn White: Religious Ethics and Environmental Problems” *Journal of Religious Ethics,* 37.2, 2009, p.296. For examples of environmental initiatives taken by diverse religions, see Gary Gardener, *Inspiring Progress: Religious Contributions to Sustainable Development* (New York: W.W. Norton, 2006).
101. Taylor, “Introduction,” p. xx.
102. Taylor, *Dark Green Religion,* Chapter 2: pp. 13–41.
103. Ibid., p. 23.

104. See Introduction 0.6, Chapter 1.1, Chapter 2.2.1b and Chapter 3.2–3.5. Also, see *Seeing God Everywhere: Essays on Nature and the Sacred*, ed. Barry McDonald (Bloomington, Indiana: World Wisdom, 2003).
105. Ben A. Minteer and James P. Collins “From Environmental to Ecological Ethics: Toward a Practical Ethics for Ecologists and Conservationists” *Sci Eng Ethics*(2008) 14: pp. 483–501 and 489.
106. Ben A. Minteer “The Future of Environmental Philosophy” *Ethics & The Environment*, 12(2) 2007), p. 132. Also, see Bryan Norton “The Past and Future of Environmental Ethics/Philosophy” *Ethics & Environment*, 12(2) 2007, p. 135.
107. John Dewey, “The Influence of Darwinism on Philosophy,” in *The Essential Dewey: Pragmatism, Education, Democracy* Vol. 1(Bloomington, IN: Indiana University Press, 1998), pp. 39–45.
108. Ben A. Minteer, “Pragmatism, Piety, and Environmental Ethics” *Worldviews* 1 2(2008), pp. 179–196.
109. Aldo Leopold, *A Sand County Almanac* (New York: Ballantine Books, 1970), pp. 116–117.
110. Norton, “The Past and Future of Environmental Ethics/Philosophy,” p.136; Also, see Bryan Norton, “Beyond Positivist Ecology: Toward and Integrated Ecological Ethics,” *Sci Eng Ethics* (2008) 14: pp. 581–592, 582.
111. See section 6.3
112. Shaya Isenberg and Gene Thursby, “Perennial Philosophy,” in *The Encyclopedia of Religion and Nature*, ed. Bron Taylor (New York: Thoemmes Continuum, 2005), p. 1272.
113. Nasr, *Need for a Sacred Scence,* pp. 80–81.
114. Chittick, *Science of the Cosmos*, *Science of the Soul,* p. 12.
115. The unicity, that is, the interrelatedness of everything in the cosmos is evident in Islamic cosmology, and by the same token, in Islamic mathematics, astronomy, medicine and alchemy. See Chapter 5.
116. See Chapter 6.3– 6.6.
117. See Introduction 0.6.1 and Chapter 3.4.
118. Mullā Sadrā, I, 3,380 quoted in Ibrahim Kalin, “Mullā Sadrā’s Realist Ontology of the Intelligibles and Theory of Knowledge,” *The Mulim World*, Vol. 91, January 2004, p. 99.
119. Nasr, *Islam and the Plight of Modern Man*, p. 7.
120. As Lings observed, only the Divine message “can counter balance the out-pouring urge to which all creation is subject; and with this urge unchecked, just as the radii of a circle move further and further apart from each other … so the different psychic elements become more and more loosely knit and the soul becomes less and less of a unity” Lings, *Ancient Beliefs and Modern Superstitions*, pp. 36–37.
121. It should come as no surprise that it was Adam Smith — a man so utterly convinced of the Newtonian mechanical worldview that he wrote several treatises in support of it — who famously theorized that acting only in self-interest was a good thing for what has come to be known as the capitalist economy which is sustained by

technological innovations. See Eric Schliesser, “Wonder in the Face of Scientific Revolutions: Adam Smith on Newton’s ‘Proof’ of Copernicanism,” *British Journal for the History of Philosophy* 13(4) 2005, pp. 697–732.
122. For Nasr’s understanding of the Promethean image, see Chapter 1.3.
123. See Chapter 1.5 and 1.6. “Having lost the sense of the sacred, [the Promethean human] is drowned in transience and impermanence and becomes a slave of his own lower nature, surrender to which he considers to be freedom.” Nasr, *Knowledge and the Sacred*, p. 161.
124. This point of view is now shared by many other scholars. See Chapter 1.5.
125. Nasr, “Islam and the Problem of Modern Science,”136. “There is always a connection between the way we dream and the way we are. We are fooling ourselves if we think that the state of science today is none of our concern…We are all connected by the problem of what we mean.” Appleyard, *Understanding the Present*, p. 199.
126. Grant, *Technology and Justice*, pp. 35–37.
127. Nasr, *Young Muslim’s Guide*, p. 187.
128. On several occasions Nasr has given outlines of the ways scientistic secular philosophies, literature, psychologies, etc., have been affecting Muslim societies. Nasr, *Islam and the Plight of Modern Man*, pp. 201–222. In the same vein, Heba Ezzat discusses the effect of secular thought on Muslim social structure. See Heba Raouf Ezzat, “Secularism, the State and the Social Bond: The Withering Away of the Family,” in *Islam and Secularism*, eds. John Esposito and Azzam Tamimi (London: C. Hurst & Co., 2000), p. 124–137.
129. Nasr, *Need for a Sacred Science*, p. 81.
130. Seyyed Hossein Nasr, “Pertinence of Studying Islamic Philosophy Today,” in *Islamic Life and Thought* (Chicago: ABC International Group, 2001), p. 150.

Chapter 7
Technology Is Not Value-Neutral

Whatever calamity may befall you will be an outcome of what your hands have wrought. (42:30)

In this chapter we will explore Nasr's contention that applications of modern science, that is, modern technology, are not value-neutral.[1] Rather, in keeping with the outlook of modern science, modern technology affects our sense of meaning and purpose in the cosmos in a profoundly negative manner. As Nasr explains, any technology is "derived from a particular view of man's relation with the forces of nature and the environment, as well as the understanding of man himself." [2] In particular, we will explore how the very nature of modern technology can in time bring about a shift in consciousness from a sense of relative unity to that of greater multiplicity of the world around us. In other words, we will see how, like modern science, modern technology, by its very nature, ultimately inclines our consciousness from *tawhīd* towards *takthīr,*[3] and by the same token, inclines us to be less caring towards the natural world. We will end the chapter with a brief discussion of the traditional solutions that Nasr recommends in the face of the challenges posed by modern technology.

The destructive impact of modern industries on the natural environment will not be discussed as it was covered in the Introduction.[4] Rather, the focus will be on the spiritual damage resulting from what Nasr calls "peaceful"[5] technologies. Thus, we will highlight his argument that the very nature of modern technology exacts a spiritual price from those who become dependent on them.[6] As Nasr contends, "Whatever form of modern technology is adopted, even if positive on a certain level, will bring with itself its negative effects."[7] In effect, our discussion will implicitly bring about his rebuttal of modernist or fundamentalist Muslims' claim that modern technology is value-neutral and can do no harm to Islamic values unless Muslims make wrong use of them.[8]

We will accomplish our objective in three phases. First, from section 7.1 to 7.1.2, we will discuss Nasr's view of the ideal relationship between work and spirituality in Islam, followed by a brief discussion of his insights into the nature of the traditional technology, which we may refer to as the tool. The tool, as we will see, enables a mode of work and lifestyle that has a unifying effect on the soul and its relationship with the world. Next, from section 7.2 to 7.2.3, we will discuss the nature of modern technology, which we may refer to as the machine. For its part, the machine imposes a mode of work and lifestyle that has the opposite effect on the soul and its relationship with the world. Finally, in section 7.3, we will summarize Nasr's recommendations regarding the traditional tools and modes of work as counterbalances to the dispersive effects of modern technology on the human soul

and the consequent effects on the natural environment.

Compared to his extensive critique of modern science, Nasr's discussion of the nature and function of the tool and of the machine are brief but pithy. On the other hand, there have been a handful of Western thinkers who have written much more extensively on the nature of the machine and its effect on modern society. Jacques Ellul (1912–1294) and Ivan Illich (1926–2002) from the 1960s and 1970s, Bryan Appleyard (b. 1951) and Neil Postman (1931–2003) from the 1980s, and Ellul's student, Willem Vanderburg, since the 1990s, are worthy of mention as they have been at the forefront of the scholarly critique of the role of machines in modern society. [9] Nasr's own understanding of the nature and function of technology was in part shaped by the works of Ellul and Illich.[10] Indeed, Nasr concurs with these critics on the point that machines have come to dominate the modern human being. However, Nasr and these Western thinkers disagree on what they emphasize as the ultimate loss for humans who endure the domination of the machine.

Ellul was a pious Protestant and Illich was a devout Catholic. Both were concerned with the dominating character of machines and their snuffing out of the God-given freedom that is fundamental to the very meaning of being human.[11] Appleyard and Postman stress the need to preserve human freedom for the sake of culture.[12] Even though less religiously motivated than his mentor Ellul, the main goal for Vanderburg is to preserve human freedom from the constraints of machines.[13] Nasr also criticizes the machines' robbing of human freedom but his ultimate concern is the way machines create a fragmented view of reality and how they alienate the human self from its surroundings. However, there is much in the varied criticisms of these Western critics of the machine to help elucidate Nasr's perspective. Thus, using Nasr's metaphysical outlook on the nature and function of the tool and of the machine as a base, we point to the arguments of the aforementioned Western critics, to illustrate Nasr's pithy discussion criticizing the machine.

7.1 WORK AND SPIRITUALITY IN ISLAM

In order to see how in Nasr's view the machine impoverishes human beings spiritually, we must begin with the Islamic understanding of the relationship between work and spirituality before analyzing the ways in which technology affects this relationship. According to Nasr, given the "unitary perspective of Islam, which refuses to distinguish between …religious acts and secular ones, or between prayer and work," all activities, excluding those which are religiously forbidden, must never be devoid of a way of relating to the sacred.[14] Accordingly, traditional sciences, as we saw in Chapter 5, were mindful of the unitary nature of reality and of the relation of everything in the material dimension to higher realities.

Furthermore, Nasr draws attention to the verse *O you who have attained to faith! Be faithful to your covenants ('uqud)* (5:1) to make the argument that every work or action in the Islamic way involves doing one's duties not only to God, but also

to oneself and to others.[15] Thus, obligation to God is linked with the obligation to oneself and others. When working for the benefit of others, or if creating something to be sold or given to others, a true Muslim, by virtue of his faith, would be obligated to himself to use his skills and intelligence in the best possible manner in order to fulfil his obligation to God and others. This obligation to oneself to fulfil an obligation to God relates to Nasr's argument that acknowledging *tawhīd* means not only to affirm the oneness of God outwardly, but also to integrate "the individual soul into its Center," that is, to make the individual soul conform to the will of God who resides in his heart.[16] In other words, to acknowledge the unity and the ultimate authority of God is to bring one's will and action in accordance with His, that is, to be one in one's faith, word and action.[17] Thus, we may conclude that for Nasr, in Islamic terms, the self cannot be separated from work in order for this work to be spiritually meaningful.

As for the most praiseworthy mode for the believer to work in, a number of prophetic *hadīths* glorify direct physical engagement. Nasr draws attention to the relevant *hadīth* "Strange are the ways of the believer, for there is good in every affair of his hands" in order to highlight the grace that comes through any work done by the hands of one whose heart is turned towards God. [18] Thus, from a traditional Islamic point of view, the most spiritually beneficial manner of work is to work with faith and love for God in fulfilling one's covenants *('uqud*) and with direct physical involvement.

Islam has something to say about the desirable pace of work as well. The Prophet is reported to have said, "Calmness and patient deliberation is from Allah, but haste is from the devil."[19] We will see the relevance of this warning when we analyse the effects of modern technologies on human consciousness.

Nasr sees two broad categories of work that human beings engage in: "moulding and remoulding materials and objects drawn from the world," and, all other works.[20] Technology affects how we perform the first category of work and how we then use the products of that work in all of our other actions. In order to see how in working with technologies, the tool has a unifying effect on the soul whereas the machine has a 'dispersing' effect on the same, it is important to define the tool and the machine and distinguish between them.

7.1.1 The Tool, the Human Being and the Vicegerency Effect

Traditional technologies were generally tools or simple technologies operated by hands or feet, or in rare cases were powered by wind, water or animals, some examples being windmills, waterwheels, and horse carriages. Often, the very simplicity of the tools made them suitable for various craftworks. Not only were people well-aware of what tools could accomplish but they also knew how these worked, even in relatively complex case of traditional technology such as windmills. Working with tools engaged one's body, mind and soul — one's whole being. The quality of the work depended almost entirely on the skill and dedication of the human worker.

Nasr explains the Islamic religious significance of the relationship between humans and any tool that relates to the way qualities of God that are inherent in the human being can be reflected in the work itself. He begins by stating that in the way people have had total control over traditional tools, they were like "an extension of our hands, senses, and other parts of our body and which, like the body, were subservient to the soul."[21] There is a sense of unity between the tool and the user of the tool. As with the limbs of our body, we can connect, understand, control and express creativity inherent in our souls with ease as we mould and remould "materials and objects drawn from the world" with these traditional tools. Thus, in working with a tool the user possesses most of the know-how.

As God's vicegerents, human beings share all the qualities of God including His creativity[22] and manifest God's qualities to the extent that they surrender or live according to God's will.[23] Since everyone leaves the mark of his qualities on what he makes, according to Nasr, one's work reflects God's qualities to the extent that one lives according to God's will.[24] Since the human being can be fully engaged and best express his qualities through his work only when he works with tools, "there is something directly human and at the same time directly spiritual in the production of handiworks."[25] In other words, along with the ease with which a human being can use a tool "as an extension" of our limbs, it allows for the transfer of his qualities, which are nothing but traces of the qualities of God cultivated by him, on to the objects he makes or interacts with. Henceforth, we will refer to Nasr's intuition that the human being leaves a trace of God's qualities on what he makes or interacts with, as the vicegerency effect. The vicegerency effect or the lack thereof plays the central role in Nasr's approval of the tool and in his criticism of the machine.

Another important aspect of working with the tool, according to Nasr, is that it allows the human being close contact with the material he works on. Since working with the tool allows the freedom for close observations as well as direct bodily contact with the material, this mode of work is a means for intimate knowledge of the material essential for working with it most creatively.[26]

7.1.2 The Tool and the Vision of Unity

Recalling the famous *hadīth* "God is beautiful and loves beauty," Nasr observes that, being made in the image of God, the human being has an inherent love for beauty.[27] Likewise, he shares God's qualities of freedom and creativity and has an inherent need to express himself freely and creatively. Further, his love for beauty drives him to want to make things beautiful. Since the tool allows him to express himself most creatively, it is only with the tool as such that the human being himself can make things most beautifully. As Nasr has observed, the act of *making* was always seen as a form of art in pre-industrial days because all things were made with tools till then. [28] As Titus Burckhardt, the leading scholar on Islamic traditional art in the twentieth century, notes, in Islam "art can never be separated from craft."[29]

Several scholars have noted that people derive great satisfaction from the freedom and creativity allowed in working with traditional tools. [30] Nasr adds an Islamic explanation to that phenomenon. Recalling that "in Arabic the word *husn* means 'beauty' and 'goodness,'" [31] he believes that the love for beauty benefits the producer spiritually. When one has love for something he wants to make, "it brings into play the virtue of goodness. Such a work ennobles the soul of the person who creates it and fulfils deep religious and spiritual needs."[32] Nasr notes that love of beauty also "brings about collectedness and helps the scattered elements of the soul gather together in a state of calm."[33] As an attribute of God, Nasr explains, beauty also shares God's characteristics of mercy and compassion which have a unifying and harmonizing quality within the soul, as Ibn 'Arabī has argued.[34]

The "collectedness" or the unification of "scattered elements of the soul" found in the traditional mode of working with tools was made possible by several factors: 1) by the sense of intimacy with the tool one worked with, 2) the sense of intimacy with the material one worked on, and 3) the freedom and creativity this mode of work allowed. When we consider that in pre-industrial society a deep faith in God — who loves beauty and demands the fulfilment of all covenants (*'uqud*) — was prevalent, we can assume greater efforts on the part of people in making things with beauty.[35] For instance, in the traditional guilds, which were generally associated with Sufi orders,[36] "love of beauty" was seen an essential aspect of the work ethics to ensure the high quality of the work.[37]

As such, in traditional Islamic society every man-made object had a spiritual quality by virtue of the vicegerency effect.[38] Indeed, in Burckhardt's words, "Before the world of Islam was invaded by the products of modern industry, no object left the hands of a Moslem craftsman without being endowed with some beauty."[39] Furthermore, traditionally-made objects as such, when shared, carried with them certain spiritual grace to others and thus became the principle means of social bonding. "The fabric of all traditional societies" as Nasr puts it, "is based on the spiritual relationship between the human being and the objects he or she creates."[40]

It could be said that just as the traditional mode of working with the tool can bring a sense of "collectedness" in the soul, the beauty of the products themselves — brought about by the vicegerency effect — induces a sense of unity in two ways: 1) It serves as a reminder of God who is Beautiful, 2) It creates a bond of faith and beauty among the people in society. For Burckhardt, the impulse for beauty in Islamic craftsmanship was rooted in Islam's "innermost reality, which is Unity (*al-tawhīd*) manifesting itself as justice (*'adl*) and generosity (*karam*)."[41] Burckhardt might as well have said that the "innermost reality" of Islam was the faith in God — the One and the Beautiful — which manifested a vision of unity, beauty, and thus generosity, in the craftsmanship.

In summary, by enabling the cultivation of spiritual qualities and in creating a spiritual ambience with the products, work with traditional tools can provide a greater

sense of unity for the human being both within himself and with his surroundings. This cannot but aid in the realization of the unity of God (*tawhīd*) whose signs are in the horizons and within the human being.[42] We must keep in mind what has been said above of the conditions and benefits of working with traditional tools to appreciate what Nasr contends are at stake when working with modern technologies or the machines.

7.2 THE MACHINE AND ITS RELATIONSHIP WITH THE HUMAN BEING

According to Nasr, the most important difference between traditional tools and modern technologies or machines, is that the machine contrary to the tool, "dominates over the human being."[43] This domination begins by marginalizing the input of the human being in what he does with machines.

In contrast to tools, machines are complex and not powered by human beings. Their inner workings, for the most part, remain unclear, if not incomprehensible, to almost all users. The more complicated a machine, the less transparent are its inner workings.[44] With a machine we only know what specific tasks we can accomplish with it when we press a button or turn a wheel. The quality of the performance requires minimal input from the user. Machines for moulding, drilling, cutting, chiselling and mixing or house and office appliances such as radios, televisions, cameras, refrigerators, micro-ovens, telephones, and modern vehicles of transportation, all attest to this fact. The incomprehensibility and the lack of control over machines, contrary to the experience of working with the traditional tools, rob the sense of intimacy not only with the machines, but also with the materials one applies the machines on.

The machine can outperform the human being only in mechanical tasks. It does not possess a soul. Hence, the machine can perform only specific mechanical tasks that it is designed or programmed for; it does not have feelings, intuitions, or metaphysical beliefs which are all, as Appleyard has noted, "non-computable"[45] capacities of the human soul. As human beings, we have the freedom and ability to change our course of action from moment to moment according to our judgments of what is required, which are based on worldly estimations, intuitions, feelings and our understanding of the nature of reality. On the contrary, as Ellul noted in his celebrated treatise, *The Technological Society*, technology is artificial in that it "subordinates the natural world .... Just as the hydroelectric installations take waterfalls and [disregarding their natural courses] lead them into conduits."[46] The operations of the machine never take into account the changing context in the real world.[47] In machine operations, the role of the human is minimal, and effectively takes away the opportunity for the human being to express himself. The vicegerency effect is thus marginalized. Most importantly, compared to the relationship between the human being and the tool, there is relatively little sense of unity between the human being and the machines he uses. Unlike the tool, the machine is neither like "the extension of

our hands and senses," nor, by the same token, is it "subservient to the soul."

There are two broad categories of machines: machines for *making* things and machines for *doing* all other things. We will briefly examine how each type disrupts our sense of relative unity and harmony with our surroundings.

7.2.1 Disconnection and Spiritual Loss through Machines for Making Things

The minimal human involvement in the making of things is most evident in the plants and factories where the human input is limited to a few specialized repetitive tasks that cannot be easily copied by machines. Truly creative work is conducted only by a handful of people who design the products being manufactured. In the performance of a given task, unlike the traditional tool, it is the machine which possesses the know-how. In Nasr's words,

> Traditionally, the know-how and the art resided within the being of the craftsman and the tool was very simple. But if you go to a Detroit factory where they are producing cars, the worker there has very little know-how — he just presses a few buttons. All of the know-how is in the machine…[48]

In contrast to the situation with traditional tools, the disconnect between the machine and the human being prevents him from availing the spiritual opportunity to engage his self fully and derive satisfaction from his work. The machine leaves no room for the vicegerency effect to take hold. As Nasr states, "a mechanical and impersonal manner of making things destroys a basic dimension of the ethical value of work"[49] in the sense that it deprives the human being of the "creativity and spiritual content of work."[50] According to Nasr, in time this denial of an opportunity for spiritual cultivation has grave consequences: "Technology itself imposes upon man a type of worldview. It changes man to a machine in many ways,"[51] The machine mechanizes our "manner of being" and our "way of acting."[52] Once we see how the dependence on machines makes people's behaviour more mechanical, it is easy to see how machines transform their worldview as well.

The effects of machines on human beings are not hard to visualize if we look back on how modern science creates a God-less materialistic worldview. Just as modern science makes the reality of God irrelevant by excluding Him from its discourse on the cosmos, modern machines bring about a mechanical way of thinking and acting simply by substituting for traditional tools. We do not switch to working with machines in order to destroy our qualitative relationship with our surroundings, it happens quietly and without our consent. We can better understand Nasr's point of view by analyzing how the type of machines that *make* things result in a mechanization of everything else.

First, to the extent that the making of things requires the human being to follow

the machines, he works according to the mechanical logic of the machine. In performing a task, this implies limiting the human being's involvement according to the mechanical need of the machine. His contribution can be as little as pushing a button or turning a wheel or placing the raw material in a certain location for the machine to operate on. The division of labour that the machine creates in this manner largely excludes the human's heart and intelligence, that is, his self, from participation in the making of things. As a result, the opportunity for spiritual benefit through the work is severely limited. The worker being used only for a particular physical movement is reduced to a mechanical entity. The more complex the machine he uses, the more the role of the self of the worker is diminished.

The mechanization of the human producer through the division of labour is even more evident and consequential in factories where several individuals may be operating a machine in the making or moulding of a product. As each individual participates in performing a peripheral aspect of the production process, his involvement in the whole project becomes even more superficial than if he alone were involved in the making. He may even be unaware of what his contribution eventually produces. The division of labour in modern factories enabled mass production which eliminated the economic viability of working with tools and simple technologies.[53] At the same time, the division of labour eliminated the opportunity for the engagement of one's skill, heart and intelligence.[54] By the same token, machines for producing things eliminated a social network of individuals formed through the exchange of their tool-made objects which, by virtue of the vicegerency effect, carried a spiritual grace and thereby had an unifying effect on the community.[55]

The second way of mechanization also originates in the impersonal mechanical way of making things. It relates to the consumers of things produced in the mechanical manner. Almost every object in our homes and offices are produced or shaped by machines that we cannot even operate. Nor do we see these machines or their operators, for we simply buy their products from stores. In this manner, in surrounding ourselves with machine-made objects, indeed we live in a less intimate space compared to households in the traditional ambiance.[56]

7.2.2 Disconnection and Spiritual Loss through Machines for Doing Things

Mechanization of our lives also happens through machines with which we do things other than making of objects. For instance, activities such as travel, computation and communication are now facilitated by modern machines such as cars, trains, planes, telephones, computers, email and internet. Machines, in addition to being disconnected from us, mechanize our lives in at least two ways. Firstly, by doing with what we could do on our own or with tools. Secondly, by doing what are not humanly possible with or without the tools.

In the first case, we deprive ourselves, as in the case of making things with machines, from our full participation and use of our sense of creativity. For example,

the more we use a car to go where we could easily walk to, the more we deprive ourselves of the spiritual benefits inherent in the ordinary human function of walking and interacting with the elements around us which induce a sense of unity with our surroundings. The more we rely on telephones and emails to communicate, the more we deprive ourselves from the spiritual benefit of personal encounters with others or the personal touch of a hand written letter. The more we allow computers or calculators to compute for us, the weaker our natural ability to compute or to visualize numbers becomes. As such, every time we use a machine to do what we could do normally in its absence we deprive ourselves of an opportunity to live as self-reliant human beings creatively exercising our unique qualities and interacting with our surroundings.[57] In effect, we deprive ourselves spiritually when we resort to machines for tasks that do not necessarily require them. In all, as Nasr would have it, by choosing to interpose a machine between our tasks and ourselves, we minimize the vicegerency effect of our actions as much as we forego the opportunities to foster a greater sense of unity with people and nature.

In the second case, when we use machines simply because they can vastly outperform us, we create a lifestyle that struggles to keep up with the demands generated by the efficiency and pace of that mechanical performance. We may recall the Prophet's warning against making haste. Without things like cars, trains, planes, and ships, the hectic lifestyle of the modern world would collapse. Also, it must not be forgotten that modern means of transportation were instrumental in creating such a lifestyle. Likewise, while emails allow us to send messages instantly, they necessitate a much faster response to every inquiry. And while cell phones have made it possible to communicate with anyone in any place, they gradually limit the amount of time we spend in solitude to reflect or contemplate in peace. Indeed, as Nasr has observed, every technology that promised to save time, in reality has robbed our time even more in other ways.[58] In the same vein, as Ivan Illich suggests, every form of modern technology and the numerous industries that the modern lifestyle is dependent upon impose a 'problematic' pattern of life.[59] By having to keep up with the speed and efficiency of these machines, our lives are gradually shaped in the "image" of machines. In this manner, contrary to the image of traditional tools being like "extension of our hands," Nasr suggests that due to our dependence on machines we ourselves become "the extensions of the machine."[60] Similarly, Illich suggests that although the industrial age began with the hope that machines would work for people, "evidence shows that, used for this purpose, machines enslave men;"[61] moreover, they enforce haste in all our makings and doings.

Since machines are neither products of nature nor can they ever be like "extensions of our hands" or be "subservient to our souls," they create a distance between us and the world whenever we rely on them. In adjusting to the logic and performance of the machines, our natural relationship with the world becomes transformed into the machines' relationship with the world. In walking, running, and moving by traditional carts or even horse-drawn carriages a relative unity between

ourselves and the space surrounding us is maintained. As Vanderburg suggests, this relative unity and harmony is disrupted when we are transported by high-speed machines like cars, trains and planes; in such activities space is objectified, it becomes the other that we seek to conquer.[62]

Again, as Nasr has observed, through technology, 'time' has been objectified and quantified in modern times.[63] From a traditional conception of time in cycles defined by days, weeks, months, years, and the religious rites, which returned regularly over the ages with corresponding planetary cycles, the Western human had to shift to the view of time as an objective linear reality when mechanical clocks were introduced in Europe. The effect of the clocks was apparent especially from the beginning of the industrial era. According to Vanderburg, the clocks, as it were, synchronized "the lives of factory workers with the rhythms of machines and factories."[64] In the traditional Islamic world, all daily activities were scheduled around the five daily times of the *adhān* (call to prayer). But the times for *adhāns* are not standardized as is the case with clocks. They are based on certain positions of the sun in the sky, suggesting a relation between the cosmic cycle and the human life and religion. For a long time, it was difficult for Europeans to adjust to the standardized objective clock time which was unrelated to the rhythm of life of the pre-modern human being. In the Muslim world as well, modern clocks have objectified time for those who have resorted to these machines to meet the demands of modern life. The mechanical and now digital clocks have played a role in distracting modern Muslims' from a sense of a harmonious relationship with the cosmos around them.

All kinds of machines also have a mechanizing effect on our consciousness simply by their ubiquitous presence in our ordinary life. Along with machines like cars, trains, planes, computers, telephones, televisions, refrigerators, toasters and blenders, there exists an extensive and ever-expanding system of infrastructure needed to maintain the functionality of these machines. Infrastructure systems like modern roads, highways, train lines and electric grids have produced a mechanized sense of physical space itself. As Nasr has pointed out, our sense of space changes in accordance with what we find in it.[65] The sense of space in a craftsman's workshop or on a brick laid road is qualitatively more in harmony with our selves than the space inside a modern factory or on a modern highway. Insofar as we are affected by the qualities of what surrounds us, machines and the infrastructure built for their efficient functioning have a disruptive effect on our souls' relationship with our surroundings. Vanderburg reflects this phenomenon in his description of the process of cultural transformation that societies undergo as a result of more advanced technology: "The more people changed technology, the more they changed their social and physical surroundings, and the more they changed the kinds of experiences from which they grew their brain-minds and cultures." [66] In the same vein, Nasr notes that modern technology "allows us to build an artificial ambience in which it is easy to forget God," and thus, modern cities contribute to a materialistic and, by the same token, a fragmented vision of reality.[67]

In summary, for the purposes of both making and doing things, machines interpose themselves between humans and the natural world. In so doing, the machine prevents humans from leaving a vicegerency effect on our works and actions. The machine also prevents humans from knowing the world more intimately and has a disruptive effect on the sense of relative unity between us and the natural environment. Furthermore, machines mechanize our lives by forcing us to keep up with their mechanical efficiency and pace which further distance us from the world of nature. In all, machines ultimately cause disharmony and disunity between the human being and his natural surroundings.

7.2.3 Mechanization Leads Us Away from *tawhīd* and towards *takthīr*

In light of the preceding discussions, it is easy to see why Nasr sees the machine as a source of "disintegrating impulse,"[68] or as an agent of *takthīr*, that is, the means for creating a view of the world consisting of an ontologically unrelated multiplicity of entities. In Chapter 6 we saw how modern science *passively* ignores the human self by disregarding our immediate experiences of qualities of an entity and by dismissing our faculties of perception beyond ordinary reason. Machines do the same by interposing themselves between the self and the world *actively* irrespective of how we perceive scientific knowledge. To further elucidate how the machine leads us away from *tawhīd* it is important to comprehend that machines can only perform quantifiable tasks.

The whole concern of technology is about doing or making things and *not* about answering *why* a particular task should be done. Hence, if a mechanical or quantitative problem can be defined, scientists or engineers can design a technology to solve that problem, if not immediately, then in time. But since machines can be designed for only specified quantifiable tasks, machines can only have quantifiable goals. In other words, the purpose of technology cannot be qualitative except in quantifiable terms. Machines portray life as though it were a sum of quantifiable tasks. As machines penetrate deeper and deeper into our lives, quantitative means and goals, and not cultivation of virtues or contemplation and reliance on God, appear to be the normal course of action in every situation. Every technological innovation carries the message that the means to an objective can be quantitative even if it lacks the personal touch. However, since quantitative considerations concern only the material dimension, they can only lead to the vision of *takthīr*.

Another way to see how machines lead to a worldview of *takthīr* is to realize that each piece of technology is not only a technical information in itself, but also a means to much new technical information that, like scientific knowledge in general, indicate no ultimate meaning or purpose for themselves.[69] For instance, a microscope is itself a kind of technical information. Also, the microscope is a means to much quantitative data that say nothing whatsoever about their relation to higher realities. In a modern society, this situation has grave consequences on the vision of unity. To see this, we must first understand, as Ellul demonstrated in the 1970s, that so long as scientific

progressivism[70] prevails in a society, once we choose the path of the machine to perform any particular task, society effectively chooses the path of irreversible and unstoppable advancement in the efficiency, capacity and variety of technologies. [71]

Second, as we saw in Chapter 6, scientism undermines religious narratives about the meaning and purpose of the universe.[72] In such circumstances, proliferation of technology becomes an agent of *takthīr* because the increasing number of ultimately purposeless information generated by the new machines has a dispersing effect on the mind.[73] As Martin Lings notes, the state of a human soul in the midst of this information oversupply is "like a multitude of hands pulling at it from all directions as much as to say 'Give me just a small piece of your attention,' and these 'hands' are ever on the increase, and ever more trivial in their demands."[74] We might say that the vision of *takthīr* is exacerbated by what Neil Postman describes as modern human's addiction to scientific information.[75]

In light of the discussions above, Nasr is justified in warning Muslim nations that they cannot catch up with the West technologically without sacrificing Islamic values which are ultimately based on the vision of *tawhīd*. In the same vein, Nasr maintains that technology cannot be isolated from the culture it is born in.[76] Technologies are ultimately products of what we think are possible and how a culture intends to move forward. Commenting on motivations for inventing certain kind of technologies over others, distinguished philosopher Jacob Needlemen has observed that "When an idea or theory 'works' it always does so relative to what we are asking of reality ... our discoveries — no matter how ingenious — never [can] be bigger than our basic intentions."[77] If modern technologies have a *tawhīd*-denying effect, it is not accidental that they have been produced mostly by cultures where a secular scientific worldview prevails. Thus, in describing the process of transformations of traditional cultures through the penetration of modern technologies, "the diffusion of a particular constellation of technologies" Vandenburgh argues, "depended on the diffusion of the culture…in which it was embedded."[78]

In summary, in disrupting our relative harmony with our surroundings, in forcing us to see life's goals and means in quantitative terms, and in generating evermore technical knowledge, modern technologies or machines are means to an increasingly exacerbating vision of *takthīr*. As with scientism, the result is a lack of appreciation for the natural world as so many signs of God held in the 'embrace' of God's Unity.[79] And as discussed earlier, distracted from spiritual vision, human beings are most likely to focus their energies in worldly pursuits with the desire for even *more* technology to secure those pursuits.[80] The consequence among other things is further exploitation of natural resources. If Muslims wish to catch up with the West technologically, whether by buying modern technology or by producing it, they cannot do so without undermining the conviction in the fundamental Islamic principles and the values they support, and consequently engaging in further exploitation of nature.

Are machines then outside of God's grace? We think, for Nasr, they are not outside grace as nothing can exist without God. However, if God has allowed

machines and their extensive support infrastructures to exist, He has also given us guidance and intelligence to know our ultimate purpose and how we must order our priorities. Just as we need to choose thoughts and actions according a purpose, we must make a choice among technologies according to our purpose in life. Ultimately, from an Islamic perspective, our attitude towards technologies should be determined by how we must spend our limited time and energy for the purpose of fulfilling our potential as vicegerents of God witnessing His oneness and caring for His creations.

7.3 PRESERVATION AND REVIVAL OF TRADITIONAL MODES OF PRODUCTION

Nasr is aware that neither Muslim masses nor their governments are willing to give up modern technology for a variety of compelling reasons.[81] Under the circumstances, Nasr's stance regarding available technology is quite practical. There are three aspects to his stance. First of all, he insists that Muslims ought to be more aware of the negative consequences of modern technologies such that they can choose to use only "technologies which have *less* negative impact on the environment." [82] Second, Nasr approves of technological measures being considered by many Western nations to reduce pollution of the land, water and air, so long as they are seen only as means to gain more time to prepare for profound spiritual responses.[83]

Third, Nasr adds that to truly solve the environmental crisis Muslim nations must make every effort to preserve or revive the use of traditional tools and the ways of doing and making things with them in whichever sector of life still possible.[84] With regard to making and doing things in the traditional way, Nasr believes that much can still be preserved or revived in the Muslim world in the sectors of agriculture, medicine, architecture, textiles, as well as carpet and utensil production. But instead of producing certain traditional tools and crafts as souvenirs for tourists as it is commonplace today, Nasr recommends extensive production by traditional methods such that these products and modes of production can be brought back to use in the daily life of the masses.

He reminds us that some of the traditional ways of production such as the art of weaving "did not decay until very recently."[85] The same is true of agriculture[86] and architecture, until early in the twentieth century.[87] In the case of agriculture, Nasr suggests "…keeping small farms, rather than changing the whole method by adopting large agro-businesses, using genetically engineered seed, taking over the traditional farms."[88] With regard to architecture, Nasr reiterates the advice of the great Egyptian architect Hasan Fathy, who called for the use of material available naturally to create "architecture which is also environmentally very friendly."[89] In the same vein, Nasr suggests minimizing the input of metals which are not really natural but are extracted from compounds found in the earth, as is the situation with most chemicals that pollute the environment.[90]

Closely linked with traditional architecture is traditional Islamic urban planning

which “[is] all based on certain metaphysical principles related to the nature of reality, cosmology, and the relationship between the human being and God from an Islamic point of view.”[91] Nasr states that efforts must be made to protect traditional urban designs wherever they still survive.[92] In cases where traditional ways may not be easily revived, he recommends that Muslims at least become aware of the negative consequences of modern means of production while searching for more traditional ways.[93]

Proliferation of modern technologies ceaselessly marginalizes the function of all traditional ways of making and doing things. For instance, if machine-made house wares, garments or shoes are cheaper and more durable, economic considerations would force most people to choose the machine products over traditionally made ones. In this regard, Nasr disagrees with the assumption that given the dramatic increase in population during the twentieth century, we have no recourse but to produce in large scale and by using large industrial production facilities. He argues that with the increase in population, there is also an increase in availability of workers who could be employed to make things in a traditional way by using traditional tools or simple technologies, that is, by the traditional production process.[94] Nasr maintains that “men and women … can continue to make many things without their being automatically replaced by the machine. And this can be of benefit not only from a spiritual, social and ecological point of view but also in the long run even economically.”[95]

Nasr’s preference for traditional tools and traditional modes of production over machines and industrial modes of production reminds one of the famous British economist E.F. Schumacher’s (1911–1977) arguments for human-scale technology and what he called Buddhist economics.[96] In this regard, we believe Schumacher was one of Nasr’s inspirations.[97] Not surprisingly, Schumacher’s worldview was quite identical to the Traditionalist worldview of Nasr. [98] Indeed, Frithjof Schuon was one of the three most important twentieth century thinkers whom Schumacher read often[99] and he made references to other prominent Traditionalists frequently.[100] Like Nasr, he also rejected the theory of evolution on logical and scientific grounds, famously labelling the theory “science fiction” rather than science.[101]

In our view, Schumacher and Nasr differ only by the aspect of modern life that each has targeted for radical transformation. Schumacher, the economist, recognized the problem with modern science[102] but stressed the need for a new philosophy for economics, one that would replace what he called the “religion of economics,” which values profit over virtues or the environment.[103] Nasr criticizes modern economics for being opposed to virtues of simplicity and contentment, and consequently sees it as the *outward* cause of consumerism and the environmental crisis. [104] However, he always underlines that the fundamental *inward* cause of the environmental crisis is the scientific worldview. As a scholar of the history and philosophy of science Nasr’s criticism of modern science and technology has been coupled with a vision to

establish, as we will see, a new sacred science based on the metaphysical principles which are at the root of each religious tradition.

7.4 CHAPTER SUMMARY

In summary, apart from the obvious physical onslaught of modern technology on the natural environment,[105] there are serious spiritual consequences to working with machines. Hence a thorough critique of modern technology along with a re-appreciation and revival of traditional tools and modes of production would take us a long way in countering the effects of modern technology in Muslim societies. However, to ultimately overcome the *tawhīd*-denying effects of modern science and technology, we must be able to envision an alternative science that would not have the dispersive effects of modern science and technology on our souls and consequently on our vision of reality. We will now turn to Nasr's vision of this alternative science.

NOTES

1. Nasr, "Islam, Muslims, and Modern Technology," pp. 113 and 123.
2. Nasr, "Islamic Worldview and Modern Science," p. 9. According to the modern scientific worldview, nature is ontologically unrelated to the human being; it is the domain he should control and exploit for his benefit. Modern technology is an expression of that attitude.
3. See Chapter 6.7.
4. See Introduction 0.1.
5. Nasr, *Need for a Sacred Science*, p. 83.
6. Ibid., p. 86.
7. Nasr "Islam, Science, and Muslims," p. 57.
8. See Chapter 4.3.2 and 4.5.1.
9. See Jacques Ellul, *The Technological Society* (New York: Random House, 1964); Ivan Illich, *Tools for Conviviality* (New York, London: Harper & Row, 1973); Neil Postman, *Technopoly: The Surrender of Culture to Technology* (New York: Vintage Books, 1993); Neil Postman, *Building a Bridge to the 18th Century: How the Past Can Improve Our Future* (New York: Vintage Books, 1999); Willem H. Vanderburg, *The Labyrinth of Technology: A Preventive Technology and Economic Strategy as a Way Out* (Toronto: University of Toronto Press, 2000); Vanderburg, *Living in the Labyrinth of Technology* (Toronto and London: University of Toronto Press, 2005).
10. Nasr,"Islam, Muslims, and Modern Technology," p. 112.
11. Following the neo-orthodox theologian Karl Barth, "Ellul was preoccupied with freedom because he saw Christianity's message [in our age] as essentially one of liberation [more than redemption]." See Clifford G. Christians, "Jacques Ellul's Conversions and Protestant Theology," *Journal of Media and Religion*, 5(3), p.152. For Ellul, freedom can be preserved against the constraining forces of technology only through faith in the totally other transcendent reality of God who determines everything. Jacques Ellul, *To Will and To Do*, trans. C.E. Hopkin (Philadelphia:

Pilgrim, 1969), p. 146. Ivan Illich was a Catholic priest who believed that setting limits to technological development is one of the essential ways of preserving human freedom and practicing renunciation in the modern world. See Lee Hoinacki, "The Trajectory of Ivan Illich," *Technology & Society*, Vol. 23, No.5, October 2003, p. 386.
12. See Postman, *Technopoly*, pp. 182–183. He values religion as one of the most effective means for overcoming the 'thought-world' of modern societies devoted to technology. However, religion for him is not a message from the transcendent realm. Rather it is "as an expression of humanity's creativeness, as a total, integrated response to fundamental questions about the meaning of life." Ibid., p. 198. For Appleyard's objective of defending of culture over all else, see Appleyard, *Understanding the Present*, p. 250.
13. Vanderburg, *Living in The Labyrinth,* pp. 484–485.
14. Nasr, *Traditional Islam in the Modern World*, p. 37. As the Qur'ān states, God created human beings only to worship Him (51:56) indicating the potential of all human activities to be acts of worship. Likewise William Chittick and Sachiko Murata assert that for Muslims worship of God involves not only "the Five Pillars" of Islam but "everything they do." Chittick and Murata, *Vision of Islam*, p. 276.
15. Nasr, *Traditional Islam in the Modern World*, p. 36. According to Raghib, a traditional exegete, this verse refers to covenants of 'of three kinds: the covenants between God and man [i.e., man's obligations towards God], between man and his own soul, and between the individual and his fellow-men' — thus embracing the entire area of man's moral and social responsibilities." Muhammad Asad, *The Message of the Qur'ān*, p. 180.
16. See Nasr, *The Heart Islam*, p. 197; and Seyyed Hossein Nasr, *Ideals and Realities of Islam,* 2nd edition (Chicago: Kazi Publications, 2000), p. 16.
17. Similarly, for al-Ghazzali the proper course for human development — to make progress towards the realization of *tawhīd* — was to make one's actions conform to the knowledge of the truth. See Laleh Bakhtiar, Introduction to *Al-Ghazzali on Trust and the Unity of God*, trans. Muhammad Nur Abdus Salam (Chicago: Great Books of the Islamic World, 2002), pp. 5–6.
18. Nasr, *Traditional Islam in the Modern World*, p. 45. On Another occasion the Prophet (peace be upon him) said, "Nobody has ever eaten a better meal than that which one has earned by working with one's own hands. The Prophet of Allah, David used to eat from the earnings of his manual labour." *The Translation of the Meanings of Sahih al-Bukhari*, Vol 3, Book 34, Number 286, trans. Muhammad M Khan (Riyadh: Dar-us-Salaam Publications, 1997).
19. Prophet Muhammad quoted in Jonathan Katz, *Dreams, Sufism and Sainthood: The Visionary Career of Muhammad Al-Zawawi* (Leiden: Brill, 1996), p. 57.
20. Nasr, *Traditional Islam in the Modern World*, pp. 35–36.
21. Nasr, "Islam, Muslims, and Modern Technology," p. 112.
22. See Chapter 2.2.1c.
23. See Chapter 3.2 and 3.4.
24. Nasr, "Islam, Muslims, and Modern Technology," pp. 113–114.

25. Ibid., p. 119.
26. Based on a conversation with Nasr at the George Washington University (USA) on 13 August 2009.
27. Seyyed Hossein Nasr, *The Heart of Islam: Enduring Values for Humanity* (New York: HarperCollins, 2002), p. 222.
28. Nasr "Islam, Muslims, and Modern Technology," p. 111. Nasr underlines that this understanding of *making* by using tools as an art is reflected in the Arabic word *sinaa'ah* or the corresponding Persian word *sana'at* which mean both "technology" and "art," even though in the modern times the significance of this association of art with technology has been forgotten except for a relatively few things still made with tools.
29. Titus Burckhardt, "Perennial Values in Islamic Art," in *Mirror of the Intellect: Essays on Traditional Science and Sacred Art*, trans. and ed. William Stoddart (Cambridge, England: Quinta Essentia), p. 227.
30. See Illich, *Tools for Conviviality*, pp. 11, 20; also see E. F. Schumacher, *Small is Beautiful: Economics as if People Mattered* (New York: HarperPerennial, 1989), p. 158.
31. Nasr, *Heart of Islam*, p. 223.
32. Nasr, *Traditional Islam in the Modern World*, p. 43. As Burckhardt reported, "In a Fez of not long ago, we knew … men who saw in the most modest aspects of their profession a means of spiritual perfection (*ihsan*)." Titus Burckhardt, "Traditional Sciences in Fez," in *Mirror of the Intellect: Essays on Traditional Science and Sacred Art*, trans. and ed. William Stoddart (Cambridge, England: Quinta Essentia), p. 181.
33. Nasr, *Heart of Islam*, p. 222.
34. Ibid. For Ibn 'Arabī, God's mercy contained in the recommended acts of the *Sharī'ā* has the unifying and harmonizing effect in the way diverse divine qualities are manifested in the human being. See Chapter 3.3.
35. For Burckhardt, Islamic teachings themselves played a significant role for the impulse to make things beautiful. To this end, he frequently cites the famous *hadīth* "God prescribes *ihsan* in all things," where the term *ihsan* refers to perfection, virtue or beauty. "The Role of Fine Arts in Moslem Education," in *Mirror of the Intellect: Essays on Traditional Science and Sacred Art*, trans. and ed. William Stoddart (Cambridge, England: Quinta Essentia, 1987), p. 214.
36. Hodgson, *Venture of Islam*, p. 221.
37. See Nasr, *Traditional Islam in the Modern World*, pp. 43, 128–129.
38. In the pre-modern Islamic world "from the making of a simple comb to the composition of Sufi poetry and everything in between… was related to God and reflected His quality as the Supreme Artisan on the human plane." Nasr, "Islam, Muslims, and Modern Technology," p. 114.
39. Burckhardt,"The Role of Fine Arts in Moslem Education," p. 213.
40. Nasr, "Islam, Muslims, and Modern Technology," p. 113.
41. Burckhardt, "The Role of Fine Arts in Moslem Education," p. 213.
42. See Q. 41:53.

43. Nasr, “Islam, Muslims, and Modern Technology,” p. 112.
44. For more on this, see Appleyard, *Understanding the Present*, p. 173.
45. Appleyard, *Understanding the Present*, pp. 217–221.
46. Ellul, *Technological Society*, p. 79.
47. Vanderburg, *Living in the Labyrinth*, p. 85.
48. Nasr, “Islam, Muslims, and Modern Technology,” p. 112.
49. Nasr, *Traditional Islam in the Modern World*, p. 43.
50. Nasr “Islam, Muslims, and Modern Technology,”p. 113.
51. Nasr “Islam, Science, and Muslims,”p. 59.
52. Ibid., p. 56.
53. For an insightful discussion on the mechanizing consequences of technical division of labour, see Vanderburg, *Living in the Labyrinth*, pp. 23–26.
54. As Torben Nielsen notes, “[Adam] Smith saw the impairment of the greater part of the population’s intellectual, social and moral virtues as the price to be paid for the division of labour.” Nielsen, “The State, the Market and the Individual,” p. 290.
55. Vanderburg has referred to this kind of bond in society as culture-based connectedness which was *enabled* by traditional technology. See Vanderburg, *Living in the Labyrinth*, p. 27.
56. If modern human beings are not consciously aware of any sense of alienation and fragmentation in surrounding themselves with machine-made objects, this could be attributed to getting used to a given situation in the absence of any alternative experience. The situation is similar to being “in a tunnel so long [that] one has forgotten that sun and stars and rain exist.” Smith, *Forgotten Truth*, p. viii.
57. Here, one may object, as Appleyard does, that unlike other technologies which are specifically task-oriented, computers are fundamentally different for they depend wholly on the programming skill of the user and therefore offer opportunity for much creativity. See Appleyard, *Understanding the Present*, p. 175. But we believe that this opportunity for creativity is fundamentally different from that offered in working with tools. In the case of the computer, the programmer simply plays with the logic of an artificial language with virtually no knowledge of the immensely intricate circuitry of the hardware that makes the outcome possible. The creativity of the programmer remains confined mostly to the mental plane as he plays with the abstract commands of the programming language. Also, one can speak of no sense of intimacy with the computer itself whose inner workings remain largely obscure even to the programmer.
58. Nasr, “Islam, Science, and Muslims,” pp. 56–57. “Time becomes scarce, partly because it takes time to consume [the ever increasing number of time saving] goods.” Illich, *Tools for Conviviality,* p. 79.
59. See Illich’s discussion of ‘radical monopoly’ in *Tools for Conviviality*, pp. 51–54; Nasr, *Need For a Sacred Science*, p. 77.
60. Nasr, *Young Muslim’s Guide to the Modern World*, p. 191.
61. Illich, *Tools for Conviviality*, p. 10.
62. Vanderburg, *Living in the Labyrinth*, p. 199.

63. Based on class notes from the graduate level course titled *Man and Nature* taught by S.H. Nasr at the George Washington University (USA), 9 March 2004.
64. Vanderburg, *Living in the Labyrinth*, p. 198.
65. Nasr, *Knowledge and the Sacred*, pp. 202–203.
66. Vanderburg, *Living in the Labyrinth*, pp. 28–29.
67. Seyyed Hossein Nasr, “Islam and the Environment,” Lecture delivered at Georgetown University School of Foreign Service, Qatar, 26 January 2009.
68. Nasr quoted by Keith Critchlow, “Keyonte Speech” for *The Beacon of Knowledge: Essays in Honor of Seyyed Hossein Nasr*, ed. Mohammad H. Faghfoory (Louisville, Kentucky: Fons Vitae, 2003), p. l.
69. See Chapter 6.5.
70. See Chapter 1.5.
71. The two most important dynamics which Ellul thinks are responsible for the unstoppable progress of technologies are what he calls ‘technical automatism’ and ‘self-augmentation.’ As long as scientific progressivism prevails in a society, ‘technical automatism’ refers to the phenomenon that any technology ‘X1’ which outperforms technology ‘X’ will replace ‘X’ in the future. ‘Self-augmentation’ refers to the phenomenon that as long as scientific progressivism prevails, when a technology ‘X’ is invented, it enables the invention of a host of other technologies in diverse fields such that technological innovations grow exponentially. Ellul,*Technological Society,* pp. 80–91.
72. Chapter 6.3–6.5; Postman, *Technopoly,* p. 79.
73. Postman has argued that with the loss of a coherent religious worldview, human beings have become quite susceptible to any scientific claims: “There is almost no fact, whether actual or imagined, that will surprise us for long, since we have no comprehensive and consistent picture of the world that would make the fact appear as an unacceptable contradiction.” Postman, *Technopoly,* p. 58. In the same vein, Vanderburg has referred to the exponential growth of information with the diffusion of machines through society as an “explosion of ignorance.” Vanderburg, *Labyrinth of Technology*, p.80.
74. Lings, *Ancient Beliefs and Modern Superstitions*, pp. 38–39.
75. Postman observed that since the Scientific Revolution, modern civilization has been accustomed to desiring more and more scientific information about nature in order to solve resource scarcity problems. This approach to knowledge eventually swept aside the coherent religious worldview which prevailed until the Scientific Revolution. But without that worldview to make sense of what we know, the continued quest for scientific information gradually created an oversupply of information which provides no moral guidance. This situation, Postman suggests, has brought about a range of problems. However, unfortunately, in societies dominated by scientific progressivism, the answer to problems is more scientific information. Postman, *Technopoly*, pp. 59–61.
76. Nasr,”Islamic worldview and Modern Science,” p. 9.
77. Needleman, *A Sense of the Cosmos*, p. 15.

78. Vanderburg, *Living in the Labyrinth*, p. 163. Also, see Ibid., p. 144.
79. See Chapter 6.5.
80. See Chapter 6.8 and Chapter 1.5–1.5.1.
81. See Chapter 4.1.
82. Nasr, “Islam, Muslims, and Modern Technology,” p. 116. (accent ours)
83. See Introduction 0.5.
84. Nasr,”Islam, Muslims, and Modern Technology,” pp. 117–119; Nasr, “Islam , Science, and Muslims,”p. 79.
85. Nasr, “Islam , Science, and Muslims,” p. 68.
86. Nasr, “On the Environmental Crisis,” p. 136.
87. Nasr, “Islam , Science, and Muslims,” p. 68.
88. Nasr, “Islam, Muslims, and Modern Technology,” p. 117.
89. Nasr, “On the Environmental Crisis,” p.140. For more on Hasan Fathy’s work with natural local materials, see his book *Architecture for the Poor* (University of Chicago Press, 2000). Also see Nasr, *Need for a Sacred Science*, p. 89.
90. Ibid., pp. 140–141. “One of the main victims of the blind import of Western technology and uncritical imitation of Western strategies of development has been Islamic architecture. Islamic architecture was once the best in the world. It was beautiful. It turned the glare of the desert sun, into pleasing patterns of light by the use of lattices. Made of earth and tiles, it was cool in the summer and warm in the winter. It trapped breezes and led them gently throughout the structure, cooling the occupants. It resisted the climate for hundreds of years.” Timberlake, “Emergence of the Environmental Awareness in the West,” p. 130.
91. Nasr, “Islam, Muslims, and Modern Technology,” p. 125. For a discussion of the vision of unity in Islamic urban design, see Nader Ardalan and Laleh Bakhtiar, The *Sense of Unity* (Chicago: The University of Chicago Press, 1973).
92. Nasr, “Islam, Muslims, and Modern Technology,” p. 124.
93. Nasr, “Islam , Science, and Muslims,” pp. 59–60.
94. Nasr, “Islam, Muslims and Modern Technology,” pp. 119–20.
95. Nasr, *Need for a Sacred Science*, 90. Waleed El-Ansary has demonstrated that neither industrial capitalism which focuses on increasing profit, nor socialism which uses secular ethics and social engineering to bring about cooperation among workers, can enable men and women to perfect their talents, or succeed in building an economically viable and socially desirable nation that only the way of traditional production process can accomplish. See Walid El-Ansary, “The Traditionalist Critique of Industrial Capitalism,” *Sophia* Vol 12, no. 1 (Spring/Summer, 2006), pp. 55–65.
96. See E. F. Schumacher, *Small is Beautiful: Economics as if People Mattered* (New York: HarperPerennial, 1989), pp. 155–69 and 56–66.
97. Schumacher’s *Small is Beautiful* has been for many years in the short list of required readings for a graduate level course titled *Man and Nature* which Nasr teaches at the George Washington University (USA).
98. This similarity in views is most clearly reflected in E. F. Schumacher, *A Guide for the Perplexed* (New York: HarperCollins, 2004).

99. Schumacher's daughter Barbara Wood mentions Frithjof Schuon as one of the three most important contemporary thinkers for Schumacher; the other two being the Catholic theologian Joseph Pieper (1904–97) and the Catholic philosopher Jacques Maritain (1882–1973), both prominent scholars of St.Thomas Aquinas. Barbara Wood, *E.F. Schumacher: his life and thought* (New York and London: Harper & Row, 1984), p. 336.
100. See the footnotes in *Guide for the Perplexed* for references to René Guénon, Ananda Coomaraswamy, Lord Northbourne, Whitehall Perry and Martin Lings — all prominent Traditionalist thinkers. It is highly likely that Schumacher also read Nasr's *Man and Nature* and other works published in the 1960s. Moreover, the fact that Schuon, Guénon, Lings, and several other Traditionalists had lived in and written about Islam, may have influenced Schumacher's unfulfilled intention "to begin a study of Islam to examine the implications of an Islam economics." Wood, *Schumacher: his life and thought*, p. 370.
101. Schumacher, *Guide for the Perplexed*, pp. 111–116.
102. "In the excitement over the unfolding of his scientific and technical powers, modern man has built a system of production that ravishes nature and a type of society that mutilates nature." Schumacher, *Small is Beautiful*, p. 313.
103. Ibid., p. 47.
104. Nasr, "Religion and the Environmental Crisis," pp. 31–32.
105. Introduction 0.1.

Chapter 8
Towards an Islamic Science

> The student should be taught about the various schools of the Islamic 'philosophy of nature,' which…have views concerning time, space, matter, change, cause and effect and many other subjects which form the basis of natural sciences.[1]
> Seyyed Hossein Nasr

In the last two chapters we saw how modern science ignores Islamic metaphysical principles and how modern technology forces humans to ignore these same principles by limiting our vision to the quantifiable physical realm. However, if we can imagine a science bound by these metaphysical principles science would not be an agent of distraction from the spiritual. This point is the basis of Nasr's vision of an Islamic science: "The ideal situation would be to have an authentic metaphysical knowledge, embracing knowledge of the Divine Principle and all Its levels of manifestations, as the framework for both science and religion, understood in the ordinary sense of the term, so that the two would share common principles."[2] For Nasr, only a science that is capable of interpreting all natural phenomena through the metaphysical perspective as such *without denying* the "factual discoveries of modern science,"[3] would really be an Islamic science.

In this chapter, we will provide an outline of the "authentic metaphysical knowledge" and the educational reforms that Nasr believes are necessary to establish a contemporary Islamic science founded on that metaphysical knowledge. Nasr believes that the most fitting metaphysical knowledge to serve as the framework of an Islamic science today would be that of the natural philosophy of Mullā Sadrā. The means by which Sadrā's natural philosophy could be the foundation of a contemporary science that would affirm the ontological bond between human beings and the natural world, and by the same token, ultimately aid human beings in their realization of *tawhīd*, *in themselves and in the horizons* (41:53) will be the subject of this chapter.[4] This will be followed by an overview of the reforms of the educational institutions in the Muslim world which Nasr argues would be necessary to bring about the establishment of the new Islamic science.

8.1 WHY METAPHYSICS? WHY THE METAPHYSICS OF MULLĀ SADRĀ?

In Chapter 2, we discussed the role of metaphysics in making sense of the immanent aspect of God without violating His transcendence.[5] In so doing, we saw that metaphysics describes all levels of reality and their interrelations.[6] Later, in Chapter 3, we saw how metaphysics forms the foundation of ethics by elucidating the nature of reality of the natural world. Since modern science, in its assessment of nature, limits it to the material dimension as a reality independent of any higher realm, it is only by metaphysical knowledge and its certitude found through the practice of Sufism

that it can be effectively argued that the material reality is not an independent dimension. Nasr gives his rationale for preferring metaphysics to provide the intellectual framework for Islamic science by way of explaining that other aspects of Islamic intellectual tradition cannot provide a comprehensive understanding of the different levels of reality:

> [The] Islamic worldview… as far as the cosmos and the whole question of various scientific epistemologies are concerned, cannot be simply extracted from the Sacred Law or *al-Sharī'ā*, which embodies God's Will for our actions in this world, nor even from *Kalam* whose role has always been to protect the citadel of faith from rationalistic attacks, nor still from jurisprudence (*al-fiqh*)…Rather it must be drawn from the *haqiqah*, which lies at the heart of the Noble Qur'ān and *hadīth* as expounded and formulated by the traditional commentators, as well as Islamic metaphysics, cosmology, the doctrinal and intellectual aspects of Sufism, and the Islamic sciences, themselves. Only in this intellectual tradition…can one rediscover the authentic Islamic worldview as far as it pertains to the knowledge of nature, and in fact, the whole question of the levels of knowledge.[7]

Islam cannot retreat from the study of nature, for, "In numerous verses of the Qur'ān," as Nasr asserts, "man is directed to the phenomena of nature and asked and even ordered to study them."[8] However, unlike modern science, in Islam, nature or the visible cosmos consists of the signs of God pointing to meanings and realities beyond the physical reality. Hence, only an intellectual perspective, such as that of Islamic metaphysics or cosmology which does not exclude any dimension of reality physical or otherwise, can provide an alternative paradigm to that of modern science for the comprehension of the cosmos in the Islamic sense.

Traditional Islamic sciences, as noted in Chapter 5, share the Islamic the vision of unity — based on the unity of the origin and reflected in the unicity of the cosmos — as well as, the principles of the hierarchic structure of reality and the purposefulness of the cosmos, though they do *not* conform to Islamic metaphysics in its full scope as expounded by Ibn 'Arabī.[9] Hence, instead of the cosmological visions of Jābir Ibn Hayyān (d. 800), Abū NaSr al-Fārābī (870–950) or of Ibn Sīnā (980–1037), Nasr recommends the natural philosophy of Mullā Sadrā, which conforms to Ibn 'Arabī's metaphysics, to serve as the basis of the new Islamic science. As we will see, Nasr's preference for Mullā Sadrā's natural philosophy has other reasons as well.

The Sufi and theologian, Abū Hāmid al-Ghazzālī (d.1111) argued that Peripatetic philosophy failed to comply with Islamic faith in several ways.[10] In contrast to al-Ghazzālī, Mullā Sadrā demonstrated how rational philosophy could play an important role when integrated within the metaphysical teachings of the Qur'ān, *Hadīth*, and the visions of Islamic gnostics. As such, according to Nasr, Sadrā's philosophy "accords with the inner meaning of the revealed Text."[11] Concurring with Ibn 'Arabī, Sadrā demonstrated philosophically that it takes both reason and intellection to know the

truth of things as they are.[12]

On the one hand, Sadrā showed that rational philosophy could be refuted on purely rational grounds, and on the other, when combined with gnostic intuitions, rational arguments could support the truth-claims of the Qur'ān and the *Hadīth*. In this connection, Sadrā's natural philosophy is relevant to the enterprise of science because it can provide an understanding of the parameters of natural sciences, namely space, time, matter, cause, effect, growth and change in a way that achieves three objectives: 1) It addresses previously unanswered questions in Greek and Islamic Peripatetic natural philosophy and thus closes an important gap in traditional natural philosophy, 2) It provides profound alternative visions of the parameters of science, illustrating the central role of God in everything associated with entities *without rejecting rational arguments*, 3) It responds to the limitations of modern science. In the next few pages, we will provide an outline of these achievements, and underline the significance of Sadrian natural philosophy and the possibility of Nasr's vision of an Islamic science.

8.1.1 Sadrā's Contribution to Greco-Islamic Natural Philosophy

The primary challenge in Islamic natural philosophy has been to explain the workings of the multiplicity of the phenomenal world in a way that portrays the world as a domain *wholly dependent* on God who is at once One and transcendent in relation to the created order. The answers to this challenge, as it applies to the world of nature, are found in the Islamic philosophy of nature.

Muslim theologians, on the one hand, generally emphasized the transcendent aspect of God and His distinction from the created order. Since God is the All-Knowing (*al-'Ālīm*) and the Most Exalted in Power and Might (*Al-'Azīz*), theologians saw God's will as the sole direct cause for all natural phenomena. They maintain that any consideration of secondary causes is an affront to God's absolute power and authority over the entire created order. In other words, God's will is cause enough and no further explanation is necessary.

On the other hand, Muslim Peripatetic philosophers argued that God is not whimsical, for that would make "justice and accountability" on earth meaningless; the cosmos had to be intelligible; otherwise there would be "metaphysical chaos where nobody can know anything for sure."[13] Believing that the cosmos had to be intelligible, they accepted secondary causes subordinated to God. Thus in the cosmologies of al-Fārābī and Ibn Sīnā, even though God is the transcendent ultimate cause, there is a hierarchy of intellects governing all affairs of the world and a view that motion and time are agents of change . However, while the Peripatetic philosophers believed the existence of the material world derived from the heavenly intellects and ultimately from God through emanations, they held the Divine to be essentially transcendent to the multiplicity of the phenomena.

Following Aristotle, Muslim Peripatetic philosophers concluded that motion in the cosmos was the agent of all change. For instance, if an object was moved from heat

to cold, or from one set of circumstances to another, the entity would undergo changes. The Peripatetics saw this change only as change in the accidents of an entity: in place (*'ayn*), position (*wad'*), quantity (*kam*), or quality (*kayf*) of an entity. They did not accept change in the very substance, namely the principle of an entity that "subsists by itself"[14] and provides the identity of the entity, under any circumstances. They argued that any change in substance implied a change in the very identity of the entity and thus negates the possibility of motion for the existing entity.

In this schema, Peripatetic natural philosophy could not explain how God was directly involved in the changes associated with any entity except through secondary causes. This schema also could only provide an explanation for drastic changes, such as changes in accidents due to external motion. It could not account for the gradual and continuous change in nature. For instance, it could not explain how a seed grows into a tree, or how a fruit or a living entity matures.[15] In a world of fixed substances, gradual and continuous change eluded explanation. It was left for Sadrā to explain how God was directly involved in every act and in every change, drastic, or gradual and continuous.

Modern science avoids addressing the failure of the Peripatetic philosophers to provide a rational explanation for God's *direct* role in nature by simply ignoring the role of God as a possible cause in any act or change in nature. Thus, we will see how Sadrā's natural philosophy fills a vacuum in traditional natural philosophy and, at the same time, offers an intellectual challenge to modern science's vision of nature.

In order to see how Sadrā's natural philosophy is relevant to questions that concern modern science, we will begin with a brief summary of the foundational principles of Sadrā's natural philosophy and his doctrine of the 'substantial motion' (*al-harakat al-jawhariyyah*).[16] Subsequently, we will explore how they provide a view of reality that agrees with the "realities of prophecy" and challenges the fundamental assumptions of modern science.

8.2 AN OUTLINE OF SADRĀ'S NATURAL PHILOSOPHY

According to Sadrā, our ordinary experience of the world leads us to think that quiddities (*m ā hiyya*)[17] are the fundamental realities to which being (*wujūd*) is added.[18] This had been the conclusion of Aristotle, and was accepted by most Muslim philosophers prior to Sadrā. Sadrā himself believed this conclusion, until he was inwardly revealed the truth of the Unity of Being (*wahdat al-wujūd*),[19] and that the quiddity in itself was no more than a mental abstraction (*i't'ibari*) of a particular "limitation or modality of Being."[20] Hence, Sadrā concluded that the being of an entity was the principial aspect of an entity (*as ā lah al- wujūd*). By the same token, he concluded that the hierarchy of reality in the cosmos was determined by the gradation of the intensity of the Being (*tashk ī k al- wujūd*) for all entities.[21] The lesser the delimitation, the greater the attributes of Pure Being were expressed by an entity. In

other words, the beings in various entities we experience in the world are merely delimitations of the Being of God which determine the quiddities (*m ā hiyya*) of the entities.[22] Thus, the foundational principles of Sadrā's natural philosophy are the Unity of Being (*wahdat al-wujūd*), the principiality of being (*as ā lah al- wujūd*) and the gradation of being (*tashk ī k al- wujūd*).]

8.2.1 Substantial Motion *(al- h arakat al-jawhariyyah)*

Mullā Sadrā argues that since accidents could not occur without the presence of substance, the change in accidents must be caused by a corresponding change in the substance itself.[23] The change itself is caused by constant "effusion (*fayd*) of Being"[24] in the substance of entities, and hence ceaseless in both the material and imaginal planes of reality.[25] Continuous change or motion in accidents reflects continuous change in substance, that is, substantial motion (*al- h arakat al-jawhariyyah*) in entities. Sadrā claims that he gained certainty of substantial motion by "heart knowledge" and not by discursive proof.[26] Also, he cites Qur'ānic verses which, according to him, point to the doctrine of substantial motion.[27] However, he analyzes, logically and rigorously, the alternative visions of motion and change in the thought of both the Greek and the Muslim philosophers, and rejects or accepts their arguments accordingly.[28]

Sadrā suggests that the Peripatetics were mistaken in thinking that motion was the principle of change. Instead, he argued, motion was the process of change and not the principle of change.[29] For Sadrā, if an object moved from A to B, the movement described the effect of change, "the fact of changing from potentiality to actuality" [30] of that particular entity, not the principle of change itself. In light of the doctrines of the unity of Being (*wahdat al-wujūd*) and principiality of being (*asālat al-wujūd*), Sadrā holds that since the being (*wujūd*) of an entity is particularized as such by the Being of God, ultimately, it is the Being of God which is the principle of all change.[31] However, the Being of God acts through its agent, the power inherent in the being of any entity[32] — like the "spirit of a person,"[33] — that seeks change or perfection.

The being of an entity is a reflection of its archetypal possibility, or a particular gradation of the Being of God within the range of its potential determined by the immutable archetype of the entity. In Sadrā's natural philosophy, the being of an entity refers to its "substance." But no entity begins its lifespan with its archetypal potential fully realized.[34] For example, a tree begins as a seed which is not pure potentiality; the seed's very existence is the proof that the tree's archetypal potential has been actualized to a certain degree.

The potential of an entity actualizes by the continuous effusion of Being in the entity, through the inherent power in the substance of the entity, resulting in substantial change or substantial motion, up to the limit allowed by its immutable

archetype,[35] such that “it is not necessary for the particular thing to leave its quiddity and become something else.”[36] As such, according to Mullā Sadrā, the doctrine of substantial motion explains continuous growth and change in natural entities and has a teleological purpose.[37]

Nasr contends that the doctrine of substantial motion enables us to envision many scientific theories and the parameters of modern science in a new light:

> In divorcing the traditional cosmology from its reliance upon Ptolemaic astronomy, in integrating the dimensions of time and space, in providing a means to understand natural transformations without falling into the error of evolutionary reductionism, and *in many other* ways, Mullā Sadrā created on the basis of the doctrine of trans-substantial motion a natural philosophy that can function and be viable even in a contemporary setting with all the challenges of modern science and yet still remain faithful to the realities of prophecy.[38]

To begin with, he proposes the doctrine of substantial motion as a viable alternative to Darwin’s theory of evolution, which portrays the world of nature as the products of merely material forces, with no role for God, and no ultimate meaning or purpose.[39] Nasr points out that substantial motion can explain growth and change in nature without denying either the direct role of God or the immutability of any species while affirming God’s unity and transcendence.[40]

8.2.2 Substantial Motion, Time and Space

Like Greek thinkers, Muslim Peripatetic philosophers also viewed time as the measurement of circular motions of the heavenly bodies — the sun and the planets — around the earth as observed by human beings from the earth as their point of reference. Time in this view had a cyclical quality. Seasons, days and tides came and passed away in cycles. The heavenly bodies, in this traditional worldview, were viewed as perfect and beyond the world of corruption and change. By the same token, time, a measure of the motion of the heavenly bodies, was eternal.

However, Sufis had already considered time to be illusory; only the present moment had a reality. With the present moment as the point of reference, neither the past nor the future had any reality. The Qur’ānic statement *Every day He is at something* (55:29) was taken by the great Sufis to mean that creation was renewed at each moment and the real Sufis came to be seen as the ‘child of the moment’ (*ibn al-waqt*) because they strove to be fully present to the Divine reality available for experience at any given moment.[41] Ibn ‘Arabī and Mullā Sadrā formulated these mystic intuitions of the Sufis in the language of metaphysics and philosophy. Time, for Ibn ‘Arabī and Mullā Sadrā, is a relation between events in terms of “before” and “after” constructed in the mind of an observer. As Ibn ‘Arabī states, “time is a relation (*nisbah*) that is non-existent in its essence.”[42] Mullā Sadrā, for his part, concurs that

time has a kind of existence whose parts can only be described in the mind by relational terms such as “Before-ness (*al- sabaq*), beginning, attached-ness (*al-luhuq*) and end (*intiha*’),” but unlike an existent entity, it has no essence.[43]

As for ‘time’ being a measure of the spatial motion of the planets, Mullā Sadrā points instead to the cause of all changes in the cosmos, including that of spatial motion, in the beings of entities themselves, which for him, as we discussed earlier, rests in the substantial motion in entities.[44] Thus, for Mullā Sadrā, time is not a measure of external spatial motion but a ‘measure’ of substantial motion in the contingent, moving entities.[45] At the same time, since continuous substantial motion is a feature of all contingent entities, Mullā Sadrā concludes that time is simply a modality of contingent existence.[46] By the same token, we cannot imagine existent entities without the spatial dimension. Hence, if things exist “before” and “after,” space is also a modality of contingent existence.

In light of the above discussion, the celestial spheres and the heavenly bodies in Mullā Sadrā’s cosmology are neither perfect nor eternal. Their movements result from substantial motion in their being actualizing their potential, and do not *determine* the movements of bodies situated at a lower level: “…the substance of a sphere (*falak*) is not permanent with its natural and positional (*wad’iyyah*) form. The same applies to all heavenly bodies. The cause of motion and its subject is a particular corporeal being and such a being cannot be eternal.”[47]

Thus, by means of the doctrine of substantial motion, Mullā Sadrā’s cosmology succeeded, according to Nasr, in divorcing the “hierarchic Islamic cosmos with its angelic, imaginal and physical realms from the Ptolemaic system”[48] in a number of ways. First, in rejecting the notion that the visible cosmos beyond the moon was unchanging and perfect; second, in rejecting the notion that higher spheres and their corresponding planets determine the movements of lower bodies; third, in rejecting the notion that time was ultimately the measurement of the movements of the heavenly bodies.[49] And finally, as in Ibn Sīnā’s cosmology in his visionary recitals, [50] Sadrā’s metaphysics interiorized the cosmos by its emphasis on the being — the agent of all change and growth — because the being of any entity was ontologically related to the being of the human who could potentially realize the Unity of Being (*wahdat al-wujūd*) within his own self.

Nasr considers the reformulation of Islamic cosmology in the hands of Mullā Sadrā “as one of the reasons” for the relative lack of shock in the Islamic world, when compared to the reaction of the medieval Christian world, from the discoveries of Copernicus and Galileo.[51] Sadrā’s view of time and space as modalities of existence, as a ‘measure’ of substantial motion, is relevant and timely. If time is a measure of substantial motion, time is determined by the intensity of the Being of God in the perceiving entity and not by the fixed structure of an external reality. Sadrā speaks of three hierarchic categories of time, from the eternal ‘timeless’ level in the Divine order, to the temporal time determined by the relation between the perceiving “changing” entities (spiritually imperfect entities) to the “unchanging” God, and finally

to that determined by the relation between the perceiving “changing” entities (between spiritually imperfect entities) .[52]

For Islamic scientists, Sadrā’s vision of time would undercut the Newtonian classical vision of time that dominates modern consciousness today. Time, as defined by Newton, is “absolute, true and mathematical,” and flows from its own nature equably “without relation to anything external.”[53] In this sense, time has an objective reality and a homogenous quality extended indefinitely in the past and in the future. In this view, things happen “in” time as though time were something prior to events. [54] Likewise, Islamic scientists may reconsider the concept of “space” as it has been defined in the Newtonian science as something prior to things which happen “in” it. Sadrā’s vision of time and space as realities that are not objective or absolute, but means of description of relation among events in accordance to their state of being, brings the focus back to the being of entities and of the perceiving self.

8.2.3 Substantial Motion and Creation *ex-nihilo* or “from nothing”

Nasr suggests that the doctrine of substantial motion explains the doctrine of creation *ex nihilo* found in the Abrahamic religious traditions.[55] Sadrā’s doctrine of substantial motion and his vision of time as a mode of contingent existence or as a ‘measure’ of substantial motion, sheds light on the doctrine of creation of the world *ex-nihilo* and in temporal time, the doctrine which had hitherto eluded philosophers and theologians. If all contingent beings are continuously renewed through substantial motion, then creation or manifestation is a stage in this continuous transformation.[56] Furthermore, if time exists only as a mode of existence of an entity, we cannot speak of creation “in” time or of a time “before” creation. In the divine order, there is no time. Before creation only God is. With the effusion of Being on the archetypes in the knowledge of God, things gain contingent existence and time and space can be spoken of to describe the relation between entities. Thus, Sadrā offers a philosophical explanation not only for the temporal origin of the world, but also for that of creation *ex-nihilo,* that is, out of pure awareness of God, and not out of matter.

8.2.4 Substantial Motion and the Unity of Knowledge and Being

Sadrā claims that the human soul not being corporeal[57] cannot know a corporeal entity directly. Offering strictly rational arguments, he asserts that the perceiver and the perceived must be of “one mode of being.”[58] For the soul to know something, as the Sadrā scholar Zailan Moris explains, the object of knowledge must be of the nature of existence, because “the nature of the soul is existence.”[59] In Sadrā’s words, “In reality, all that man conceives or perceives…are not things separate from his essence and different from his individual being and substance.”[60] The soul is the “substance,”[61] and thus, acquiring knowledge means a corresponding

effusion of Being and the substantial motion in the knowing soul. The soul becomes what it knows; its knowledge constitutes its being. It is to this process of self-transformation which Nasr alludes when he states that, “Through trans-substantial motion the act of knowing elevates the very existence of the knower.”[62]

Central to the doctrine of the unity of knowledge and being is the principle that the ‘form’ of an entity is knowable and represents the reality of the entity. According to Sadrā, the form of any entity “is the concrete ground of its quiddity, the completion of its reality, and the source of its ultimate differentia.”[63] Nasr echoes this view when he states that the form of an entity has a finality about it that also contains its meaning just as geometric forms like triangles and circles have finalities and meanings associated with them. [64] In short, the ‘form’ of an entity is its meaning or reality, and is not transient. The corporeal ‘form’ is nothing but the reflection of the imaginal form. The imaginal form in turn is nothing but the reflection of the intelligible form in the spiritual or archetypal plane, and hence immutable.[65]

For Sadrā, the soul begins its journey as pure potentiality without the knowledge of the forms.[66] It starts out with three key faculties, the *sensus communis* (*al-hiss*), the imaginal faculty, and the intellective faculty through which the soul can be gradually actualized to finally become like the Active Intellect or the Spirit which possesses the realities of all entities.[67] The *sensus communis* gathers the sense data from the outer senses to create “*whole* images or *whole* impressions.”[68] Then by the power of God, ‘forms’ corresponding to the “whole images” created by *sensus communis* are created in the imaginal and intelligible planes within the soul.[69] Once the ‘forms’ are created at the same plane of reality as the soul, the soul knows, that is, it is united with these ‘forms’ through its imaginal and intellective faculties. [70] Thus, the soul becomes actualized or intensified in its being by what it learns through substantial motion.

8.2.4a ‘Matter’ is Unknowable

While forms reflect the meaning and reality of an entity, for Sadrā, the ‘matter’ of the entity remains unknowable.[71] Concurring with the arguments in the mathematician and philosopher Wolfgang Smith’s book *The Quantum Enigma*,[72] Caner Dagli, a scholar of Sadrā, makes a distinction between the *corporeal* reality and the *physical* reality of a corporeal object. Dagli and Smith agree that *corporeal* reality comprises of the qualities we perceive of an object — colour, shape, beauty, etc. — and the *physical* reality are made up of precise measures of quantitative aspects of the object.[73] The purely *physical* object is no more than a construct of numbers signifying height, weight, density, etc., measured by physical instruments. Since there does not exist any corporeal object without the perceptible qualities, the purely *physical* object corresponding to the corporeal object cannot be perceived and does not really exist.

Concerning the knowledge of 'matter,' of a corporeal object, Dagli writes that in Sadrā's theory of perception, the *sensus communis* can only access the *corporeal* reality, not the *physical* reality.[74] Through the *sensus communis* we perceive the "*whole"* form comprised of the perceptible qualities of a *corporeal* object, but not either 'matter' or the corresponding *physical* object of modern science. Dagli observes that modern science works only with mathematical structures based on quantitative measurements of corporeal objects. But when modern science studies non-perceptible objects or objects that cannot be humanly perceived in *whole*, it relies on mathematical structures based on the *whole* 'forms' of perceptible corporeal objects.[75] In other words, in modern science 'matter' is never known or measured. Thus, actual practices in modern science only appear to confirm, as Aristotle and traditional Islamic philosophers including Sadrā maintain, that 'matter' is unknowable.[76]

Sadrā's view of matter's "unknowability" can help revive the traditional attention given to forms which emphasizes the qualitative aspect of things and help resist the temptation, encouraged by modern science, to find the meaning of things in their quantitative measures or their material constituents.

8.2.5 Substantial Motion and the Imaginal World[77]

The doctrine of substantial motion plays an essential role in Mullā Sadrā's description of the workings of the imaginal world which, according to Nasr, "found its most systematic elaboration in Mullā Sadrā."[78] By the doctrine of the principiality of being, the soul is the principle and substance of the human body.[79] The soul is transformed by substantial motion caused by what it believes, learns and manifests accordingly in character traits.[80] That transformation eventually frees the soul from materiality, causing the death of the physical body.[81] At the moment of this death, the accumulated transformation of the soul gives rise, for itself, a sensible imaginal form — which can possibly take the form of even a non-human entity — according to the nature of the soul at the point of death.[82]

After death, the imaginal faculty survives[83] and allows the soul in its new imaginal form to experience the imaginal world — in which hells and heavens manifest — intensely because that world is no longer veiled by the material body.[84] Most importantly, in contrast to the scientistic community's charges of irrationality and naivety with regards to belief in eschatological events, Sadrā succeeds in providing a rigorous intellectual explanation for the plausibility of heavens, hells, bodily resurrection — in the subtle form of an imaginal body — and other eschatological events as described in the Qur'ān and the *hadīth*. Sadrā demonstrates that scriptural descriptions of reality are not allegorical as rationalism would have them reduced to, but as Henry Corbin remarked, they have a "literal spiritual truth."[85]

8.3 IMPLICATIONS OF MULLĀ SADRĀ'S NATURAL PHILOSOPHY

In summary, Mullā Sadrā's natural philosophy provides profound expositions for cause, effect, motion , space, time, form, matter, growth and change — the very parameters of reality that define the scope of the field of modern science — with rational arguments for their plausibility. In contrast to modern science, Sadrā's natural philosophy affirms the religious vision of the nature of reality. Most importantly, Sadrā cogently argues that these parameters are determined by the intensity of being present in the entities. Thus, in Sadrā's vision of the nature of reality, the focus is always on the being of entities, and with regards to human beings, on the perceiving self, which, modern science, owing to its Cartesian bias,[86] leaves out completely, and which, modern technology seriously curtails the participation of.[87]

Modern science's objectivity is limited to mathematical speculations or representations of physical dimensions measured by instruments where the whole is the sum of its parts and the qualitative meanings perceived by the self are meaningless. By the same token, modern science ignores the self by disregarding the perceptions of the soul's imaginal and intellective faculties.

One of the main characteristics of perception according to empiricism or scientific rationality alone is the view that the world is a conglomeration of distinct entities defined by their distinct accidents. In contrast, in Sadrā's natural philosophy, the unitary vision of the cosmos becomes clearer as the faculties of the soul that transcend the senses and ordinary rational faculty are recognized and allowed to play the defining role.

For Sadrā, a thorough understanding of his worldview "requires a pure disposition"[88] (although this is rarely discussed in Sadrā's writings). To be able to attain that disposition, he clearly indicates the necessity to follow the path of self-purification like that of Sufism,[89] which would include the observance of the *Sharī'ā*.[90] Indeed, as we consider how the Intellect perceives the intelligible forms and transforms our beings, it should be recalled that in Sufism the Intellect is associated with the pure heart.[91] From the Sufi perspective, in addition to the observance of the *Sharī'ā*, the heart must be polished with the remembrance of God in order for the 'eye of the heart,' that is, the Intellect, to function unobstructed. As such, Sadrā brings together the practices of the inner and outer dimensions of Islam in the study of nature, and provides a vision of a traditional Islamic path that can fulfil personal religious goals on the one hand, and reveal the Truth in nature, on the other.

Sadrā's rationale for self-purification as a means for greater knowledge may be summarized as follows. Ordinarily, the imaginal and intellective forms produced in the soul are only faint reflections of their reality in the outer world.[92] But the more one engages in seeking the Truth, the more the soul "returns to its essence and [the] less it is preoccupied with distractions of this body,"[93] and "the more manifestly will these [imaginal and intellective] forms appear in the soul and the stronger will be their being."[94] In short, as one advances on the path for Truth, the intelligible forms

corresponding to the entities in the cosmos of one's perception crystallize in the soul and constitute one's being.[95]

It is important to recall that all entities are Self-disclosures of God in terms of His qualities.[96] At each higher plane the qualities are more intensely manifested. In effect, as one progresses along the spiritual path one becomes more aware of the spiritual dimension of nature, and by the same token, one becomes more aware of one's own being as a focal point for the manifestation of God's qualities and thus as a sign of His unity. A revival of the awareness of the higher dimensions of both the human being and the cosmos is, in Nasr's view, the key to bringing about a harmonious relationship between humans and the natural world.

Indeed, seeing the natural environment through the lens of Sadrā's doctrines can bring about a whole new way of understanding the world of nature and its meaning. For instance, in the study of natural entities we may focus on the meanings of their 'forms' rather than on their material composition; the study of the growth and change in nature can be understood through substantial motion rather than through the theory of evolution. Time and space may be seen as modalities of our existence rather than independent, objective, linear realities. The natural sciences developed by Muslims with this worldview would be drastically different, and in harmony with the Islamic religion. Nasr hopes that Muslims will adopt Sadrā's natural philosophy as the framework for scientific investigations of the natural world, and thereby establish new Islamic sciences. He leaves the task of establishing these Islamic sciences to the Muslim scientists, philosophers and mystics who must take up the necessary studies and the spiritual discipline to bring it about.

8.4 TECHNOLOGY BASED ON THE NEW ISLAMIC SCIENCE

Nasr believes that once Muslims have an Islamic science that shares the same foundational principles as that of an Islamic natural philosophy, they can develop technology that would not have the negative consequences of modern technology.[97] However, in light of Nasr's elaboration of the merits of the traditional tool[98] and his criticisms of the machine,[99] we can conclude that the technology based on Islamic science would have to meet the following basic conditions, a) It must be relatively simple such that it does not curtail the participation of the self, and most of the know-how for a given task to be performed with it must reside within the human self; b) It must allow the human being close access to the material being worked upon with it; c) If it cannot be directly powered by humans, it must be powered by the wind, water and/or sun, in ways that do not harm the natural environment.[100] These three conditions are meant to bring about a sense of oneness in the human being with the technology he uses, with the material he works on, and with the natural environment that surrounds him.

Since the basic characteristics of the technology of Islamic science would be similar to that of traditional technology, Muslims would do well to revive the use of the

traditional tools wherever possible. In addition, until the envisioned new 'Islamic technology' comes about, Nasr recommends that Muslims remain circumspect about adopting new technology. In Nasr's words, "rather than jumping headlong into emulating Western science and technology, we must do it where it is absolutely essential, where there is no other choice — meanwhile buying for ourselves time to create our own science and, *insha'Allah,* one day our own technology."[101]

8.5 THE DEBATE OVER ISLAMIC SCIENCE

The vast majority of contemporary Muslims, including almost all Muslim governments, owing in large measure to the teachings of Muslim modernists and most 'fundamentalists,' believe in the nineteenth century vision of science as a value-neutral human enterprise, independent of history and culture, and essential for human progress.[102] For them, there can be no such thing as an Islamic science distinct from modern science. Much of Nasr's efforts against the environmental crisis in the Muslim world is geared towards convincing this group of Muslims that science is not value-neutral, and that blind pursuit of modern science and its applications is bound to cost Muslims not only a healthy environment, but Islamic values themselves. Today among the most vocal proponents of the view that science is always value-neutral is Pervez Hoodbhoy. Interestingly, he does not disagree with Nasr's arguments but finds him impractical for the contemporary world where material power holds sway.[103]

The next most popular view on science in the Muslim world also owes its beginning in the Muslim world to the Salafi reformists in the nineteenth century. According to this view, modern science can prove the veracity of the Qur'ān.[104] Nasr is vehemently opposed this trend.[105] Regrettably, this approach is often championed by the 'fundamentalists' trying to justify the Qur'ān's validity by contemporary science's conclusions while being unconcerned about the transient and completely secular nature of modern science's worldview. Also, as Kalin has observed, that the doctrine of 'underdetermination' or the fact that a number of different theories can justify the same set of experimental data does not strike as a problem for the proponents of this approach.[106]

Some scholars like Leif Stenberg have seen much in common between Nasr's position on Islamic science and that of a group of Muslim scholars collectively known as the 'Ijmalis' who emphaisze, like the Kuhnians,[107] that science is a historical and cultural construct.[108] However, in our view Ijmalis share little with Nasr. Led by Ziauddin Sardar, the Ijmalis has been active since the 1980s in promoting an understanding of Islamic science that is difficult to characterize because of many significant internal inconsistencies in Sardar's attempt to define it.

In his most extensive effort at a definition yet, Sardar seeks to define Islamic science as a "*subjectively objective* enterprise: objective solutions to normative goals and problems are sought within an area mapped out by eternal values and concepts of Islam."[109] The "objective solutions" are pursued by multiple methods "each as

rigorous as the other"[110] and "complementary"[111] which includes not only empirical observation but also Sufism.[112] Thus, Islamic science employs methods that can obtain "every form of knowledge from pure observation to highest metaphysics"[113] all of which are of "*equal* status" for Sardar.[114] The *subjective* aspect of this enterprise requires Muslims to be pursuing their goals "subservient"[115] to the "values and concepts" of Islam.[116]

While, according to Sardar's own definition, the way of Sufism is as objective as the empirical method of science, he seems quite out of step with the traditional Islamic understanding of the hierarchy of reality and knowledge which is central to Sufism as well as in Islamic philosophy and theology. Apparently, Sardar confuses the validity of different methodologies practiced in Islamic traditional sciences with equality of the knowledge obtained by them. For instance, salvation in Islam is not conditional upon the knowledge of physical properties of the world, as much as upon the knowledge of God's will and wisdom or upon the very "values and concepts of Islam" that Sardar believes all other concerns should be subservient to. This lack of appreciation of the hierarchy of knowledge and reality makes him equate the knowledge obtained by empirical methods with that obtained in the Sufi way of purification of the heart.

Contrary to Nasr, Sardar speaks of reviving the "holistic" nature of Islam without grounding it in Islam's doctrine of wholeness or *tawhīd* and without upholding the Sufi method of its realization as proposed by Sardar's model Muslim intellectual Abū Hāmid al-Ghazzālī.[117] He acknowledges no shift in worldview that distinguishes modern science from the Islamic sciences of the middle ages. Instead, he believes that only when Muslims have more of modern science, they can pursue *ijtih ā d*.more vigorously and thereby achieve the wholeness of Islam.[118] It is as though *ijtih ā d* can succeed mainly through greater rationalism and empiricism, and not through great wisdom and patient deliberation. In the end, the Ijmali position on Islamic science is not Islamic in itself. For them, science is Islamic so far as it is used by Muslim individuals to secure Islamic goals within the context of a culture. In the final analysis, their view of science hardly differs from that represented by Pervez Hoodbhoy. Ijmalis, as represented by Sardar, seem unconcerned, like those represented by Hoodbhoy, with the anti-religious philosophical foundations of modern science itself which is of fundamental concern to Nasr, not only for the sake of the environment, but also for the preservation of Islamic values in Muslim societies.

8.6 REFORM OF EDUCATIONAL INSTITUTIONS

Nasr is not opposed to the study of modern science but he is critical of the fact that authentic metaphysical principles which could mark science's limits and guide its course of development, are not recognized by it.[119] He freely admits that modern science has learned much about the material realm that can be of value.[120] But in order for Muslims to determine the future course of modern science in an Islamic

way, Nasr believes that the following conditions need to be fulfilled:

1. Muslims must be thoroughly versed in the Islamic intellectual tradition, particularly on a traditional natural philosophy, and preferably that of Sadrā.[121]
2. Muslims must master the modern sciences both in the theoretical and applied level.[122]
3. Muslims must be able to provide a systematic critique of modern scientific worldview from the perspective of Islamic natural philosophy.
4. Finally, Muslims must integrate the observational aspects of modern science by reinterpreting the observations in light of the doctrines of Islamic natural philosophy.[123] Only then can an Islamic science emerge.

The Islamic intellectual critique of the modern scientific worldview is essential for the success of other proposed measures. The critique would clear the intellectual climate which would subsequently enable the public and the governments to be more judiciously circumspect of modern science and its machines, not only for their obvious destructive effects on the natural world, but also for their effects of dispersing the soul and desacralising the natural world.

The current situation of educational institutions in the Muslim world makes Nasr's vision seem quite improbable.[124] However, Nasr is still hopeful that Muslim intellectuals will see where the current trend is leading the society and will make a concerted effort to amend the situation. How then should the Muslim world proceed? For Nasr, curriculums must be reformed both in the *madrasahs* and in other educational institutions in the Muslim world such that modern sciences are studied within the framework of Islamic intellectual tradition.[125] He is confident that once Muslims become more knowledgeable of the Islamic intellectual perspectives, they will be more resistant to scientism. This method of using Islamic metaphysics rooted in the Qur'ān as a basis of criticizing the sciences is in harmony with the traditional Islamic method of acquiring knowledge.[126]

The reforms of these educational institutions would result in a gradual elimination of the dual systems of secular and religious education which have existed in the Islamic world since the colonial era.[127] Numerous prominent Islamic scholars and educationists such as Syed M.N. al-Attas(1931–2010) and Syed Ali Ashraf(1931–98) severely criticized this dual system, which, in Nasr's words, "creates a society divided against itself."[128] Moreover, Nasr argues that just as traditional *madrasahs* of the past which produced "philosophers and scientists as well as jurists, the men of letters and the experts in other fields of knowledge,"[129] only institutions which can impart knowledge of the Islamic intellectual perspectives can again serve as the basis for addressing the challenges of the modern world from the Islamic perspective.[130] Nasr's proposal for reform of existing educational institutions can be summarized as follows:

1. Revival of the *madrasah* curriculum along traditional lines which would include teaching of logic, mathematics, Islamic philosophy and metaphysics, along with teaching the Qur'ān, *hadīth*, and the *Sharī'ā*.[131]
2. Inclusion of the modern sciences in *madrasah* education along with an Islamic critique of the modern sciences.[132]
3. Integrating traditional *madrasah* education within modern universities in the Muslim world which, up until now, have largely followed the Western curriculum and pedagogy.[133]

Nasr contends that the so-called Islamic universities founded in Muslim countries since the late seventies, which seek to Islamize what Muslims learn[134] have not succeeded in providing a true Islamic response to modern thought because these universities have excluded Islamic philosophy, metaphysics and other related intellectual disciplines like cosmology from their curriculums.[135] In any proposed curriculum in Islamic institutions, Nasr insists that Islamic philosophy and metaphysics, which form the heart of traditional philosophy,[136] must be included.[137]

For those who question the relevance of Islamic philosophy today, Nasr makes many cogent arguments. He argues that Islamic philosophy provides profound answers to the perennial questions of human life — such as questions regarding human origin, nature, purpose, his relation to the universe, and those that concern the nature of reality and therefore science — which are at once in harmony with the teachings of the Qur'ān and *Hadīth*.[138] In particular, Nasr suggests that the modern ideas of "evolutionism, rationalism, existentialism, agnosticism, and the like"[139] are philosophical challenges because they are influenced directly or indirectly by the modern scientific worldview and because they also answer the essential perennial questions in their own way. These modern ideologies thus require philosophical counter-arguments. They cannot be addressed by "juridical" dictates, as "fundamentalists" try to do.[140]

By nature, humans are never without interest for answers to the perennial questions. This fundamental interest is always fulfilled by one source or another. For example, while Islamic philosophy is largely ignored in modern universities in the Islamic world, modern Western philosophy is studied avidly.[141] But Nasr contends that without the knowledge of Islamic intellectual perspectives, Muslim students "are like *tabula rasa* waiting to receive some kind of impression from the West,"[142] unable to critically appraise what they receive. In other words, without a philosophical understanding of Islamic principles, Muslims cannot know with confidence what to accept or reject when encountering ideas originating from non-Islamic sources.

Nasr argues that the lack of interest in Islamic philosophy is also due to the misconception —among many Western orientalist scholars and their Muslim students — that Islamic philosophical activities ceased with Ibn Rushd, the last of the major Islamic peripatetic philosophers. [143] Nasr himself has played a major role in drawing attention to the fact that new philosophical schools impregnated with Islamic

metaphysical intuitions flourished in the Eastern lands of Islam which eventually produced figures like Mullā Sadrā (d.1640) whose school of philosophy survives to this day especially in Iran.[144] In this connection, Nasr believes that one of the many positive effects of studying Sadrā's natural philosophy is that Muslims would recognize that Islamic intellectual activity did not end seven hundred years ago. To the contrary, students of Sadrā would know that an immensely rich current of Islamic philosophy still survives and has the potential to effectively respond to many contemporary intellectual challenges.[145]

Finally, in Nasr's view, Islamic philosophy is relevant for those whose faith has been weakened by modern education and who are more open to philosophical arguments than to the assertions of scriptures: "Religious arguments can be presented only to those who already possess faith. Of what use is it to cite a particular chapter from the Qur'ān to refute an idea held by someone who does not accept the authority of the Qur'ān to start with."[146]

With regards to pedagogy, Nasr strongly recommends transferring the *madrasah*'s emphasis on cultivating spiritual virtues to the modern educational institutions.[147] An important part of this emphasis on virtue is to ensure that the teachers chosen can serve as exemplary role models in character.[148] Nasr's insistence on including philosophy in the *madrasah* and in modern institutions is also relevant in this regard because Islamic philosophers at large considered the perfection of the soul to be the ultimate purpose of philosophy.[149]

Efforts to include Islamic metaphysics, cosmology, and ethics in the study of the sciences and their applications are already underway by Islamic scholars who have been inspired by Nasr's vision, most notably by Osman Bakar. Bakar designed a course syllabus with that purpose[150] which has been implemented at the International Islamic University of Malaysia (IIUM) since 1992 and this syllabus has been partially adopted by the University of Technology of Malaysia (UTM).[151] Bakar has also designed a similar post-graduate programme with focus on the environment for the Department of Science and Technology Studies at the University of Malaya.

Outside Malaysia, Bakar's syllabus has been recommended by the Ministry of Education of Iran since the 1990s. Also, recently at the Sharif University, Iran's most prestigious school of science and technology, a new PhD programme for Islamic Philosophy of Science has been opened partly due to Nasr's own initiatives when he served as its vice-chancellor in the 1970s.[152] Nasr holds that such attempts to integrate modern science within Islamic worldview would be helped also by a revival of intellectual debates between scholars, mystics and scientists in order to create what Osman Bakar has called a "knowledge culture," similar to that of the epoch when the Islamic world was the leader in philosophy and science.[153]

In the spirit of his Traditionalist perspective, Nasr believes that each religious tradition should seek to restore its religious worldview through recourse to sapiential commentaries of its sacred texts.[154] In this regard, in the non-Islamic world, he believes that his thought most closely correlates with that of the Eastern Orthodox

theologian Philip Sherrard (1922–1995).[155] Though Nasr may not have been his inspiration, Sherrard referred to Nasr's *Encounter of Man and Nature* in his later work *The Rape of Man and Nature* approvingly,[156] and he has been closely associated with Traditionalist thinkers.[157] Most importantly, just as Nasr recommends Sadrā's natural philosophy for an Islamic science, Sherrard calls for the creation of a unified science within the conceptual framework of Christian metaphysics of nature as articulated by the renowned Catholic philosopher and mystic Oscar Milosz (1877–1939). Milosz rejected modern scientific notions of space as absolute and of time extending into infinity.[158] He sought to redefine space, matter and time as identical in the sense of being transmutation of archetypes in the incorporeal light of God who alone is absolute and infinite.[159] As with Sadrā, there is a recognition in Milosz's vision of the origin of everything in the archetypes in God, and of time and space as illusions by themselves. However, we think Milosz's natural philosophy is not nearly as rationally argued or explicable as Sadrā's is, and other Christian mystics and thinkers must show us more clearly how a Christian sacred science may materialize out of Milosz's essential vision. Nevertheless, Sherrard's efforts are a necessary first step that may help others to find a way forward in the Christian world with the vision of a Christian science for nature.

With regards to contemporary Muslim governments, Nasr asserts that they do not understand the importance of reviving the Islamic intellectual tradition. But if an effort is successful in the sense that it begins to draw attention at home and abroad, the governments may be convinced of its relevance. In describing his own efforts to revive the Islamic intellectual tradition by establishing the Iranian Academy of Philosophy in the 1970s, Nasr recalls that when the academy began to show "remarkable accomplishments…Many people in Iran, even the government, who were sceptical about it, were very surprised, and soon very supportive."[160] Indeed, Nasr's interest in educational reforms is more than theoretical. As the distinguished Islamic scholar Jane Smith notes, in many of his contributions on Islamic education "he demonstrates his immediate concern for working at the grassroots level on issues of educational planning and developing teacher training curricula."[161]

As for Muslims in the West, Nasr advocates first the formation of small institutes that can be easily managed, and later, the establishments of larger institutes of learning that can have more outreach and influence.[162] Nasr believes that small institutes run by competent Islamic intellectuals with the traditional perspective can educate bright new students each year and thus produce, over time, a cadre of teachers that can later impart their knowledge of Islamic intellectual perspectives to larger institutes of learning.[163]

Nasr argues that just as the secularization from the Renaissance onward began with a handful of figures, and just as the secularization of the Muslim world began with just a few Western-influenced Muslim thinkers, a small number of traditionally trained Muslim thinkers today can bring about a new paradigm over time.[164] This paradigm-shifting small group of Muslims, however, must not only have deep knowledge of

Islam’s inner dimension including the metaphysics of nature, but must also understand the modern world.[165]

8.7 CHAPTER SUMMARY

Nasr envisions the establishment of a new Islamic science that is based on Mullā Sadrā's natural philosophy. Being, or the self, which is of Divine origin, is at the core of this philosophy. At the same time, this Islamic science would address critical philosophical questions on the parameters of modern science, namely cause, effect, matter, form, space, time and change, rationally, without ignoring or contradicting fundamental principles of religion. For Nasr, this new Islamic science would be the ultimate answer to the problem of the desacralisation of nature by modern science.

Nasr is confident that with the educational reforms, an intellectual climate for the re-evaluation of modern science can be created, and it would thus become possible to establish the new Islamic science in time. The reform would involve the integration of modern scientific studies with Islamic metaphysics and philosophy, thereby enabling Muslims to critically analyse the foundation and objectives of modern science. Ultimately, these reforms would allow the Islamic world to realize the destructive consequences of modern science on nature and the soul, and establish a comprehensive science rooted in Islamic natural philosophy.

To be sure, establishing the Islamic science is not the main objective in Nasr's strategy against the environmental crisis; it is only the ultimate means of countering the "corroding effect" of modern science on Islamic worldview. The proposed educational reforms with emphasis on traditional metaphysics and philosophy is intended to help Muslims see that spiritual perfection, and not material accumulation, ought to be the purpose of their life again as it was in the pre-modern days.[166] That reorientation of the Muslims' purpose and their rediscovery of Sufism as the way to fulfilling that purpose is Nasr's main objective in the face of the environmental crisis. Without this fundamental reorientation, the current focus on economic growth and the consequent exploitation of nature is likely to continue, and the proposed Islamic science can only remain a dream.

NOTES

1. Nasr, *Traditional Islam in the Modern World*, p. 216.
2. Seyyed Hussein Nasr interviewed by Mehdi Golshani in *Can Science dispense with Religion?* ed. Mehdi Golshani (Tehran, Iran: Institute for Humanities and Cultural Studies, 1998), p. 208.
3. Nasr, "Islam and the Problem of Modern Science," p. 133.
4. Nasr expresses his vision of an authentic Islamic science in this manner. Nasr, "Islam and the Problem of Modern Science," pp. 133 and 137.
5. Chapter 2.2.1.
6. Chapter 2.2.2.
7. Nasr, "Islamic worldview and Modern Science," pp. 13–14.
8. Nasr, "The Question of Cosmogenesis," pp.56–57. See Q. 3:190; 57:17; 88:17–

21; 3:191.
9. See Chapter 2.2.
10. For instance, Abū Hāmid al-Ghazzālī asserts that the Peripatetic philosophers deny God's knowledge of particulars. See al-Ghazzālī, *Al-Ghazali's Path to Sufism*, p. 36.
11. Nasr, *Islamic Philosophy from the Origin to the Present,* p. 226.
12. Chittick, *Sufi path of knowledge*, pp. 122 and 368.
13. Ibrahim Kalin, "Will, Necessity, and Creation as Monistic Theophany in the Islamic Philosophical Tradition," in *Creation and the God of Abraham*, eds. David Burrell, William Stoegger and Carlo Cogliati (New York and Cambridge, UK: Cambridge University Press, 2010), p. 116.
14. Zailan Moris, *Revelation, Intellectual Intuition and Reason in the Philosphy of Mullā Sadrā: An Analysis of al-Hikmah al-'Arshiyyah* (Richmond: Curzon, 2003), p. 95.
15. See Ibrahim Kalin, "Between Physics and Metaphysics: Mulla Sadra on Nature and Motion," *Islam & Science,* Vol. 1 (2003) No.1, pp. 83–89.
16. Nasr prefers to use the term 'trans-substantial motion' instead of 'substantial motion.'
17. The 'quiddity' of an entity is the response to the question "What is it?" which is the translation of the original Arabic term *mahiyya*. Thus, the quiddity of a horse is its 'horseness.'
18. Moris, *Revelation, Intellectual Intuition and Reason,* p. 91.
19. Seyyed Hossein Nasr, "Mullā Sadrā: His teachings," in *History of Islamic Philosophy, Part I,* eds. S. H. Nasr and Oliver Leaman (London: Routledge, 1996), p. 646.
20. Moris, *Revelation, Intellectual Intuition and Reason,* p. 91. Sadrā,*Wisdom of the Throne*, p.119.
21. Ibid., p. 93.
22. Ibid., pp. 92–93.
23. Ibid., p. 96.
24. Nasr, "Mullā Sadrā: His Teachings," p. 649.
25. The highest or the purely spiritual plane remains immutable. See Chapter 2.2.1 and 2.2.2.
26. See Mullā Sadrā, *al-hikmat al-muta'aliyah fi'l-asfar al-'aqliyyah al-arba'ah*, (hereafter cited as *Asfar*), III, 1, p.65. quoted in Kalin, "Between Physics and Metaphysics," p. 75.
27. Sadrā cites the Qur'ānic verses 27:88; 50:15; 25:59; 32:4 in his *Risalah fi'l huduth,* (hereafter cited as *Huduth*) pp. 59–60 quoted by Kalin, "Will, Necessity, and Creation as Monistic Theophany," p. 124.
28. Kalin, "Between Physics and Metaphysics," pp. 67–77.
29. Kalin, "Will, Necessity, and Creation as Monistic Theophany," p. 123.
30. Ibid., p. 127.
31. Ibid., 127–128.

32. Kalin, “Between Physics and Metaphysics,” pp. 70–71.
33. Kalin, “Will, Necessity and Creation in Monistic Theophany,” p. 128.
34. As Kalin explains, no existent entity is either pure potentiality or pure actuality. The prime matter as pure potentiality has no existence and only God can be said to be pure actuality. “Between Physics and Metaphysics,” p. 62.
35. Nasr, “Mullā Sadrā: His Teachings,” 649; Moris, *Revelation, Intellectual Intuition and Reason,* p.97.
36. Moris, Ibid.
37. Ibid., p. 96; Asfar, I, 3, 61; Kalin,”Will, Necessity, and Creation as Monistic Theophany,” p. 131.
38. Nasr, *Islamic Philosophy from the Origin to the Present*, pp. 231–232. (accent ours)
39. Nasr, “Mullā Sadrā: His Teachings,” p. 650.
40. Ibid., pp. 649–650. Also see Chapter 6.6.
41. “The differences of opinion between the people of realities is also a mercy from God because each one of them speaks from where he is at the moment.” Abū Nasr as-Sarrāj quoted in Kristin Zahra Sands, *Sufi Commentaries on the Qur’ān in Classical Islam* (London: Routledge, 2006), p. 43. “I am a child of the present.” Rūmī quoted in Chittick, *Sufi Path of Love*, p. 275. “What are past and future and present to the man of No-place, within whom is God’s Light?” Rūmī quoted Ibid., p. 277.
42. Ibn ‘Arabī (*Futuhat*, III, Ch. 390, 529) quoted in Ibrahim Kalin “From the Temporal Time to the Eternal Now,” *Journal of the Muhyiddin Ibn ‘Arabī Society*, Vol. 41, 2007, p.45. Also, see Chittick, *Heir to the Prophets*, p. 91.
43. Mullā Sadrā, *Asfar*, I, 2, p.14. quoted in Kalin “From the Temporal Time to the Eternal Now,” p. 51.
44. Kalin, “From the Temporal Time to the Eternal Now,” pp. 52–53.
45. Ibid., p. 52.
46. Ibid., p. 53.
47. Mullā Sadrā (*Asfar*, I, 3, p.131) quoted in Kalin, “From the Temporal Time to the Eternal Now,” p. 55.
48. Seyyed Hossein Nasr, “Cosmology,” in] *Different Aspects of Islamic Culture* (part 1), ed. A.Y. al-Hassan (Paris: UNESCO Publishing, 2001), p. 402.
49. Nasr, “Cosmology,” p. 402; Kalin, “From the Temporal Time to the Eternal Now,” p. 55.
50. See Chapter 5.1.1c.
51. See Nasr, “The Question of Cosmogenesis,” pp. 52–53.
52. See Sadrā, Asfar, I, 3, p. 144 quoted in Kalin, “From the Temporal Time to the Eternal Now,” 62. For a comparable view of time based on Ibn ‘Arabī’s vision of time, see Caner Dagli, “The Time of Science and the Sufi Science of Time,” *Journal of the Muhyiddin Ibn ‘Arabī Society*, vol. 41, 2007, pp. 86–92.
53. Isaac Newton quoted in Kalin, “From the Temporal Time to the Eternal Now,” p. 37.
54. As discussed in Chapter 7, the modern mechanized clock helped to quantify the

objectified view of time. The ubiquitous presence of clocks and watches, and the mechanized fragmented lifestyle of today, has made the quantifiable sense of time the standard. See pp. 259–60.
55. Nasr, “Mullā Sadrā: His Teachings,” p. 650. Also, see Christian Jambert, *The Act of Being,* p. 192.
56. Kalin, “From the Temporal Time to the Eternal Now,” p. 59.
57. According to Islamic philosopher Maria Dakake, “Mullā Sadrā conceives of the soul as a simple, holy and indivisible substance (*jawhar*) that has its origin in the immutable, immaterial, and purely intellectual or angelic realm of the malakut, but which nonetheless also exists in and journeys through the world of temporality and change.” See Maria Massi Dakake, “The Soul as *Barzakh*: Substantial Motion and Mullā Sadrā’s Theory of Human Becoming,” *The Muslim World*, Vol. 94, January 2004, p. 109.
58. Sadrā, *Wisdom of the Throne*, pp. 134 and 136.
59. Moris, *Revelation, Intellectual Intuition and Reason,* p. 101. Also, see William Chittick, “On the Teleology of Perception,” in *Perception According to* Mullā Sadrā, ed. Seyed G. Safavi (London: Salman-Azadeh Publication, 2002), p. 234.
60. Sadrā, *Wisdom of the Throne*, p. 159.
61. Dakake, “The Soul as *Barzakh*,” p. 107.
62. Nasr, “Mullā Sadrā: His Teachings,” 651; Also, see Chittick, “On the Teleology of Perception,” p. 235.
63. Sadrā, *Wisdom of the Throne*, p. 154.
64. Seyyed Hossein Nasr, “On the Question of Biological Origins,” interview by Muzaffar Iqbal, in *Islam, Science, Muslims, and Technology: Seyyed Hossein Nasr in Conversation with Muzaffar Iqbal* (Alberta, Canada: Al-Qalam Publishing, 2007), p. 151.
65. See Chapter 2.2.2.
66. In summarizing Sadrā’s view of the human soul, Chittick states that “The goal of human existence is to bring the soul’s potentiality into actuality. At the beginning of its creation, the human self is empty of the knowledge of things. In contrast, the other things are created with actualized knowledge of things, and this fixes them in their specific identities.” Chittick, “On the Teleology of Perception,” p. 232.
67. Sadrā, *Wisdom of the Throne*, p. 132; Chittick, “On the Teleology of Perception,” p. 224.
68. Caner Dagli, “Mullā Sadrā’s Epistemology and the Philosophy of Physics,” in *Perception*
According to Mullā Sadrā, ed. Seyed G. Safavi (London: Salman-Azadeh Publication, 2002), p. 247. (accent ours)
69. Chittick, “On the Teleology of Perception,” p. 234.
70. Commenting on Sadrā’s theory of perception, Chittick notes that “The thing that is perceived is an ‘intelligible,’ that is, an object known to intelligence. The intelligible is called the ‘form’ (*sura*) of the thing, in the Aristotelian sense of the word form. Hence it is contrasted with the thing’s ‘matter’ (*madda*), which is unintelligible in itself. The

only things we can truly perceive and know are forms, not matter." "On the Teleology of Perception," p. 222.
71. Dagli, "Mullā Sadrā's Epistemology," pp. 254–255. Also, see p. 214.
72. Wolfgang Smith, *The Quantum Enigma* (Peru, Illinois: Sherwood Sugden and Company, 1995).
73. Dagli, "Mullā Sadrā's Epistemology," p. 246.
74. Ibid., p. 248.
75. Whole images of electrons, protons, planets, etc. are not perceptible; their behaviour is conceptualized in modern science in terms of objects like a sand particle or a ball whose whole images are perceptible. See Dagli, "Mullā Sadrā's Epistemology," pp. 251–253.
76. For views of al-Fārābī and Quṭb al-Dīn Shīrāzī, see Osman Bakar, *Classification of Knowledge in Islam: A Study in Islamic Philosophies of Science* (Cambridge, UK: Islamic Texts Society, 1998), pp. 50–53 and 251–252.
77. The imaginal world is the intermediate plane of reality between the corporeal plane and the spiritual plane. See Chapter 2.2.2.
78. Nasr, "Cosmology," p. 402.
79. See section 8.2; Dakake, "Soul as *Barzakh*," p. 107. Sadrā points out that the state of the soul is known to affect even the physical body. Sadrā*, Wisdom of the Throne*, p. 160.
80. Sadrā, *Wisdom of the Throne*, p. 146.
81. Ibid., p. 139. However, this transformation does not automatically imply that "All human beings ... [are] moving toward a felicitous end, or toward a subtle form that is analogous to the physical human form they enjoy in this life, but [it does mean that] they are all moving toward increasing immateriality and independence of the physical body." Dakake, "Soul as *Barzakh*," p. 125.
82. Sadrā, *Wisdom of the Throne*, pp. 146–147.
83. Ibid., p. 137.
84. Dakake, "Soul as *Barzakh*," pp. 124–125.
85. Henry Corbin, *Alone with the Alone: Creative Imagination in the Sufism of Ibn 'Arabī,* trans. Ralph Manheim (Princeton: Princeton University Press, 1969), p. 214. Dakake, "The Soul as *Barzakh*," p. 126.
86. Chapter 1.4 and Chapter 6.2.4.
87. Chapter 7.
88. Sadrā, *Huduth*, p. 71 quoted in Kalin, "Will, Necessity, and Creation as Monistic Theophany," 102.
89. Sadrā clearly indicates the need to follow the guidance of a Sufi master: "the true verification and realization of this goal [of knowing thing as they are] must be sought from those to whom these things have been directly unveiled, through extensive consultation and continued personal association with them." Sadrā, *Wisdom of the Throne,* p. 190.
90. Sadrā outlines two ways for realizing the truth: 1) The "Path in this world" which requires the need to observe the religious Law and following a spiritual guide, 2)

“Path of the other world” which relies on “contemplative power and its practical intellect.” Ibid., 194–195. Nasr explains that for Sadrā “the perfection of the practical faculty … resides in following faithfully the Islamic Divine Law.” Nasr, *Traditional Islam in the modern world,* p. 159.
91. Chapter 3.4.
92. Chittick, “On the Teleology of Perception,” pp. 230–231.
93. Sadrā, *Wisdom of the Throne*, p. 138. Sadrā is evidently referring to soul’s turning towards God and earnestly following His path; Sadrā, *Wisdom of the Throne*, pp. 146, 149, 194–97.
94. Sadrā, *Wisdom of the Throne*, p. 138. Chittick, “The Teleology of Perception,” p. 8.
95. Chittick, “On the Teleology of Perception,” p. 235; “the soul is spiritual matter with the capacity of receiving and being united with the intellective form, thereby emerging from potency into actuality — or a delusive Satanic form, or that of a brutish or a predatory animal.” Sadrā, *Wisdom of the Throne*, p. 145.
96. Chapter 2.2.1a.
97. Nasr “Islam, Science, and Muslims,” p. 58.
98. See Chapter 7.1.1 and 7.1.2.
99. See Chapter 7.2.1 and 7.2.2.
100. Nasr emphasizes on remaining within the bounds of Islamic legal principles. Nasr, “Islam, the Contemporary Islamic World, and the Environmental Crisis,” p. 102. One of principles that apply in our case is the maxim, “harm may not be negated by inflicting further harm,” that is, one element or species may not be harmed in the act of restoring another. See Izzi Dien, *The Environmental Dimension of Islam*, p. 115.
101. Nasr “Islam, Science, and Muslims,” p. 60.
102. See Chapter 4.
103. See Hoodbhoy, *Islam and Science: Religious Orthodoxy and the Battle for Rationality*, pp. 74–75.
104. See Chapter 4.3.
105. Nasr, “Islamic worldview and Modern Science,” p.11.
106. Ibrahim Kalin, “Three Views of Science in the Islamic World,” in *God, Life and the Cosmos: Christian and Islamic Perspectives,* eds. Ted Peters, Muzaffar Iqbal and Syed Nomanul Haq (Aldershot,UK: Ashgate, 2002), p. 56. Also, see Chapter 6.2.5.
107. See Chapter 6.1.
108. Leif Stenberg, “The Islamization of Science or the Marginalization of Islam: The Positions of Seyyed Hossein Nasr and Ziauddin Sardar,” *Social Epistemology*, x, ¾, 1996, pp. 273–287.
109. See Ziauddin Sardar, *Explorations in Islamic Science* (London: Mansell Publishing Ltd., 1989), pp. 108.
110. Ibid., p. 86
111. Ibid.
112. Ibid.

113. Ibid., p. 82.
114. Ibid., p. 83. (accent ours)
115. Ibid.
116. Ibid., p. 108.
117. Sardar, Ziauddin. “Beyond the troubled relationship,” *Nature,* Vol 448, 12 July 2007, pp. 131–132. On Sardar’s taking Al-Ghazzālī as an inspiration, see Stenberg, “The Islamization of Science or the Marginalization of Islam,” p. 85.
118. Sardar, Ziauddin. “How to take Islam back to reason,” *Newstatesman*, 5 April 2004, pp. 29–30.
119. Nasr, *Man and Nature*, pp. 114–129.
120. Nasr, “Islam and the Problem of Modern Science,” p. 133.
121. Nasr,”Islamic Worldview and Modern Science,” p. 15.
122. Nasr, “Islam and the Problem of Modern Science,” p. 131.
123. For instance, he suggests that Muslim scientists reinterpret quantum mechanics not on the basis of Cartesian bifurcation, as it has been done, but rather “in a metaphysical way.” Nasr, “Islam, Science, and Muslims,” pp. 58 and 79.
124. “The mindset of graduates of institutions of natural/physical and social sciences in the Muslim World does not differ significantly from that of graduates of institutions in the West. Muslim politicians, lawyers, economists, scientists, health care professionals, etc., deal with all problems — even those peculiar to the Muslim World — through approaches and methods developed in Europe or the United States.” Suleman Dangor, “Islamization of Disciplines,” p. 520.
125. Nasr “Islam, Science, and Muslims,” pp. 9–11.
126. Summarizing traditional Islamic epistemology, moral educationist J. Mark Halstead highlights that in it “All knowledge ... should ultimately serve to make people aware of God and of their relationship with God. Revealed knowledge provides an essential foundation for all other knowledge and people are free to pursue any branch of knowledge only insofar as they remain loyal to the divine injunctions contained in the Qur’ān and the *Sharī‘ā*.” J. Mark Halstead, “An Islamic concept of education,” *Comparative Education*, Vol. 40, No. 4, November 2004, pp. 524–525.
127. The European colonial administrators imbued by the Enlightenment doctrines believed in separation of strictly religious subjects from that of natural sciences. Accordingly, in colonial India, British administrators established secular schools which aimed at excluding teaching anything founded on a religious worldview. In tandem, available government jobs favoured those educated at such secular schools. In response *madrasahs* themselves reformed in ways that appear to have been a factor in abandoning education in Islamic philosophy with its inherent traditional cosmology, and traditional medicine and astronomy closely associated with that cosmology. Zaman, *Ulama in Contemporary Islam* , Chapter 3.
128. Nasr, *Young Muslim’s Guide*, 129. According to Nasr, modern Western philosophical ideas generally have no connection with the ethos of Islamic cultures themselves, but are more associated with relativism and humanism rooted in rationalism and scientism. In effect, they contribute to a rupture between western

educated classes and the society at large. Nasr, “Pertinence of Studying Islamic Philosophy Today,” 147. For a good discussion of this dual system of education and its consequences on the Muslim world, see Dangor, “Islamization of Disciplines,” pp. 519–525.

129. Nasr,*Traditional Islam in the Modern World*, p. 139.

130. In this connection, we should note that David Orr, a distinguished scholar of environmentalism, suggests that it is the graduates of modern education who are largely responsible for the perpetuation of an industrial culture which is causing the degradations of the environment: “It is worth noting that this [environmental degradation] is not the work of ignorant people. It is rather, largely the result of work by people with BA, BSs, LLBs, MBA, and PhDs.” David Orr, “What is Education For?” in *Annals of Earth,* Vol. 8, No. 2 (1990) quoted in Khalid, “Applying Islamic Environmental Ethics,” p. 100.

131. Nasr “Islam, Science, and Muslims,” p. 61. Nasr points out that unlike in other parts of the Muslim world, in the Persian world *madrasahs* never completely abandoned teaching Islamic philosophy. Based on an authoritative article by Muhammad Tāhir Tabarsī, one of the leading Islamic philosophers in the twentieth century, Nasr provides a list of texts used in Persian *madrasahs* prior to 1938 including those on philosophy, logic, Sufism, medicine and mathematics. See Nasr, *Traditional Islam in the Modern World*, Chapter 10. Further east, from early in the eighteenth century the *Dars-e-Nizami* curriculum which includes Islamic philosophy has been the basis of *madrasah* education throughout the South Asia even though over the last 200 years most of the *madrasahs* dropped Islamic philosophy from their curriculum. See Douglas Johnston, Azhar Hussain and Rebecca Catildi, *Madrasa Enhancement and Global Security* (International Center for Religion and Diplomacy, 2008). Also, see n128.

132. Nasr criticizes the modernized Muslims who simply complain that the *ulama* do not understand the modern world, because as he points out, the modernized classes have already been convinced of the superiority of the modern West, and therefore, have not helped the *ulama* to learn about the modern world in a way that would not undermine the objectives of the traditional education system. Nasr, *Islam and the Plight of Modern Man*, p. 203. What the modernized classes have failed to do, for lack of their own knowledge of the riches of Islamic intellectual heritage, is to extend the *madrasah* programme “to embrace courses which would acquaint the students with the modern world” while appraising it thoroughly and critically from Islamic intellectual perspectives. Ibid.

133. Nasr, “Islam, Science, and Muslims,” pp. 61–62.

134. For a summary of the Islamization of the knowledge initiative by contemporary Islamic scholars, see Dangor, “Islamization of Disciplines,” pp. 525–527.

135. Nasr,”Islam, Science and Muslims,”p. 62. In describing the curriculums at Islamic universities, Nasr says, “You may teach *Sharī'ā* on side, and modern science, modern sociology and modern economics on the other side. And then this is called an Islamic university, but this is not an Islamic university. An Islamic university is a university

where all subjects are viewed in the perspective of Islam." Ibid., 62.
Islamic universities established since the late 1970s with the purpose of Islamizing knowledge generally do not offer courses in Islamic philosophy or Sufism. Notable exceptions are a handful of Islamic universities and colleges in Malaysia and Indonesia. Among these, the most successful has been the International Institute of Islamic Thought and Civilization (ISTAC) at the International Islamic University of Malaysia (IIUM). Commenting on efforts at providing an Islamic education at Egyptian institutions, Bradley Cook notes, "the current fragmentation and superficial mixture of secularized and religious courses in Egypt's public education system is completely alien to the fundamental principle of *tawhid*." Bradley Cook, "Islamic versus Western conceptions of education: Reflections on Egypt," in *International Review of Education*, 45(3/4), 1999, p. 344. To the best of our knowledge, this assessment applies to most modern institutions in the Muslim world even when they are known as Islamic institutions.
136. Nasr explains the centrality of metaphysics in Islamic philosophy by the fact that "nearly every treatise on traditional philosophy deals with transcendent origin and end of things." Seyyed Hossein Nasr, "Islamic Philosophy — Reorientation or Re-understanding," in *Islamic Life and Thought,* no editor (ABC International Group, Inc., 2001), p. 154.
137. Nasr,"Islam, Science and Muslims,"p. 62. Nasr explains that importance of Islamic philosophy is precisely because of its association with metaphysics which is essential to understand and respond to the many intellectual challenges, one of which concerns the relation between science and religion, faced by Muslims in the modern world. See Seyyed Hossein Nasr, "Theoretical Gnosis and Doctrinal Sufism and their Significance Today," in *Transcendent Philosophy*, Vol. 6, Dec 2005, pp. 25–26. Among the foremost proponents of Islamization of knowledge, Syed M.N. Al-Attas also emphasizes the need to include elements of Sufism and Islamic philosophy in any Islamic educational curriculum. See Syed Muhammad Naquib al-Attas, *Islam and Secularism* (Kuala Lumpur: International Institute of Islamic Thought and Civilization, 1993), p. 157.
138. Nasr, "Islamic Philosophy — Reorientation or Re-understanding," p. 155; Nasr, *Traditional Islam in the Modern World,* p. 160.
139. Ibid., p. 109.
140. Ibid.
141. Nasr, "Pertinence of Studying Islamic Philosophy Today," pp. 145–46.
142. Nasr, *Islam and the Plight of Modern Man*, p. 208.
143. Nasr, "Pertinence of Studying Islamic Philosophy Today," pp. 147–148.
144. For instance 'Allāmah Sayyid Muḥammad Ṭabāṭabā'ī (1892–1981) was a major representative of this school of Islamic philosophy. In this regard, Nasr's efforts began with his *Three Muslim Sages* and later *S adr al-D īn Sh ī r ā z ī and his Transcendent Theosophy: Background, Life and Works* introducing, from a traditional Islamic perspective, the English-speaking world to Ibn Sina, Suhrawardi, Ibn Arabi and Mullā Sadrā from the traditional Islamic perspective. Seyyed Hossein Nasr, *Three*

Muslim Sages (New York: Caravan Books, 1964); Seyyed Hossein Nasr, *S adr al-Din Shirazi and his Transcendent Theosophy: Background, Life and Works* (Tehran, Iran: Imperial Iranian Academy of Philosophy, 1978); For Nasr's seminal contribution on the Qur'ān's central place in Sadrā's philosophy, see Mohammed Rustom, "Approaching Mullā Sadrā as Scriptural Exegate: A Survey of Scholarship on His Qur'ānic Works," *Comparative Islamic Studies* 4.1–2 (2008), pp. 78–79; Also, see Steven Blackburn, review of *Islamic Philosophy from Its Origin to the Present: Philosophy in the Land of Prophecy* by S.H. Nasr, State University of New York Press, 2006, *Religion and Theology*, 14:3 (2007), p.438.

145. Seyyed Hossein Nasr, "The Life, Doctrines and Significance of Sadr al-Dīn Shīrāzī (Mullā Sadrā)," in *Islamic Life and Thought,* no editor (ABC International Group, Inc., 2001), p. 165.

146. Nasr, *Islam and the Plight of Modern Man*, p. 211.

147. Nasr, *Traditional Islam in the Modern World*, p. 123; Nasr, "Islam, Science, and Muslims," p. 61. Nasr insists that the spiritual dimension of *madrasah* education, though weakened, is still very much alive. According to Nasr, in recent decades some new *madrasahs* in Iran have been established which teach "the intellectual and spiritual aspects of Islam, and not only the legal training." Ibid., p. 61. The continuation of intellectual vitality elsewhere has also been brought to light in the last few years by a description of life at the Nadwat al-Ulama *madrasah* in India at the end of the twentieth century. See Mohammed Akram an-Nadwi, *Madrasah Life* (London: Turath Publishing, 2007).

148. For more on the ideal role of the teacher in the Islamic education system as a paragon of virtue, see A.H. Tamuri, "Islamic Education teachers' perceptions of the teaching of *akhlaq* in Malaysian secondary schools," *Journal of Moral Education*, Vol. 36, No.3, September 2007, p. 376.

149. Nasr draws attention to this aspect in the philosophy of *Ikhwan al-Safa*, Ibn Sina, Suhrawardi and Mullā Sadrā. See Nasr, *Traditional Islam in the Modern World,* Chapter 9: pp. 147–163.

150. Osman Bakar, "Designing a Sound Syllabus for Courses on Philosophy of Applied and/or Engineering Sciences in the 21st Century Islamic University," in *The History and Philosophy of Islamic Science* (Cambridge, UK: Islamic Texts Society, 1999), Chapter 11: pp. 243–52.

151. Information on the implementations of Bakar's syllabus is based on conversations with Prof. Osman Bakar by telephone. 22 November 2010.

152. Seyyed Hossein Nasr, "Islam and the Environment," Lecture delivered at the Georgetown University School of Foreign Service, Qatar, 26 January, 2009.

153. Nasr, "Islam and the Problem of Modern Science," p. 134; Nasr,*Traditional Islam in the Modern World*, pp. 206–207; Osman Bakar, "Islam, Science and Technology: Past Glory, Present Preicaments and The Shaping of the Future," in *The History and Philosophy of Islamic Science* (Cambridge, UK: Islamic Texts Society, 1999), pp. 241–242.

154. See Chapter 1.7. Nasr clearly relies on the views of such traditional authorities

as al- Ghazzālī, Ibn ‘Arabī and Mullā Sadrā who in turn base their doctrines on the Qur’ān and *Hadīth*.
155. Based on a conversation with Nasr at the George Washington University, USA. 13 August, 2009.
156. Sherrard, *Rape of Man and Nature* , 122 n51. For Nasr’s views on Sherrard, see Nasr, *Religion and the Order of Nature*, pp. 201–205.
157. Two recent edited volumes consisting mostly of essays by well-known Traditionalist thinkers include essays by Sherrard. See Philip Sherrard, “Modern Science and the Dehumanization of Man,” in The *Underlying Religion: An Introduction to the Perennial Philosophy*, eds. Martin Lings and Clinton Minnaar (Bloomington, Indiana: World Wisdom, 2007), pp. 70–91 and Sherrad, “Epilogue,” in *The Betrayal of Tradition*, ed. Harry Oldmeadow (Bloomington, IN: World Wisdom, 2005), pp. 359–364. Indeed, Sherrard’s critique of modern science is as scathing as Nasr’s, and like him, he sees no possibility of harmony between the modern scientific and religious views of nature. He calls for the revival of a sacred view of nature based on Christian scriptures and their sapiental commentaries, especially those of St. Maximus the Confessor (580–662). See Sherrard, *Rape of man and Nature*, pp. 68–71. On Sherrard’s rejection of the theory of evolution, see Philip Sherrard, *Human Image: World Image* (Golgonooza Press, 1992), Chapter 3: pp. 56–76.
158. Sherrard, *Human Image: World Image,* pp. 134–135.
159. Ibid., pp. 142–143.
160. Nasr, “Islam, Science, and Muslims,” pp. 63–64.
161. Smith, “Seyyed Hossein Nasr, Defender of the Sacred and Islamic Traditionalism,” p. 90.
162. Nasr, “Islam, Science, and Muslims,” pp. 64–65.
163. Ibid.
164. Nasr, “On the Environmental Crisis,” pp. 137–138.
165. Ibid.
166. For our discussion of the prevalence of Sufism in Islamic world before the advent of scientific progressivism, see Chapter 4.1.1. Similarly, in the pre-modern Europe, nature was seen as a sign of God, and moral or spiritual perfection, rather than “progress through material accumulation,” was seen as the primary goal of life. See Chapter 1.1 and Chapter 1.3.1.

Chapter 9
Conclusion

As discussed in Chapter 1, Nasr considers the modern scientific worldview, rooted in rationalism and empiricism, to be the fundamental cause of the scientism and scientific progressivism which have resulted in the environmental crisis.

In epistemological terms, Nasr points to the denial of revelation as a source of objective knowledge of nature and the denial of the existence of the Intellect as a faculty of perception higher than that of ordinary reason — the denials which characterise rationalism and scientific rationality — as the roots of scientific progressivism. This epistemic reorientation from the pre-modern age ignores three perennial metaphysical principles inherent in world religions: the unity of reality, the hierarchy of reality, and the meaningfulness or purposefulness of nature in the ultimate sense. Nasr speaks of the spiritual impoverishment of human consciousness resulting from this shift in worldview and its catastrophic consequences on nature.

According to Nasr, the solution to this crisis is the revival of a worldview that upholds the perennial principles. Hence, this solution does not consist of a cost-benefit analysis of different *external* measures to reduce environmental degradation. Rather, it hopes to persuade people to transform their vision of nature from being a source of mere biological sustenance or emotional pleasure to one of sacred presence that is ontologically related to us. For Nasr, the kind of vision of nature we hold is crucial because one's thoughts and actions are inevitably shaped by one's view of the nature of reality, no matter how vague or unexamined it might be.[1]

In what follows, we will highlight the main features of Nasr's whole approach to the environmental crisis for the Islamic world. This will follow a brief discussion of how we have fulfilled the objectives of this book and our final reflections on Nasr's approach.

9.1 SUMMARY OF NASR'S APPROACH FOR THE ISLAMIC WORLD

Nasr's response to the environmental crisis focuses on the way modern science ignores the essential principles of Islam for reality as such, namely the reality and unity of God, hierarchy of reality, and the purposefulness of nature in the ultimate sense. He suggests ways to restore those principles in the consciousness of Muslims in their interactions with nature, noting that the full import of these principles can be found only in metaphysics, as discussed in Chapter 2. Without the certitude of metaphysical principles, Nasr maintains in Chapter 3, an Islamic ethics of nature would lack solid foundations. Moreover, without such certitude Islamic ethics would remain vulnerable to scientism, which renders nature meaningless beyond its physical reality. But which approach to knowledge can confirm the reality of the metaphysical principles? As discussed in Chapter 3, Nasr suggests Sufism, as a way of purifying the heart and enabling the direct perception of higher realities beyond the corporeal world. In Nasr's view, traditional metaphysics, in the deepest sense, is knowledge

that can be perceived not by ordinary or scientific rationality, but by the Intellect or the 'eye of the heart' that, in Islam, can be unveiled through the Sufi way.

As discussed in Chapter 4, Nasr's criticisms of modern science and his arguments for the relevance of metaphysics and Sufism in any comprehensive approach to protect the environment are a response to Muslim modernist and 'fundamentalist' espousal of scientific progressivism. As discussed in Chapter 5, Nasr's strategy involves highlighting the integral role of the aforementioned metaphysical principles in the traditional Islamic sciences so as to refute modernist and fundamentalist conviction that modern sciences are simply advanced versions of traditional sciences. More importantly, as discussed in chapters 6 and 7, he demonstrates that contrary to the modernist and fundamentalist claims, neither modern science nor technology are value-neutral. Rather, they are agents of *takthīr* — the means for a fragmented vision of reality — which hinder the realization of *tawhīd,* the principles of a hierarchy of reality, and the meaning or purpose of the cosmos in the ultimate sense. Nasr's immediate recommendations, discussed in Chapter 7, consist of three essential measures: (a) choosing the least destructive from among the available modern technologies, (b) pursuing technological fixes as in the West,[2] and most importantly, (c) resorting to traditional tools or simple technologies and traditional modes of production wherever possible.

For a permanent solution to the problems created by modern science, Nasr proposes an Islamic science to substitute for it. The proposed Islamic science would reverse the *takthīr* engendering effect of modern science by its focus on the being of all things, including the perceiving self, without forgetting 'the transcendent unity of Being' (*wahdat al-wujūd*). Nasr hopes that the metaphysical framework of Sadrā, whose brief outline is presented in Chapter 8, would be used by Muslims well-trained in modern science as the lens through which to reinterpret all the findings of that science, thereby bringing about a truly Islamic science.

Nasr recognizes that for Muslims at large, to appreciate the criticisms of and turn away from modern science and technology, the aforementioned criticisms and the significance of the religious worldview must be persuasive. Additionally, the proposed Islamic science could only develop within a religious worldview which in turn this science would come to uphold. For Nasr, achieving those objectives on the part of the masses would require reforms in educational institutions, as discussed in Chapter 8. The proposed reforms call for instructions in Islamic philosophy and metaphysics, and with insights acquired from there, a thorough critique of the modern scientific worldview and the concomitant scientific progressivism that prevail today. In Nasr's view, such a critique would be the first step in clearing the way for a revival of a religious worldview that upholds the metaphysical principles of Islam in Muslims' view of nature. The overall goal of Nasr's strategy is to confront the environmental crisis by rendering contemporary Muslims free from scientism, and by making them more mindful of their religious purpose and of the spiritual significance of nature in fulfilling that purpose.

9.2 WHAT HAVE WE ACHIEVED?

We have brought together Nasr's views on the environmental crisis from diverse sources and put them into context with relevant discussions of the perennial philosophy, Western intellectual history, the Islamic intellectual tradition, the history of the Muslim reformist and fundamentalist thought, and the contemporary Western criticisms of modern science and technology.

In the Introduction and in Chapter 2, we demonstrated that his adherence to the perennial philosophy does not conflict with his adherence to the traditional Islamic worldview because three fundamental Islamic metaphysical principles for reality as such — unity of reality, hierarchy of reality, and ultimate meaningfulness or purposefulness of the universe — are identical to those of the perennial philosophy. Rather, the perennial philosophy allows his approach to be relevant across non-Islamic religions as well.

In order to demonstrate the *traditional* Islamic character of Nasr's approach, we have shown how his arguments conform to the views of the grand authorities of traditional Islamic theology, metaphysics, science and philosophy, namely al-Ghazzālī, Ibn 'Arabī, Ibn Sīnā and Mullā Sadrā. We have done this with relevant discussions on the following topics: a) In Chapters 2 and 3, Islamic metaphysics and Sufism and their relevance to Islamic ethics, especially as argued by al-Ghazzālī and Ibn 'Arabī, b) In Chapter 5, traditional cosmology of Ibn Sīnā and other sciences closely related to it and finally, c) In Chapter 8, Mullā Sadrā's natural philosophy. In Chapters 4, 6 and 7, we have drawn on insights and conclusions of the aforementioned discussions in other chapters.

We have shown that the common thread that runs through every aspect of Nasr's vision and the thought of aforementioned grand authorities is their adherence to the metaphysical principles of Islam with special focus on the three perennial principles for reality as such. In addition, Nasr's conformity to the views of the grand authorities is reflected in several other ways: a) In his strong support for the observance of the existing Islamic ethics including the *Sharī'ā* in regards to the natural world and for extending the scope of the existing *Sharī'ā*, according to Islamic legal principles, to circumstances created by modern industrial culture;[3] b) In his insisting on a role for Islamic metaphysics and Sufism in justifying the outer ethical norms and in realizing the nature of reality in the deepest sense; c) In his upholding of the example of the traditional Islamic sciences as reminders of the way metaphysical principles were, can again be, integral to the science of nature; and d) In his recommending of Sadrā's natural philosophy as the basis of a new Islamic science for the future such that science would uphold, rather than deny or ignore, the fundamental Islamic metaphysical principles.

In our comparisons of Nasr's approach with those of others, we have seen that his vision resonates fundamentally with those of most Islamic environmentalists and in the West with the likes of Phillip Sherrard and E.F. Schumacher who have been influenced by Traditionalist thought. However, we have seen in Chapter 6 that the

criticisms against Nasr's kind of approach to the environmental crisis originate in the West and, not surprisingly, have their roots in secular thought inspired by scientism and the theory of evolution.

In presenting Nasr's approach to the environmental crisis comprehensively and systematically for the first time, we hope to facilitate developments on several fronts: 1) Greater appreciation of Nasr's environmentalism, the first articulation of Islamic environmentalism for the contemporary world; 2) A re-examination of the nature of modern science and technology in terms of its effect on the valuation of Islamic principles and ethics; 3) A re-evaluation of Islamic intellectual tradition as a project to establish a unified science of knowledge about God, nature and our souls, and finally, 4) A greater appreciation of the perennial philosophy as a philosophical perspective that accepts each religious tradition in its totality,[4] especially at a time when all religious communities need to cooperate in confronting a crisis that threatens all. [5]

9.3 FINAL REFLECTIONS

On the surface Nasr's proposed solutions may seem most idealistic. However, his solutions do not overlook the conventional measures being taken or being considered by mainstream environmentalists.[6] Nasr's solutions set forth what must be understood and done beyond those conventional measures. In light of Nasr's support for technological fixes and other "secular" solutions — as long as they are seen as means for gaining time in preparation for a profound spiritual response — it would be unfair to characterize his approach to the environmental crisis as impractical. In his criticisms of modern science and technology, his encouragement for resorting to traditional tools and modes of production, and finally, with his vision of an Islamic science to substitute for modern science, Nasr is mindful of their long-term effects on nature and on Islamic values. Thus, far from being unrealistic, he is realistic in the deepest sense of keeping the Real (*al- Haqq*) in view in all human thoughts and deeds: "Islamically speaking, it is always the truth (*al- Haqīqah*) that must prevail and we must always think as Muslims in terms of the truth, rather than expediency whether it be political or otherwise, never forgetting the Qur'ānic verse: *And say the truth has come and falsehood has vanished away; verily falsehood is bound to perish* (17:81)."[7]

Nasr's emphasis on the importance of Sufism, metaphysics and philosophy as a means to safeguard oneself from scientism may seem 'far-fetched.' However, he expects only a few Muslims to actually *excel* in these pursuits.[8] For the majority, a basic understanding and appreciation would suffice, such that there is a renewed grasp that the purpose of a Muslim's life and work ought to be spiritual. As it was in pre-modern times, it would be enough to have a few men or women to excel in spiritual pursuits to serve as leaders and as verifiers of the profound religious or metaphysical principles for the community as a whole.[9] What is important is to comprehend the critical significance of these dimensions of Islamic tradition,

especially for modern times, and to make space for their pursuit in societies. Educational reforms to include the teaching of Islamic philosophy and metaphysics would serve that purpose.

The proposed Islamic science may take a long time to manifest, and given the spiritual training necessary to fully realize Sadrā's natural philosophy,[10] it is likely to be as much about the purification of the perceiving self of the scientist as about the study of the natural world. Moreover, given the need to keep technologies at the human scale,[11] the new Islamic technology is not likely to vary much from traditional technologies. As such, the proposed Islamic science will perhaps lack the outward dynamism that characterizes modern science.

But in replacing modern science with a science that draws attention to higher realities of nature, Nasr's envisioned Islamic science is bound to generate greater dynamism in the Muslim soul towards attaining its ultimate purpose, the realization of *taw hīd* . By the same token, it will also inspire Muslims to abandon the goal of progress through material accumulation. In addition, the proposed Islamic science would provide a spiritual orientation that, when combined with full awareness of the negative consequences of the modern technology as well as the benefits of traditional tools, is likely to inspire even greater appreciation of traditional technologies than in pre-modern times.

However, Nasr's Traditionalist position, with its emphasis on preserving the integrity of each religious tradition, insists that each tradition should develop its own science, one based on a natural philosophy within that tradition.[12] In theory, the possible differences among the sciences emerging from the bosoms of different religious traditions may seem like impediments to scientific cooperation between different religious communities. But if Nasr's approach in Islam is taken as a model, the sciences of non-Islamic religious traditions are likely to uphold the perennial metaphysical principles as well as to focus on spiritual advancement of their scientists as would be the case for the Islamic science. With this assumption, we can anticipate at least three levels of cooperation among the scientists from different religious traditions: 1) At the level of spiritual perception, 2) At the level of ideas, and 3) At the level of technology.

At the level of spiritual perception, the scientists may share their insights on the true nature of various natural entities. At the level of ideas, based on insights into the true nature of entities and based on the material factors already known from methods of modern science, they can share their views on how humans might live in harmony with those entities. At the level of technology, since the technologies are expected to be simple and on a human scale, sharing their secrets is not likely to be challenging. Should that level of awareness and cooperation ever become a reality, human beings will have saved their souls as well as the natural environment.

Nasr is not very optimistic that either Muslims or humanity at large will follow his recommendations in good time.[13] Given the current widespread apathy towards the environmental crisis, he predicts that it may unfortunately take major environmental

catastrophes that specifically touch hundreds of thousands of modernised people to prompt humankind to contemplate a change in our way of thinking and living.[14] However, it was only four hundred years ago when Francis Bacon (156–1626) held out little hope that people would rely *solely* on empirical methods in their investigations into nature.[15] Likewise, what seems far-fetched in Nasr's approach now may one day become commonplace. Being a believer in God by whom all things are possible, Nasr is not without hope.[16]

NOTES

1. See Introduction 0.6.2.
2. See Introduction 0.5.
3. See Chapter 3.1.
4. See Introduction 0.6.
5. For more on this issue, see Osman Bakar, "Civilizational Dialogue on Enviornmental Philosophy: Nasr's 'Man and Nature' Revisited" in *The Beacon of Knowledge: Essays in Honor of Seyyed Hossein Nasr*, ed. Mohammad H. Faghfoory (Louisville, Kentucky: Fons Vitae, 2003), pp. 294–296.
6. See Introduction 0.5.
7. Nasr, "Islamic Worldview and Modern Science," p. 8.
8. Based on a conversation with Nasr at the George Washington University (USA) on 13 August 2009.
9. "The sheer presence in human society of those who have attained the Ultimate Self has an invisible effect upon all of society far beyond what an external study of their relation with the social order would reveal. Such men and women are not only a channel of grace for the whole society but the living embodiment of the truth that self-awareness can lead to the Ultimate Self." Nasr, *Need for a Sacred Science*, p. 20.
10. Chapter 8.3.
11. Chapter 7.3.
12. Based on a conversation with Nasr at the George Washington University (USA) on 13 August 2009.
13. Based on class notes from the graduate level course titled *Man and Nature* taught by Seyyed Hossein Nasr at the George Washington University (USA), 22 April 2004.
14. Ibid.
15. "Even to deliver and explain what I bring forward is no easy matter, for things in themselves new will yet be apprehended with reference to what is old." Bacon, *The New Organon*, Aphorisms Book One, no. XXXIV, p. 46. Also, see Chapter 1.3.1.
16. Nasr, "Islamic Worldview and Modern Science," 22. Also, see Nasr, "Traditonal Man, Modern man, and the Environmental Crisis," p. 33.

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Index of Terms

Ā
‘āda, 1 , 2

A
amāna (bestowed trust), 1 , 2
‘aql, 1
See also Intellect

B

biodiversity loss, 1

C

Chaos Theory, 1
Christian worldview, 1 , 2 , 3 , 4 , 5 , 6
climate change, 1 , 2 , 3
co2 concentration, 1.1-1.2
cosmology, 1 , 2.1-2.2
Islamic, 1.1-1.2 , 2 , 3
scientific, 1
traditional, 1 , 2 , 3.1-3.2
See also religious worldview
cosmogenesis, 1 , 2
covenant (*‘uqud*), 1 , 2
critical planetary systems, 1

D

dhikr (remembrance of God), 1 , 2.1-2.2

E

Enlightenment, 1 , 2 , 3 , 4.1-4.2 , 5
Epicurean, 1
evolution, 1.1-1.2 , 2 , 3 , 4 , 5.1-5.2 , 6 , 7 , 8
eye of the heart, 1 , 2.1-2.2 , 3 , 4 , 5
See also Intellect

F

four fundamental qualities or natures, 1 , 2 , 3
fundamentalist, 1 , 2.1-2.2 , 3 , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11 , 12 , 13
definition of, 1

G

Gestalt Psychology, 1
geocentric model, 1
gradation of being(*tashkīk al-wujūd*), 1.1-1.2

H

harīms, 1
definition of, 1 , 2
heliocentric model, 1
himās, 1 , 2 , 3 , 4
definition of, 1 , 2
from the time of Prophet Muhammad, 1
steady decline of, 1
hylomorphism, 1 , 2 , 3
definition of, 1

I

imaginal reality, 1.1-1.2 , 2 , 3 , 4.1-4.2 , 5
and the rationale for the *sharī'ā*, 1.1-1.2
immanence of God, 1 , 2 , 3 , 4 , 5 , 6
See also Self-disclosure of God *See also* Unity of Being
Industrial Revolution, 1 , 2 , 3.1-3.2 , 4 , 5.1-5.2 , 6 , 7
ijtihad, 1 , 2 , 3 , 4 , 5
definition of, 1
reason for restriction of, 1
Intellect, 1.1-1.2 , 2.1-2.2 , 3 , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11.1-11.2 , 12 , 13
Active Intellect, 1 , 2 , 3
See also eye of the heart
Intellection, 1 , 2 , 3 , 4 , 5
Islamic environmental ethics, 1.1-1.2 , 2 , 3 , 4
as an integral part of a traditional Muslim's life, 1
based on the reality of things, 1.1-1.2 , 2
Islamic legal maxims, 1 , 2
Islamic Philosophy, 1 , 2 , 3 , 4 , 5

abandoned because, 1
continued in Persian and South Asian *madrasahs*, 1
metaphysics in, 1 , 2 , 3 , 4
part of traditional *madrasah* curriculum, 1
relevance today of, 1.1-1.2 , 2
Islamic Philosophy of Science, 1
Islamic University
criticism of, 1 , 2
notable exceptions, 1

K

khalīfah (vicegerent), 1.1-1.2 , 2 , 3 , 4 , 5
See also the vicegerent of God

M

ma'rifa, 1 , 2 , 3.1-3.2 , 4
modern, 1 , 2
modernism, 1
madrasah, 1 , 2 , 3 , 4 , 5.1-5.2 , 6 , 7 , 8 , 9

N

nitrogen cycle, 1.1-1.2

O

ocean acidification, 1.1-1.2

P

Perennial Philosophy, 1.1-1.2
perennial principles of reality, 1 , 2 , 3 , 4 , 5
positivism, 1 , 2 , 3 , 4 , 5 , 6.1-6.2 , 7 , 8
principiality of being (*asālah al-wujūd*), 1.1-1.2 , 2

Q

quantum physics, 1.1-1.2
quiddity (*māhiyya*), 1.1-1.2 , 2 , 3

R

rationalism, 1 , 2 , 3.1-3.2 , 4.1-4.2 , 5 , 6 , 7 , 8 , 9 , 10 , 11 , 12 , 13 , 14 , 15 , 16
religious worldview, 1 , 2.1-2.2 , 3.1-3.2
environmentalism motivated by, 1.1-1.2 , 2 , 3.1-3.2 , 4.1-4.2 , 5
renaissance, 1 , 2.1-2.2
renaissance humanism, 1.1-1.2 , 2
renaissance science, 1

S

salafi, 1 , 2.1-2.2 , 3 , 4.1-4.2 , 5
scientific progressivism, 1 , 2 , 3 , 4.1-4.2 , 5 , 6 , 7.1-7.2 , 8 , 9 , 10 , 11 , 12 , 13 , 14 , 15 , 16
definition of, 1 , 2
Scientific Revolution, 1 , 2 , 3 , 4 , 5.1-5.2 , 6 , 7 , 8 , 9
scientific worldview, 1 , 2 , 3 , 4.1-4.2 , 5 , 6 , 7.1-7.2 , 8.1-8.2 , 9 , 10 , 11 , 12 , 13 , 14 , 15 , 16 , 17 , 18 , 19 , 20
as the primary cause of the Industrial Revolution, 1.1-1.2 , 2
an earlier traditional Islamic intellectual response to, 1
scientism, 1 , 2 , 3 , 4 , 5.1-5.2 , 6 , 7 , 8 , 9 , 10 , 11 , 12 , 13 , 14 , 15 , 16.1-16.2 , 17.1-17.2 , 18.1-18.2 , 19 , 20 , 21 , 22 , 23
definition of, 1 , 2
in the seventeenth century, 1
in the nineteenth century, 1 , 2 , 3
Self-disclosure of God (*tajallī*), 1 , 2.1-2.2 , 3.1-3.2 , 4 , 5 , 6
See also theophany
sharī'ā, 1 , 2 , 3.1-3.2 , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11 , 12 , 13 , 14.1-14.2 , 15 , 16.1-16.2 , 17 , 18 , 19 , 20 , 21 , 22 , 23 , 24
flexible nature of the traditional interpretations of, 1
Sufi support for, 1.1-1.2 , 2.1-2.2 , 3 , 4
Signs of God, 1 , 2 , 3 , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11 , 12.1-12.2 , 13 , 14 , 15 , 16
structural secularization, 1
substantial motion, 1.1-1.2
Sufism and Islam in history, 1 , 2 , 3.1-3.2

T

tahqīq (verification), 1 , 2 , 3 , 4.1-4.2 , 5 , 6 , 7
deeper than that of modern science, 1.1-1.2
takthīr (making many), 1.1-1.2 , 2 , 3.1-3.2
tanzīh (incomparability), 1 , 2
See also transcendence of God
taqlīd (following authority), 1 , 2 , 3
not blind imitation, 1

tashbīh (similarity), 1
See also immanence of God
technical automatism, 1
technical self-augmentation, 1
theophany, 1 , 2 , 3 , 4 , 5 , 6
traditional Islam, 1
in contrast with ‘fundamentalist’ and ‘modernist’ of Islam, 1
Traditionalist, 1 , 2 , 3.1-3.2 , 4 , 5
transcendence of God, 1 , 2 , 3 , 4 , 5 , 6 , 7 , 8.1-8.2 , 9
in rejecting Sufism, 1.1-1.2
in denying God’s immanence, 1
transcendental rationale, 1

U

‘ulamā’ (religious scholars), 1 , 2 , 3 , 4 , 5 , 6 , 7 , 8 , 9
underdetermination, 1.1-1.2 , 2 , 3
Unity of Being (*wahdat al-wujūd*), 1 , 2 , 3 , 4 , 5 , 6 , 7.1-7.2 , 8
unicity of the cosmos, 1 , 2 , 3 , 4 , 5.1-5.2 , 6 , 7 , 8 , 9
‘urf, 1 , 2
utilitarian, 1 , 2 , 3

W

Wahhabi, 1 , 2 , 3.1-3.2
waqf (foundation for charity), 1 , 2

V

vicegerency effect, 1.1-1.2 , 2.1-2.2 , 3.1-3.2 , 4 , 5
vicegerent of God (*khalīfah*), 1 , 2 , 3 , 4

Index of Proper Names

A

‘Abduh, Muhammad, 1 , 2.1-2.2 , 3 , 4
Abraham, Jun, 1
Abraham, 1 , 2
Afrasiabi, Kaveh L., 1
Agrippa, Cornelius, 1
Ahmad, Ali, 1 , 2
Ahwal, Ayman, 1
al-Afghānī, Jamāl al-Dīn, 1 , 2.1-2.2
al-‘Alawī, Shaykh Ahmad, 1 , 2 , 3
al-Attas, Syed Muhammad Naquib, 1 , 2
al-Baghdādī , Junayd, 1
al-Banna, Hasan, 1.1-1.2 , 2 , 3
al-Birūni, Abū Raihān, 1.1-1.2
explicit adherence to Islamic criteria by, 1
al-Fārābī, Abū Naṣr, 1 , 2 , 3.1-3.2
al-Ghazzālī, Abū Hāmid, 1 , 2 , 3.1-3.2 , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11 , 12 , 13
as representative of traditional Islam, 1
cosmology of, 1
on man being created in God’s image, 1
on nature as means of knowing God, 1
on the hierarchy of reality in man and in nature, 1
on the Intellect or the purified heart, 1 , 2 , 3 , 4
on the objective of Sufism, 1
rationale for *sharī‘ā*, 1.1-1.2
Al-Hambra, 1
al-Iskandarī, Ibn ‘Atā’illāh, 1 , 2.1-2.2
al-Kalābādhī, Abū Bakr, 1
al-Kindī, Abū Yūsuf, 1
al-Makkī, Abū Tālib, 1
al-Qaradawi, Yusuf, 1
al-Qurtubī , Abū ‘Abdallah, 1
al-Qushayrī, Abū ‘l-Qasim, 1
al-Ṣādiq, Ja‘far, 1 , 2 , 3
al-Shāṭir, ‘Ala al-Dīn Ibn, 1 , 2
al-Shīrāzī, Quṭb al-Dīn, 1.1-1.2 , 2
al-Tabarī, Abū Ja‘far, 1
al-Ṭūsī, Naṣīr al-Dīn, 1 , 2
al-Wahhāb, Muhammad ‘Abd, 1

al-Yashrutiyya, Fatima, 1
Alighieri, Dante, 1
‘Amilī, Shaykh Bahā’ al-Dīn, 1 , 2
An-Nadwi, Mohammed Akram, 1
Ansārī, ‘Abd Allāh, 1
Appleyard, Bryan, 1 , 2 , 3 , 4 , 5 , 6
Aquinas, Thomas, 1.1-1.2
Ardalan, Nader, 1
Aristotle, 1 , 2 , 3 , 4.1-4.2 , 5.1-5.2 , 6 , 7 , 8 , 9 , 10 , 11 , 12 , 13 , 14
Ashraf, Syed Ali, 1

'

'Assār, Sayyid Muhammad Kāzim, 1

A

as-Sarrāj, Abū Nasr, 1
at-Tirmidhī, Hakīm, 1

S

St. Augustine, 1 , 2

A

Ayoub, Mahmoud M., 1

B

Bacon, Francis, 1.1-1.2 , 2 , 3
Bakar, Osman, 1 , 2 , 3 , 4 , 5 , 6 , 7.1-7.2 , 8
Bakhtiar, Laleh, 1 , 2
Bangladesh, 1 , 2 , 3 , 4
Behe, Michael J., 1
Bennett, Jane, 1 , 2 , 3 , 4
Berkey, Jonathan P., 1
Berlinski, David, 1
Berry, Wendel, 1
Bouvelles, Charles de, 1
Buell, Frederick, 1 , 2
Burckhardt, Titus, 1 , 2 , 3 , 4.1-4.2 , 5 , 6

C

Carvalho IV, John J., 1
Cassirer, Ernest, 1 , 2
Chenu, Marie-Dominique, 1
Chittick, William C., 1 , 2 , 3 , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11 , 12 , 13
Club of Rome, 1
Collins, James, 1.1-1.2
Commins, David, 1
Comte, Auguste, 1 , 2
Cook, Bradley J., 1
Coomaraswamy, Ananda, 1
Copernicus, Nicholas, 1 , 2
Corbin, Henry, 1 , 2
Cornwall, Andrea, 1
Critchlow, Keith, 1
Crutzen, Paul, 1

D

Dagli, Caner, 1 , 2 , 3
Dakake, Maria Massi, 1
Dangor, Suleman, 1
Deepwater Horizon, 1
De Jong, Frederick, 1 , 2
Descartes, Rene, 1.1-1.2 , 2 , 3 , 4 , 5
Dewey, John, 1 , 2
Dewitt, Richard, 1
Dorn, Harold, 1.1-1.2
Dupre, Louis, 1

E

Eberley, John, 1
Eckhart, Meister, 1 , 2 , 3
Egypt, 1 , 2
El-Ansary, Walid, 1
Eliade, Mircea, 1 , 2
Ellul, Jacques, 1 , 2 , 3 , 4 , 5
Empiricus, Sextus, 1 , 2
Erigena, Johannes Scotus, 1 , 2
Ernst, Carl, 1 , 2
Esposito, John L., 1.1-1.2 , 2
Euclid, 1
Exxon Valdez, 1

Ezzat, Heba Raouf, 1

F

Faghfoory, Mohammad H., 1
Fathy, Hasan, 1
Feyerabend, Paul, 1
Foltz, Richard C., 1.1-1.2

S
St. Francis of Assisi, 1

F
Freud, Sigmund, 1 , 2

G

Gabrieau, Marc, 1 , 2
Gabriel, 1
Gai Eaton, Hasan, 1
Galen, 1
Galileo, 1.1-1.2
Gardener, Gary, 1
Gesink, Indira Falk, 1 , 2 , 3
Gifford Lecture, 1
Godfrey-Smith, Peter, 1
Goldziher, Ignaz, 1
Golshani, Mehdi, 1
Gore, Al, 1
Grant, George, 1
Greenpeace, 1
Grim, John, 1
Guénon, René, 1 , 2 , 3 , 4
Gulf of Mexico, 1
Gutas, Dimitri, 1

H

Haddad, Yovonne, 1
Hafez, M.H., 1
Ha'irī, Hādī, 1
Haleem, Harfiyah Abdel, 1
Halstead, Mark, 1

Haq, Nomanul, 1 , 2
Harding, Brian, 1
Harrison, Peter, 1
Harvard University, 1 , 2 , 3
Heath, Peter, 1 , 2 , 3
Heilbron, John L., 1 , 2
Henry, John, 1
Hildegard of Bingen, 1
Hippocrates, 1 , 2
Hodgson, Marshall G. S., 1 , 2
Holmyard, E.J., 1.1-1.2
Hoodbhoy, Pervez, 1 , 2 , 3
Hourani, Albert H., 1
Hujwīrī, ‘Alī ibn ‘Uthmān, 1 , 2

I

Ibn ‘Arabī, Muhyī al-Dīn, 1 , 2 , 3 , 4.1-4.2 , 5.1-5.2 , 6 , 7.1-7.2 , 8 , 9 , 10 , 11 , 12 , 13 , 14 , 15 , 16 , 17
reason for the decline in influence since the nineteenth century of, 1
Ibn al-Farīd, 1
Ibn al-Habīb, Shyakh Muhammad, 1
Ibn Hayyan, Jābir, 1.1-1.2 , 2 , 3 , 4 , 5
Ibn Sīnā, Abū ‘Alī al-Hussain, 1 , 2 , 3.1-3.2 , 4.1-4.2 , 5 , 6 , 7 , 8 , 9
Ibn Taymiyya, 1

P

Prophet Idris, 1

I

Ijmali, 1.1-1.2
Illich, Ivan, 1 , 2 , 3 , 4
Ikhw ā n al- Ṣ af ā, 1 , 2
India, 1
Indonesia, 1 , 2 , 3 , 4
Intergovernmental Panel on Climate Change (IPCC), 1 , 2 , 3
International Islamic University of Malaysia (IIUM), 1
Iqbal, Muzaffar, 1 , 2 , 3 , 4
Iran, 1 , 2 , 3.1-3.2 , 4 , 5 , 6 , 7 , 8.1-8.2 , 9
national parks of, 1
Isenberg, Shaya, 1
Islamic Foundation for Ecology and Environmental Sciences (IFEES), 1
Izzi Dien, Mawil, 1 , 2 , 3 , 4

J

Jacob, Margaret, 1 , 2.1-2.2 , 3
Jawad, Haifaa, 1
Jenkins,Willis, 1 , 2
Jordan, 1

K

Ka‘ba, 1
Kalin, Ibrahim, 1 , 2 , 3
Kamali, Mohammad Hashim, 1
Kateb, George, 1
Katz, Jonathan, 1
Keddie, Nikki R., 1.1-1.2
Kelly, Gerard, 1
Khalid, Fazlun, 1.1-1.2 , 2
Khan, Muhammad Salim, 1
Khan, Sayyid Ahmad, 1
Khayyām, ‘Umar, 1.1-1.2 , 2
King, Jr. Martin Luther, 1
Knysh, Alexander, 1
Kuhn, Thomas S., 1.1-1.2

L

Lapidus, Ira M, 1
Laude, Patrick, 1 , 2
Leaman, Oliver, 1
Lekkas, Georgios, 1
Leopold, Aldo, 1
Library of Living Philosophers, 1
Lindberg, David C., 1
Lings, Martin, 1 , 2 , 3 , 4 , 5 , 6 , 7
Llewellyn, Othman Abd-ar-Rahman, 1 , 2 , 3 , 4 , 5 , 6 , 7
Locke, John, 1 , 2
Lumbard, Joseph E. B., 1

M

Malaysia, 1 , 2 , 3 , 4 , 5 , 6
Manzoor, Parvez, 1 , 2
Marrato, Scott, 1 , 2

Masood, Ehsan, 1 , 2
Massachusetts Institute of Technology (MIT), 1 , 2
Mawdūdī, Abu'l 'Alā.', 1.1-1.2 , 2 , 3 , 4 , 5

S

St. Maximus, 1 , 2 , 3 , 4

M

McClellan III, James, 1.1-1.2
McDonald, Barry, 1
Meadows, Donella, 1.1-1.2
Meyer, Stephen, 1
Milosz, Oscar, 1
Milton-Edwards, Beverley, 1
Minteer, Ben, 1.1-1.2
Moaddel, Monsoor, 1 , 2 , 3 , 4
Mokyr, Joel, 1.1-1.2 , 2
Monastra, Giovanni, 1
Montaigne, Michel de, 1
Moris, Zailan, 1
Morris, James Winston, 1 , 2
Morsi, Mohammad, 1
Mousalli, Ahmad S., 1
Muhaiyaddeen, Shaykh Muhammad Raheem, 1

P

Prophet Muhammad, 1 , 2 , 3 , 4 , 5 , 6 , 7 , 8 , 9 , 10 , 11 , 12 , 13 , 14 , 15 , 16.1-16.2 , 17 , 18 , 19 , 20 , 21 , 22 , 23 , 24 , 25 , 26 , 27.1-27.2 , 28 , 29.1-29.2 , 30 , 31
the way to God comes through, 1

M

Muslim Brotherhood, 1.1-1.2 , 2 , 3

N

Naeem, Fuad S., 1
Nasr, Seyyed Vali Reza, 1
Nasr, Seyyed Valiullah Khan, 1
Needleman, Jacob, 1 , 2
Newton, Issac, 1.1-1.2 , 2 , 3.1-3.2 , 4 , 5.1-5.2
Nielsen,Torben, 1

Nigeria, 1 , 2 , 3 , 4
Nishaburi, Nizām al-Dīn, 1 , 2
Northbourne, Lord, 1 , 2
Norton, Bryan, 1
Norton, Bryan, 1

O

Oelschlaeger, Max, 1 , 2
Oldmeadow, Kenneth, 1
Olson, Richard G., 1 , 2
Oreskes, Naomi, 1
Oviedo, Lluis, 1
Ozdemir, Ibrahim, 1 , 2 , 3

P

Pakistan, 1 , 2 , 3
Peskes, Esther, 1
Petruccioli, Attilio, 1
Pico, Giovani, 1 , 2
Pimental, David, 1
Plato, 1 , 2 , 3 , 4 , 5
Pormann, Peter, 1
Porter, Roy, 1
Postman, Neil, 1 , 2.1-2.2 , 3 , 4 , 5 , 6

Q

Qazwīnī, Sayyid Abu'l-Hasan, 1
Quine, W.O., 1
Quṭb, Sayyid, 1.1-1.2 , 2

R

Radtke, Bernd, 1
Rankin, Alisha, 1
Razi, Abu Hatim, 1
Renan, Ernst, 1 , 2
Riḍā, Rashīd, 1.1-1.2
Robinson, Francis, 1
Rockefeller Foundation Lecture, 1 , 2 , 3
Rockstrom, Johan, 1

Rosenberg, Alex, 1
Rosenthal, Franz, 1
Roszak, Theodore, 1 , 2 , 3
Rūmī, Jālāl al-Dīn, 1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
Russell, Bertrand, 1

S

Sachs, Wolfgang, 1 , 2.1-2.2 , 3 , 4 , 5
Sadrā, Mullā (Sadr al-Dīn Shīrāzī), 1 , 2 , 3 , 4 , 5 , 6 , 7 , 8 , 9 , 10.1-10.2 , 11 , 12.1-12.2 , 13 , 14 , 15 , 16 , 17.1-17.2 , 18 , 19 , 20
Salam, Abdus, 1
Saliba, George, 1
Sands, Kristin Zahra, 1
Sardar, Ziauddin, 1.1-1.2
Saudi Arabia, 1 , 2 , 3 , 4
Savage-Smith, Emille, 1
Schimmel, Annemarie, 1.1-1.2
Schmidt, Lawrence, 1 , 2
Schumacher, E. F., 1.1-1.2 , 2.1-2.2
Schuon, Frithjof, 1 , 2.1-2.2 , 3 , 4
Shabistarī, Sa'd ud- Dīn Mahmūd, 1
Shah-Kazemi, Reza, 1
Shakespeare, 1
Sherrard, Philip, 1 , 2 , 3.1-3.2 , 4.1-4.2
Shiva,Vandana, 1
Soage, Ana Belen, 1.1-1.2
Smith, Adam, 1
Smith, Huston, 1 , 2 , 3 , 4 , 5 , 6 , 7
Smith, Jane I., 1
Smith, Wolfgang, 1 , 2 , 3
Spencer, Herbert, 1 , 2
Speth, James Gustave, 1 , 2.1-2.2
Sri Lanka, 1
Stapp, Henry, 1
Stenberg, Leif, 1
Stephen,Will, 1
Stoddart, William, 1
Suhrawardī, Shihāb al-Dīn, 1 , 2 , 3

Ṭ

Ṭabāṭabā'ī, 'Allāmah Sayyid Muhammad, 1

T
Taj Mahal, 1
Tamimi, Azzam, 1
Taylor, Bron, 1.1-1.2
Taylor, Charles, 1
Taylor, Sherwood, 1

M
Mother Teresa, 1

T
Thanvī, Maulanā Ashraf ‘Alī, 1
Timberlake, Lloyd, 1 , 2
Toledo, 1
Tucker, Mary E., 1 , 2
Thursby, Gene, 1
Turkey, 1 , 2

U

Ummayad Mosque, 1
United Nations Development Program (UNDP), 1

V

Valla, Lorenzo, 1
Vanderburg,Willem H., 1.1-1.2 , 2.1-2.2 , 3 , 4 , 5 , 6
Voll, John O., 1

W

Weber, Max, 1
Weinberg, Steven, 1
White, Jr., Lynn, 1.1-1.2
Wolf-Gazo, Ernest, 1
Wood, Barbara, 1.1-1.2

Z

Zaman, Muhammad Qasim, 1.1-1.2 , 2
Zanzibar, 1
Zeghal, Malika, 1