

FAITH AND DOUBT IN SCIENCE AND RELIGION

by *Varadaraja V. Raman*

Abstract. One of the contexts in which religion and science come into conflict is with regard to faith and doubt. Generally speaking, we associate faith with religion, which is opposed to doubt, and doubt with science, which is opposed to faith. Some critics of science have argued that science is also based on faith; others have shown that there is doubt in the religious context also. In this essay I clarify these positions by defining different types of faith and different types of doubt.

Keywords: agnosticism; *gnosis*; intelligibility faith; quotidian doubt; quotidian faith; religious faith; *sciencis*; skeptic's doubt; verificatory doubt.

Among the contexts in which science and religion come into conflict is the area of faith and doubt. Faith is an essential ingredient of any religion, as doubt is of any scientific enterprise. Indeed, sometimes we use the word *faith* as a synonym for religion, as when we refer to a group of persons sharing the same religion as a "faith community." Likewise, a doubting tendency is sometimes described as "scientific attitude."

However, whereas most working scientists are not embarrassed about their skeptical attitude and may even speak with pride about it, religious thinkers tend to underplay the faith component in their religion, arguing that there are logical and rational modes by which faith can be justified. The avowed purpose of the respectable branch of theology called apologetics is to offer proofs and arguments for the doctrines and dogmas of a religion, either to combat opposing and dissenting theses or to persuade uncommitted souls to join a particular faith community. Many scientists, however, maintain that the strength of their enterprise arises from its insistence on doubt. They subscribe to Cicero's aphorism that it is by doubting

Varadaraja V. Raman is Emeritus Professor of Physics and Humanities at the Rochester Institute of Technology, Rochester, NY 14623; e-mail vvrsp@rit.edu.

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that one arrives at the truth. Many commentators, both scientists and others, have noted that science is not dependent on faith for its survival and progress. Bertrand Russell declared that, unlike William James, who preached “the will to believe,” he (Russell) himself would rather preach “the will to doubt” (Russell 1935, 135). The poet Robert Browning, in his poem “Easter Day,” went so far as to say

’Tis well averred
A scientific faith’s absurd.

In this essay I explore the shades of meaning in the words *faith* and *doubt* and their role and relevance in science and religion. Such a discussion may explain why different thoughtful writers often say conflicting things about the role of faith and doubt in the contexts of science and religion. It may also illuminate the confusion that sometimes arises in science-religion dialogues when the words are used indiscriminately.

FAITH AND DOUBT

The words *faith* and *doubt* have been used somewhat indifferently in the context of science and religion. Thus, for example, Thomas Torrance states that “faith is correlated with the intrinsic rationality of the object and its self-evidencing reality and revealing power” (1980, 86). Because this is not unlike science offering justifications for its theories, some have argued that theology too may be regarded as a science. This idea is elaborated in Russell Stannard’s interesting book (2000). It also has been said, “Religious belief is like science, and like much of the knowledge we gain from experience in the world or with other people, in that it involves postulating hidden forces whose source is not immediately apparent” (Hinde 1999, 34). This is not exactly Gould’s nonoverlapping magisteria (NOMA), in which science and religion function in quite different ways (Gould 1999).

In one of his books, Bertrand Russell (1957) used the word *faith* consistently as “dogmatic belief” and also contrasted faith as a basis for a belief with the scientific mode, where evidence is the basis for belief. Robert Naumann, on the other hand, has categorically asserted that both science and religion “proceed from acts of faith” (1992, 71).

These are just some instances of how, depending on the connotation we give to the terms, we can claim that religion is based on blind faith or that science invokes faith no less than religion. Shifts in interpretation have also been occurring with the passage of time. There was a time when faith was relegated to religion and skepticism to science, which was believed to have freed itself from the constraints of faith.

In their commonly understood meanings, faith and doubt are regarded not as consciously adopted philosophies of knowledge but as states of conviction and experience of which the human mind is capable. These states

may have a genetic source, or they could be related to particular modes of neuron firings in different brains. Some persons are intrinsically inclined to one mode rather than to the other. The statement in the Bhagavad Gita (XVII:3) to the effect that “the faith of everyone is as per his nature” seems equivalent to the notion that faith is genetically determined. If this were the case, it would be futile to try to persuade people by instruction and argumentation to views contrary to those they currently hold. But this is not my concern in this essay.

Here I suggest three different shades of meaning to the words *faith* and *doubt* and argue that in religion one particular type of faith dominates and in science one particular type of doubt dominates.

THREE TYPES OF FAITH

The first of seven meanings of the word *faith* given in Webster’s Unabridged Dictionary is “unquestioning belief.” The second of six meanings of the word *belief* is given as “faith, or a firm persuasion of the truths of a religion.” Covering all of the connotations, faith may be looked upon as the implicit trust one places in a person, thing, or idea, often without asking for or requiring any proof of its validity. In this sense it is not quite true that the scientific enterprise does not rest on any faith. From this perspective, instead of the lines from Browning quoted above, we must rather say,

It must be averred
That a faithless science is absurd.

The thesis of the faith-free nature of science arises from ill-defined notions of faith. To clarify these, let us consider the following examples. When our mother tells us that a certain man is our biological father, we generally accept it as true. When we are young, we take our teachers’ word for granted and trust that they have right knowledge of what they are teaching. We drink fruit juice and milk from cartons we buy at the store, trusting that no one has added cyanide to them. We board an airplane, usually without questioning the pilot’s skill and sobriety.

It is impossible to go through life without accepting certain matters as true without getting first-hand confirmation of their correctness or veracity. We may describe this type of faith as quotidian faith, or *q-faith*. Q-faith is the unquestioning acceptance of a statement on the assumption that the probability of its being false is extremely small. Q-faith is not rationally or empirically fully justifiable, but the probability of its being correct is so high that we are willing to risk adopting it. Its truth content can be verified in principle by appropriate investigation. Without q-faith it would be impossible, in terms of time, to go through life. This idea is expressed in the New Testament thus: “We walk by faith, not by sight” (2 Corinthians 5:7 KJV).

Next, consider the following beliefs: The workings of every aspect of the world are, or will eventually be, intelligible to the human mind. That is to say, every phenomenon in the physical world can and will some day be explained fully in rational and coherent terms. There is order and harmony underlying the physical world.¹ Nothing happens all by itself; every observed event has a cause.² What has been observed to occur again and again an enormously large number of times will occur again; for example, one of the reasons we are so sure that the sun will rise tomorrow is that it has been doing so all our life.³ The only right way to answer the question of the origin of the universe is “by the methods of science, by theory-aided observation and observation-governed theory” (Weinberg 2001, 54).

None of these statements can be proved on logical grounds to be unsalvageable. There is no obvious reason why the laws of physics that are currently observed to be operating in the world should have been the same ten billion years ago or in a galaxy three billion light-years away, or why the ultimate truth about the origin of the universe can be arrived at only by the methodology of science. Yet the scientific enterprise accepts these propositions as true. These propositions also fall under the category of faith. We may describe them as examples of intelligibility-faith, or *i-faith*. I-faith is at the very foundation of the scientific enterprise. It is adopted for at least three reasons: we cannot do any science without it, some of it seems most reasonable (intuitively true) even to an unprobing mind, and it has served the scientific quest extremely well thus far. However, if circumstances necessitated, the world of science would give up, however reluctantly, one or more elements in its faith foundation. For example, the notion of strict causality had to be modified, though not given up, as a result of the discovery of radioactivity.⁴

Now, consider the following beliefs: The Vedas have existed all through eternity. Moses received the Ten Commandments directly from Yahweh. Christ is the Son of God and came to save all humankind. Mohammed received God’s message from the archangel Gabriel.

Implicit acceptance of the undemonstrated validity of these propositions is required of adherents of the corresponding religious traditions. Acceptance of a proposition on the basis of its scriptural authority constitutes religious faith, or *r-faith*. R-faith is not something we will readily abandon even if there are demonstrable indications that it might be invalid. It is embraced not because it conforms to what is generally regarded as common sense or because it is useful in understanding something but because it is a fundamental tenet of a religious system. The Old Testament passage “I know that my redeemer liveth, and that he shall stand at the latter day upon the earth” (Job 19:25 KJV) is an expression of r-faith, as is Nārada’s declaration in the opening chapter of the first book of the Ramayana, “Whoever shall read the saga of Rama which purifies the mind, will be freed of all sins” (Raman 1998, 2).

Thus, r-faith is very different from q- and i- types of faith. Its roots are in revelation, cultural upbringing, and religious traditions. In some traditions it is believed that r-faith is given to a select few as a blessing. Biologists might trace it to particular genes. Whatever its cause or source, r-faith is often associated with the spiritual dimension of an individual. Some type of r-faith is essential for one to be a wholehearted member of any organized religion and to be committed to the spiritual quest. R-faith is the spontaneous, voluntary, and cheerful acceptance, arising from deep inner conviction, of something that one may or may not be able to prove on logical grounds. As Saint Gregory is said to have declared, "Faith has no merit where human reason supplies the proof" (Homilies, No. 40).

R-faith is an essential element in any religious context. Usually, but not always, r-faith refers to unquestioning belief in a transcendent principle, often called *God*. Even the so-called atheistic religion of Buddhism has bodhisattvas⁵ who are said to have transcorporeal existence. Other important elements that give meaning and relevance to life are also associated with r-faith, such as hope for the future, the possibility of persistence after death, and the intrinsic value of goodness. Thus, r-faith is implicit belief in something that is not material, obvious, tangible, or easily recognizable. The statement that "the Gita can only be perfectly understood by devotees" (Prabhupada 1972, 439) is an expression of r-faith. In the Bible we read that "faith is the substance of things hoped for, the evidence of things not seen" (Hebrews 11:1 KJV).

In the scientific realm, *seeing* refers to recognizing the convincing data we get through sensory faculties and through reason. In religions, it means recognizing meaningful and fulfilling truths through intuition and deep conviction. Thus, it has been observed that there is this important distinction between science and religion: In science, we believe what we see, whereas in religion we see what we believe in. As Saint Augustine asked rhetorically, "What is faith if not believing in what thou seest not?" (Saint Augustine 40.8, in Pusey 1965)

Countless people have benefited from and been enriched by r-faith. People with r-faith are fulfilled in their spiritual longing and religious commitment, whether they be churchgoing Christians, Makka-going Muslims, bhajan-singing Hindus, or followers of other traditions. According to Harold Koenig, "Systematic research indicated that in some parts of the United States, 90 percent of persons with serious medical illness use religion at least to some degree as a coping resource, and approximately 50 percent of those persons report that religious faith is the most important factor that enables them to cope (i.e., it is more important than family, friends, work, or any other known coping resources)" (Stannard 2000, 107). This is true also in many other parts of the world.

In the following statements from the scriptures of three major religious traditions, r-faith is meant: "But those who with faith, holding me as their

supreme aim, follow this immortal wisdom, those devotees are exceedingly dear to me" (Bhagavad Gita XII:20). "Be thou faithful unto death, and I will give thee a crown of life" (Revelation 2:10). "Those who believe and work righteousness, their Lord will guide them because of their Faith. Beneath them will flow rivers in Gardens of Bliss" (Qur'an 10.9).

Some may wonder how faith, which serves religion well, happens to be inappropriate in science. When Robert Ingersoll declared that "investigation is better than unthinking faith," what he had in mind was r-faith, not i-faith. It is not always recognized that the r-faith of religion has little to do with i-faith and hence with science.

When we fail to make the distinction between the nuances of faith, arguments and impassés are bound to arise. Then we will have difficulty differentiating between fundamental science and metaphysical theology. Referring to some of the challenging problems of modern cosmology, John Barrow says categorically, "If our methods fail, then any boundary between fundamental science and metaphysical theology will become increasingly difficult to draw. Sight must give way to faith" (Barrow 1990, 373). It is not clear that in the context of a puzzled science r-faith is really helpful for scientists. If anything, in such a context science should reconsider aspects of the i-faith on which it rests and functions.

DOUBT

Doubt is a state of mind, some would say an affliction of the mind. It is a condition in which one is unable or unwilling to accept a given statement as true on the face of it. When we say we are in doubt, what we mean is that we are not altogether certain about the truth or correctness of a proposition, the reliability of a person, the existence of something, and so forth.

Like the word *faith*, *doubt* is used in a variety of contexts with varying shades of meaning, resulting in some avoidable misunderstandings between science and religion. Controversies tend to arise when one ignores the variety of doubts that might arise in the mind. To clarify this I refer, as I did with faith, to three different situations where doubt could arise.

First, consider a salesperson who extols a product that he or she is eager to sell. We may not be inclined to accept everything that the person says. Or, if a doctor tells a close relative of a seriously ill patient that there is a good chance of recovery, the relative might have some doubts about what the physician says. And when a very probable suspect, when questioned by the police, asserts that he or she is innocent, the police may not accept the statement as absolutely true. These are instances of what may be called quotidian doubt, or *q-doubt*. In *q-doubt* there is reason to suspect that the proponent of a proposition is not telling the truth. Usually the individual has an ulterior motive for this. The opposite of *q-doubt* is not faith but rather credulity or gullibility.

Next, consider a preacher who proclaims that those who commit sins are bound to suffer one way or another, in this world or in the hereafter, or an expert in economics who says that if certain steps are taken certain economic problems will be solved. And consider the assurance that one will attain salvation if one accepts Jesus Christ as Savior, or Mohammed as the only Prophet, or an equivalent proposition in another religion. In these instances, too, one may doubt that the proposition is 100 percent reliable. The doubt arising in these cases is very different from *q*-doubts, however. Here, those who make the claim are honest and sincere in what they say. They have no intention to cheat, fool, or take advantage of others. Doubt arises in these cases not because one distrusts the credibility or integrity of the source but rather because the proposition in question strikes the doubter as somewhat improbable. This type of doubt may be called the skeptic's doubt, or *s-doubt*. *S-doubt* is not necessarily associated with disregard or lack of respect for the source or with suspicion of dishonesty.

The New Testament passage "He that doubteth is damned" (Romans 14:23) is referring to *s-doubt*. When it is declared that there is no doubt in the Qur'an (32.2) it is implied that one should not approach it with *s-doubt*. When the Bhagavad Gita says that for the doubting person there is happiness neither here nor in the next world (IV:40), it is again of *s-doubt* that Krishna speaks.

S-doubt is the antithesis of *r-faith* and is not religion-friendly. Thinkers have recognized this since ancient times. Thus, the poet Tennyson reminded us in his "In Memoriam" (Gray 2003, 2) that sowing doubts in times of prayer would spoil the richness of the experience:

Leave thou thy sister, when she prays
Her early heaven, her happy views;
Nor thou with shadowed hint confuse
A life that leads melodious days.

Now, let us say that certain chemists announce that they have produced nuclear fusion reactions at ordinary temperatures. Upon reading this report, the general public may be impressed and excited, but scientists who know something about nuclear fusion, and especially those who are working in the field, will have serious doubts about the correctness of the report or the claim of the chemists. They will immediately set to work to reproduce the reported result. Or suppose that an astronomer claims to have spotted a comet or a new galaxy at such and such a celestial location. Other astronomers will direct their instruments toward the reported coordinates to see if it is so. This gesture, from a truth-content point of view, is also an expression of doubt about what one has been told.

Finally, take the case of a student performing an experiment in a physics laboratory to verify a certain law of physics that was enunciated in a lecture. Why should the student do the experiment? Does she not trust the

professor or the textbook? The point is that a student learning the methodology and techniques of science must not, in principle, trust (accept unquestioningly as true) whatever the teacher says. The act of doing an experiment in a science course is a scientific ritual in which the student implicitly says “Yes, what my teacher told us in class may be right, but unless I do the experiment myself and verify it, I really cannot accept its validity.”

These are all examples of what may be called verificatory doubt, or *v-doubt*. A *v-doubt* arises not by distrust in the integrity of the source (*q-doubt*) or even necessarily from the implausibility of what is stated (*s-doubt*) but from two other considerations:

1. Scientific results need to be validated by individuals beyond and away from the first source through independent observations and repeated verifications. This has nothing to do with the unreliability or untrustworthiness of the source. In fact, when a reported result is not pursued by others to verify or modify it, this is an insult to the scientist who first presented it to the community.

2. No matter how reliable the scientific authority may be who proposes or tries to propagate a scientific proposition, unless the claim is tested independently by many different people using all the available resources, it is not regarded as scientifically valid. Thus, *v-doubt* is a necessary component of the scientific enterprise; it is an important element in scientific methodology, just as *r-faith* is a necessary ingredient of religion.

Just as it is simplistic to say that there is no faith component in science, it is not true that there is no doubt component in the religious context. Many deeply religious people experience *s-doubt* when they encounter a religious system other than their own. Indeed, the rejection of the doctrines of a different religion is an emphatic expression of *s-doubt*. Thomas Aquinas did this explicitly with respect to Islam in his *Summa contra gentiles* (1956). Likewise, a religious person may have some *s-doubt* with respect to certain doctrines in his or her own religion. Indeed, this is the starting point of any new religious sect. Buddhism and Protestantism, the Arian heresy in Christianity, and the Shiite-Sunni sectarianism in Islam—all these and other sectarian movements within religions resulted from the *s-doubts* of religious thinkers.

Even devout believers sometimes experience *s-doubt*. “Doubting Thomas,” Saint Paul, Saint Augustine, and C. S. Lewis from the Christian tradition and Vivekananda from the Hindu tradition all entertained serious *s-doubts* before becoming profoundly religious. Though some religious people have held that *r-faith* whose validity is logically demonstrated is not true religious faith, others, especially religious thinkers who have been touched by science, tend to argue that, at least at some stage, *s-doubt* is a necessary precondition for faith. Thus, Michael Corey says that “God might actually prefer the critical-thinking agnostic, who eventually comes

to Him through a hard-won battle of conflicting beliefs, to the mindless subservient 'believer' who hasn't even bothered to examine his or her belief structure" (Corey 1993, 289). One may wonder how this author and others seem to know about God's preferences, but the point is that honest s-doubt is not incompatible with religious seeking.

CONTEXTUAL RELEVANCE OF FAITH AND DOUBT

The value in distinguishing different types of faith and doubt lies not only in clarifying these important mental states but also in recognizing that both doubt and faith are indispensable in science and in religion and are relevant in different contexts. Thus, for example, singing a devotional hymn in church is a great thing to do, but doing it in a physics colloquium would be inappropriate if not laughable. Telling a joke may be appreciated at a party but not during a funeral service. No matter how fulfilling it may be to an individual, r-faith will not be helpful in the formulation or elaboration of a technical theory in science or mathematics, and doubting the sanctity of scripture becomes inappropriate if not offensive during the performance of a sacrament or religious ritual.

Generally speaking, q-faith and q-doubt come into play in personal attitudes, decisions, and actions. They are generally irrelevant in the public (science) domain. That is to say, they come to the fore in our attitudes and behavior toward others, in interacting with people we know, when we are buying things, and so forth. Sometimes, however, q-faith also arises in the minds of scientists when they attempt to perfect a theory they are developing. For example, Albert Einstein and others spent many years trying to formulate a unified theory of gravitation and electromagnetism, goaded by the conviction that the two must be different manifestations of one and the same deeper reality. This conviction is an instance of q-faith. No element of i-faith is violated if there are two, rather than one, fundamental forces governing the universe. Contrary to the normal undertaking in science, which is to try to explain an observed phenomenon, attempts at unifying the two fields is an intellectual struggle to formulate a theory that has no immediate observational basis whatever. This i-faith-based effort did not bear any fruit. On the other hand, the hypothesis of wave-particle duality, proposed by Louis de Broglie on the basis of his q-faith in symmetry in nature, turned out to be successful.⁶

Similarly, an observational quest to detect an aspect of nature that is predicted by a scientific theory is often inspired by v-faith in the theory. This may or may not lead to success.⁷

Failure to see the difference between i-faith and r-faith leads to statements like "Whereas religions normally make a clear statement on their articles of faith, science introduces its assumptions more surreptitiously" (Wallace 1996, 12). Contrary to what is implied here, science does not try

to sneak anywhere surreptitiously. It simply marches on, with its triumphs and errors, letting the rest of the world benefit from and be enriched by its fruits or discard its worldviews, inviting all but compelling no one to accept its findings.

Religiously inclined scientists—and there are many—do not like to compartmentalize their scientific and religious dimensions. They wish to be religious and scientific in every aspect of their life and to live a fully integrated life. This is a valid position to take and is perhaps the only meaningful way of being religious as well as scientific. However, it is important to be clear about what one means by an integrated life. For most of us it is difficult to bring our faculty for *v*-doubt into the presence of a sacred altar during a religious service and equally hard to bring in our *r*-faith while doing a scientific experiment or elaborating a scientific theory. As long as it is recognized that *v*-doubt and *r*-faith are reserved for different categories of experience, it is possible to ignore or set aside one mental state while being engaged in another. This is neither disloyalty to science nor disrespect for religion. It is important to take the contexts into account appropriately. To be religious and scientific does not mean that we have to bring into action both *v*-doubt and *r*-faith in all contexts, much less simultaneously.

THE SCIENTIST'S FAITH AND TRADITIONAL FAITH

This recognition resolves what seems like a paradox to some: that profound and creative scientific minds can also be profoundly religious. Johannes Kepler and Isaac Newton were mystically religious, Galileo Galilei and Augustin Cauchy were deeply Catholic, James Clerk Maxwell and Michael Faraday were personally religious, and Srinivasa Ramanujan and Chandrasekhara Raman were traditionally religious, to name only a few. There are many other instances of great scientists acknowledging the existence of some supreme principle undergirding the world (Frankenberger [1969] 1973). Steven Weinberg explains this by saying that “religious skepticism is not a prejudice that governed science from the beginning, but a lesson that has been learned through centuries of experience in the study of nature” (Weinberg 2001, 26–27). But the idea that scientists have finally awakened to the truth as against the clouded visions of their ancestors does not explain why Einstein, Max Planck, Werner Heisenberg, and John Polkinghorne still were (are) among the faithful.

The paradox is cleared up if we distinguish between different types of faith. *I*-faith is indispensable for the practice of science, while *r*-faith is quite unnecessary for science. At the same time, *r*-faith is also quite neutral in its impact in the context of scientific research. The oft-quoted faith of scientists (Vukanovic 1995) is quite different from *r*-faith. For many, though certainly not all, scientific thinkers the existence of a superior intelligence puppeteering the phenomenal world is a persuasive possibility.

They are led to this on the basis of their global vision of a universe governed by precise and inexorable laws. However, this is very different from r-faith in the sense of an unquestioning acceptance of God or God's messenger(s) with specific historical attributes such as traditional religions proclaim.

Indeed, unlike scientists of past centuries, most modern scientists, when they speak as scientists about God, refer to the divine in generic terms rather than with a name that is particular to a religion. It is important to distinguish this transdenominational, nonanthropomorphic, mathematically sophisticated entity from the r-faith of traditional religions.

It is equally important to distinguish between science as an enterprise and religion as an experience and to recognize that i-faith goads us to further research, whereas r-faith gives us inner peace. Every scientist who works hard on a theory has full i-faith in its correctness even if it is as yet only partially established, but this faith is very different from a committed Christian's faith in Christ as Savior or a devout Hindu's faith in Vishnu or in the law of karma.

GNOSIS AND SCIENCIS

The term *gnosticism* encompasses certain worldviews and practices in the ancient Christian world. Its pre-Christian roots had such components as mysticism and esoteric practices. It was built on the conviction that by these means the human soul could pierce through the intervening opaque walls between us and the realm of the divine and ultimately reach the heavenly world beyond.

The word is derived from the Greek for knowledge, *gnosis*. The Greek word for knowledge led to r-faith-based knowledge, whereas the Latin word for knowledge, *scientia*, gave us the word *science*, which seeks v-doubt-based knowledge, namely, science, which is an entirely different kind of knowledge. Both claim to have acquired knowledge.

One of the tenets of gnosticism is that it embodies higher knowledge, which has come down to the practitioners from God. Moreover, this knowledge is to be accepted without proof or demand for proof. This knowledge is about God and the divine realm, about transcendence, and about the esoteric origin of the world, according to which the world is the result of some corruption of the divine. Gnosticism is about ways of finding our way back to where we came from and about the ultimate dissolution of the world.⁸

Though the word and practice of gnosticism in the technical sense are no longer as widespread as they once were, the underlying gnostic view of an unfathomable mystic undercurrent, the concept of higher knowledge, and an indescribable transcendence are still very much in the framework of discourse, implicitly or explicitly, often in transformed language and modes, in all r-faith-based systems.

I have coined the word *sciencis* to refer to knowledge gained through the mode, methodology, and framework of (modern) science as an enterprise. It may be said, then, that science-religion dialogues are exchanges between *sciencis* and *gnosis*.

BELIEVERS AND NONBELIEVERS

At one level of the religion-science dialogue, skeptics try to analyze why many millions believe in a God and in the religion of their family, community, or ancestors. They have come up with various theories to explain this. Some attribute r-faith in God to fear of death or awe about the hereafter, others to a continuation of the childhood need for a father figure. Yet others look upon it as a vestige of the herd mentality already present in the pre-*Homo sapiens* stage. Some suspect that it results from genetic coding, and others see it as an evolutionary adaptation phenomenon.

Conversely, religionists have analyzed the mindset of unbelievers. They have their own explanations as to what they see as the plight of those who are blind to the magic of divinity and stone deaf to the call of the Almighty. Some of their explanations include the following: The deluded unbelievers have succumbed to the temptation of the devil or have fallen under the spell of an evil spirit; the unfortunate nonbelievers have not yet received the grace of God; the inability to sing God's glories is a consequence of evil deeds perpetrated in past lives.

Both groups discount the facts that many positive things have arisen in human history from the r-faith of believers as well as from the v-doubt of nonbelievers, that there have been great scientists and thinkers who have been men and women of deep r-faith, and that many horrible acts in human history have been committed in the name of r-faith.

There is a famous statement by Thomas Huxley to the effect that irrationally held truths may be more harmful than reasoned errors. Huxley's affirmation does not always hold. That we will go to Heaven if we serve the poor, the sick, and the helpless is an irrationally held truth. But it has done no harm. At one time, indeed during Huxley's own era, it seemed reasonable to many to proclaim that certain races were inferior to others and needed to be subdued for their own benefit. Very much harm was done as a result.

It does not seem to occur to either group that they share one thing: Both are convinced that their own understanding of whatever may or may not lie beyond the world of perceived reality is the right one.

AGNOSTICISM

I digressed into gnosticism because that was the origin of the word *agnosticism*. Although the majority of people accept without much thought or questioning the assertions of traditional religious texts and preachers re-

garding the transcendental reality, quite a few have doubted its existence. In other words, many have had s-doubts about some of the details in the r-faith of religions, but they have either not pursued the matter or simply accepted it all so as not to rock the boat.

However, all through the ages and in all societies, some have wondered aloud about the contents of r-faith. They reject outright all the religious narratives about the distant past and religious prognostications about what is to come in the very distant future and about God, angels, and the like. More in realization of the limits of the human intellect than in frustration or antagonism, some of them say that they really don't know about these matters. These are the agnostics. Huxley coined this term. In his own words, "I took thought and invented what I conceived to be the appropriate title of 'agnostic.' It came into my head as suggestively antithetic to the 'Gnostic' of Church history who professed to know so much about the very things of which I am ignorant, and I took the earliest opportunity of parading it to our society, to show that I, too, had a tail like the other foxes. . . ."⁹

Huxley's agnosticism incorporates an element of v-doubt, for he said, "In matters of the intellect, follow your reason as far as it will take you, without regard to any consideration. . . . Do not pretend that conclusions are certain which are not demonstrated or demonstrable" (in Bibby 1967, 19).

For millennia keen minds with admirable qualities have been enunciating very divergent theses as to the nature of God and the hereafter and arguing their respective contentions intelligently and voluminously. Their followers have been so convinced of the correctness of the views of the masters that they have often engaged in mutual verbal and sometimes even physical abuse. Corporal punishment for wrongdoing, however unpleasant, may sometimes be understandable. But burning fellow beings at the stake, cutting off their heads, or maiming their bodies because they had different notions of what constitutes God and afterlife arises from mindsets that one would hope are things of the buried past.¹⁰ In this context, to say "I'm afraid I don't know" seems more modest and reasonable and less prone to provoke vehement attacks.

Like the words *faith* and *doubt*, *agnosticism* has also been often misunderstood. It may be rejected because it hesitates to affirm a reality beyond the concrete world of appearance (commonsense reality) in which we normally function. Some have argued that agnosticism leads to meaninglessness because it adamantly refuses to attach long-range significance to anything, to hopelessness because it confesses that one is totally lost as to what life is all about, and to atheism because it says, directly or indirectly, that there is not sufficient evidence for us to believe in the existence of God. This view is succinctly expressed by Enrico Cantore: "Science leads to agnosticism, and agnosticism breeds desperation" (1977, 172).

It has been argued also that agnosticism can lead to paralysis of action, meaning perhaps that if we are not sure of Heaven and Hell, of a punishing or a rewarding God, we cannot choose between moral options. I do not see why uncertainty about the afterworld should necessarily lead to naughty behavior, or why honesty, decency, truthfulness, and other such virtues should necessarily be linked to or hinge upon receiving a bonus sooner or later.

Agnosticism arises from at least two factors. First is the conviction that ultimate questions are interesting to speculate about but impossible to answer unequivocally. These questions relate to the nature of God, the relevance of humans, slime, and slugs in the larger cosmic scheme, the long-range meaning of life, love, and laughter, and the possibilities of personal experiences after death. That it is difficult to formulate unshakable views of such matters does not mean that we cannot or should not work within frameworks that can be meaningful and uplifting, just as the fact that marital love at times slips and leads to divorce does not mean that people should never get married.

Second, agnosticism is an inability to be persuaded by answers to fundamental matters relating to origins and to distant futures, especially those relating to consciousness, such as are offered by traditional religions and by keen and insightful philosophers. This inability could arise because those answers lack rigorous logical support or because of our own limited capacity for accepting proclaimed truths, even if they are backed by time-honored prophets who are revered as messengers of God.¹¹

It must be emphasized that there are myriad moral, humanitarian, political, and other issues on which agnostics can and do speak with at least as much intelligence, and act with at least as much impact and compassion, as those who are sure about the elusive and complex issues pertaining to the Supreme and the hereafter.

An agnostic does not say "You are wrong" but rather "I don't know for sure, and probably you don't, either." Agnostics are less likely to impose on others their lack of answers than true believers would be to impose their own answers. An agnostic might be amused while a true believer would probably be upset by those who hold different views.

Agnosticism is not a call to refrain from making any assertion about any subject, or a reluctance to take a stand on any issue, that results in stand-still or indifference on matters of import. Rather, it is the expression of humility in the face of very difficult and apparently intractable questions. It is the enlightened recognition of ultimate mysteries.

CONCLUDING THOUGHTS

Doubt and faith have many nuances, both when they serve as guides for meaningful action and when they are taken as frameworks for understanding the world of experience. The facile generalizations that science derives

all its richness from its inherently doubting nature and that religion becomes narrow because of its anchor to faith need to be revised to gain a fuller appreciation of both science and religion. Science and religion are not so much nonoverlapping magisteria as parallel magisteria in that each magisterium, relying on particular modes of doubt and faith, enriches the human condition in its own way as *scientis* and *gnosis*.

NOTES

1. For example, according to Hans Reichenbach (1957, 292), Einstein's inspiration for his theory of relativity came from his conviction of "the harmony of the universe."
2. Max Planck regarded causality as a signpost "which helps us find our bearings in a bewildering maze of occurrences, and indicates the direction in which scientific research must advance in order to arrive at fruitful results" (quoted in Nash 1963, 196).
3. David Hume's critique of this is well known.
4. It is accepted that the radioactive decay of a particular nucleon cannot be described as arising from a specific cause. Rather, it is the random consequence of a statistical law.
5. In the Buddhist Jatakas one reads about bodhisattvas, who, according to Mahayana Buddhism, are various personages on the path to the higher awakening. In various forms and with various names, often with local color, they are worshiped in China, Tibet, Japan, and other countries with Buddhist adherents.
6. De Broglie reflected on Planck's hypothesis of the dual nature (particle-wave) of radiation energy and Einstein's matter-energy equivalence and concluded from symmetry considerations that matter should have a similar wave-particle duality.
7. Thus, the search for the neutrino and the omega-minus particle bore fruit, but that for the tachyon did (has) not. In each of these cases, the experimentalists had full faith in the correctness of the corresponding theories: energy conservation in the neutrino, the eightfold-way theory in the case of the omega-minus particle, and relativistic consistency in the case of tachyons.
8. It may be mentioned here that in the Hindu framework there is a very similar distinction between what are called *para* (higher knowledge) and *apara* (lower knowledge). The former is transrational and is acquired only through spiritual modes, whereas the latter is rational, logic-based knowledge. We read in the Manduka Upanishad (1.1.4), "Two kinds of knowledge are to be known, as the knowers of Brahman say: the higher and the lower."
9. This appears in an article on agnosticism in the journal *Nineteenth Century*, February 1881.
10. The eradication of this mindset is among the goals of the Enlightenment which has been attacked by some postmodern thinkers.
11. Things are not made easier for the agnostic when it is noted that there are significant differences of opinion among the prophets of the religions to whom ultimate truths are said to have been revealed.

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