Islamic Perspectives on Theory Building in the Social Sciences

Ibrahim A. Ragab

The issue of the relevance of Islam to modern "scientific" thinking is flanked on both sides by extreme positions. On further investigation, however, these positions turn out to reflect certain misconceptions only, perpetuated by certain structural and personal factors that lend themselves readily to systematic analysis and, hopefully, correction. On the one hand, we have legions of Muslim social scientists who still flinch at hearing of attempts to integrate divine revelation with science. Many of them would find the title of this paper problematic, if not outright self-contradictory. What does Islam, or any other religion for that matter, have to do with science or with theory building, they would ask.

This response should hardly be unexpected, considering the type of academic and professional indoctrination that we all have gone through. The scientific establishment, with its overriding positivist-empiricist leanings, has long adopted and encouraged an attitude—or more correctly a "faith"—of separation between science and religion. Consider, for example, the following statement by no less an authority than the National Academy of Sciences in the United States, in 1981:

> Religion and science are separate and mutually exclusive realms of human thought, presentation of which in the same context leads to misunderstanding of both scientific theory and religious belief. (Sperry 1988, 608-9)

This terse statement is representative of the attitudes of those who adhere to the old paradigm, seemingly totally oblivious of the fundamental criticisms leveled from all directions at that type of outmoded view of science.

On the other hand, we have those Muslim scientists already active in the Islamic science movement who may find the content of the paper objectionable because it does not depart enough from the Western model of

Ibrahim A. Ragab is the chairman of the Department of Social Work at Imam Muhammad Bin Sa'ud Islamic University, Riyadh, Saudi Arabia.

science. Islamic, for them, is synonymous with originality and uniqueness. Islamic science is expected to detach itself from all those man-made formulations. We have very little to learn from the contemporary materialist, Western-minded, positivist-empiricist ridden model of science. Any convergence with that inherently defective model, even inadvertently, would harm our pure Islamic version of the truth, they would insist.

Despite the disparity between these two positions, they both have one element in common: a failure to see the innate "wholeness" rather than parochialism of any true search for the truth. Truth, according to general Islamic principles, is the judge of humanity. Individuals do not judge truth. Those who modestly and sincerely search for the truth shall be guided to it by God. The first group of objectors should remember that verified knowledge, if that is what science ultimately is, is only another activity pursued by the Muslim scientist that should be guided by the same Islamic values guiding his/her entire life. Divine revelation should be his/her main source of knowledge, particularly when we deal with the "unseen," which we cannot ignore when we study humanity. The second group should remember that Islam is a guidance for all people. Creating artificial borders that separate rather than integrate does not serve humanity nor the cause of Islam.

Mainly for the benefit of the first group, the first part of this paper is devoted to a detailed critique of the traditional model of science. The roots of its positivist-empiricist biases are methodically uncovered. It is argued that the schism between modern science and religious beliefs is unnecessary, artificial, ideologically inspired, and that it resulted from particular historical and geographical events. Our hope is that this exposé might help those social scientists who received their professional socialization within the prevalent Western paradigm to see the scientific method as it is—nothing more than *one possible way of knowing the world* and one with many shortcomings and flaws that need urgent correction.

We will show that the "traditional" view of science and of the scientific method, which the social sciences inherited from the natural sciences, did in fact thwart efforts to understand humanity and to improve the human condition. We will also show how its positivist-empiricist biases have contributed immensely to the noted poverty of the social sciences by dismissing as non-scientific, or even as non-sense, any reference to the spiritual-religious aspects of the human being.

In the second part of the paper we suggest an alternative scheme, informed by the Islamic paradigm, that seeks to integrate the empirical and the nonempirical aspects of humanity into a unified system of explanation for human behavior. Theory building, from that vantage point, is explored with an emphasis on the utilization of revelation: the Qur'an and verified hadith as a major source for plausible hypotheses. This is not a naive or simplistic attempt to superimpose religiously derived concepts over the social sciences without proof, but a deliberate attempt to use the rich insights derived from these transcendent sources after subjecting propositions derived from them to stringent verification. The new model does not

allow for unwanted dogmatism or unwarranted xenophobia, which a priori reject anything that comes from non-Muslims. Verification is achieved via the good old mechanisms for self-correction of the traditional model of science—testing and falsification, but with a different twist!

The genius, and maybe the proof, of the truthfulness of a true Islamic science lies not in its exclusiveness or parochiality, but in its inclusiveness and universality, its embracing and welcoming all "well-founded" truths irrespective of who discovered them. Islam is a religion for all humanity, not an occult science. Those who go to extremes in digging into the esoteric aspects of Islamic civilization, saying they represent mainstream Islamic science, only do a disservice to Islam and to science. Nasr (1988) did just this when he suggested that Islamic science should be based on the metaphysical and cosmological doctrines of certain selected outcast Sufis, whose ideas fall outside the mainstream of Islamic thought. Sardar (1988) rightly described Nasr as a traditionalist who consistently ignores "non-Sufi traditions of Islam and offers his variety of Sufism as the only complete solution to all problems." He also declares that Nasr's insistence on "the methodology of the gnostic tradition, more particularly Sufism, does not work," because we cannot "have access to it independently or at will" (p. 14). Add to that claim the fact that Islamic epistemology acknowledges the role of the senses and the human mind in addiation to intuition as means for knowing the universe. Sardar dismisses Nasr's formulations as inadequate and one-sided, advising us: "The exponents of Islamic Science must go beyond gnosis to produce something that is clearly distinguishable as science" (p. 15).

Anees and Davies (1989), in contrast, perceive Islamic science in a much broader perspective. They call for the revitalization of *'ilm*, which they describe as the Islamic concept of knowledge, the pursuit of which is guided by the Islamic worldview. In Islam, knowledge "can be pursued only within the framework of values." These values guide Islamic science towards a healthy and "balanced interaction of revelation and reason." The scientific endeavor should be "founded upon accountability and social responsibility." They also argue that Islamic science "is not to be equated with reinventing the wheel. There is no subtle attempt to undermine or sabotage the cumulative human labor of amassing wisdom" (p. 253). A very precious piece of advice indeed.

The same authors, however, do not seem to follow their own prescription, for they use exaggerated language in their attempt to dissociate Islamic science from Western science. They repeatedly emphasize that "Islamic science is an entity on its own, not defined in comparison with and amendment of an already existing science" (p. 253). They take the Islamization of knowledge movement to task for its supposed

> lack of attention to an Islamic theory of knowledge . . . [this] holds out the prospect of an easy accommodation to a synthesis between western 'scientific' knowledge and Islamic sentiment and belief, the primrose path to mental inertia . . . it is a very short

> and seductive step from this easy synthesis based upon the status quo to the notion that no synthesis at all is needed . . . ." (p. 256)

Winkel (1990) responded to these with equally strong and recriminating statements. He even called similar and more recent writings by Sardar and Anees "potentially disastrous," more interested in "demolition" than "construction." An "Islamic" perspective on the whole debate should be one of moderation and fairness. Even as we reject the extremes of Western science we cannot but be fair, for "let not the hatred of others to you make you swerve to wrong and depart from justice" (Qur'an 5:8).

Although Western science is clearly guilty of many errors of omission and commission (Capra 1982; Augros and Stanciu 1984; Alvarez 1988; Ravetz 1988; Wilber 1990), it is still worthy of being overhauled. Its methodology could be reconciled with broader worldviews. Islam can provide science not only with a set of coherent values that would rid it of most of its negative consequences, but it could equally offer a more integrative and holistic methodology commensurate with these valuative parameters. Sardar's work, as described by Anees and Davies (pp. 254-5), and IIIT's publication *Islamization of Knowledge* provide us with a general framework of Islamic values vis-à-vis Islamic scientific thinking. This framework effectively sets up the boundaries for the working Muslim scientist's job and provides him/her with guidelines for doing his/her daily work. What we badly need is a framework for theory building that would incorporate and express Islamic beliefs. The scheme proposed in the second part of this paper is presented in an attempt to fill this gap.

The approach we chose in this paper, in general, could be described as a "minimalist" proposition, although for many Muslim social scientists it could be seen as "revolutionary." This is a transitional period, where the social sciences seem to be feeling the throes of some really radical changes. Most Muslim social scientists, however, still complacently subscribe to ideas informed by the traditional model of Western science, with its implicit ontology and epistemology, and the methodologies emanating therefrom. It would be unreasonable and unproductive indeed to go on bombarding them with rhetorical statements on how great Islamic science is and how good its "pluralistic methodology" is. Nor is it helpful to take them, in the name of Islam, to trips into the uncharted lands of esoteric Sufi experiences or intuition as methodologies (Bakar 1985). It would be fair to start from the old consensus and to build towards a higher consensus, but on realistic grounds.

The strategy adopted here is based on an attempt to salvage any elements deemed—after careful scrutiny—sound in the traditional scientific method. No element is discarded until it is judged worthless, flawed, or harmful by due process. Muslim social scientists cannot afford the luxury (or the foolhardiness) of throwing away, in exchange for ego trips, a legacy that their ancestors helped bring into existence, even with the twists it has incurred at the hands of others. The overall criterion for omission or commission of any aspects of the traditional scientific

method is ultimately that of compatibility with the tenets of mainstream Islamic thinking. In the proposed model, the ontological and epistemological assumptions of Islam are assumed to provide the general framework without which no discussion of methodology would be valid.

One advantage of this strategy is that we can start from where we are today without losing sight of the Islamic ideal, rather than starting from where we should have been had Islamic history not gone awry. It also allows for the utilization of the criticisms from within the Western scientific community itself—as far as these go. It is no coincidence that we find most of these self-reevaluations pointing in directions Muslims have always held to be true. This does not mean that all prescriptions of the Western new paradigmers are valid, from an Islamic point of view, nor that we have to stop where they do. Western critics of the traditional scientific method seem very confused and perplexed. Muslim social scientists should extend a hand, once again, to help invigorate the scientific venture derailed during centuries of stagnation within the Islamic ummah.

The Scientific Method and the Positivist-Empiricist Legacy

Contrary to what is widely believed, contemporary reevaluations of the history of science have shown that the "idea of science . . . [as we know it today] is only one of many, and that it is a product of temporary circumstances" (Ravetz 1975, 366). Historians of science, according to Ravetz, are coming to view present conceptions of science as "one phase in a continuing evolution," and modern science, as we know it, as an integral part of European civilization (and Western way of life), reflecting "its faults as well as its virtues" (p. 375). Johan Galtung (1977) adds that any discussion of scientific methodology "without reference to the underlying social structure, is misleading. That kind of discussion will only lead to pretenses of universalism and absolutism . . . . " (p. 113).

Tudor (1982) completes the demystification process by stating that "science is a social activity like any other and thus subject to similar 'irrational' constraints and virtues" (p. 31). So, far from being the certain, unbiased, immutable, and heroic activity that we think it is, the scientific method was and is in fact shaped through its development by such mundane things as culture, ideology, politics, self-interest, and hatred. These and similar eye-opening insights teach us how fallible we all are and that we cannot grant, even to science, the kind of respect and trust that only religion once enjoyed, which science valiantly fought to dispossess it of!

Bergin (1980) sums up the situation beautifully when he states:

> Science has lost its authority as the dominating source of truth it once was. This change is both reflected in and stimulated by analyses that reveal science to be an intuitive and value-laden cultural form . . . . Although a belief in the value of the scien-

> tific method appropriately persists, there is a widespread disillusionment with the way it has been used and a loss of faith in it as the cure for human ills (p. 95).

We have a moral and also a "scientific" obligation and responsibility to examine very closely our conceptions of the scientific method to see where it went wrong, particularly in the study of humanity. This takes us directly to its positivist-empiricist underpinnings.

Any standard definition of the traditional scientific method reveals its positivist-empiricist biases. Theodorson and Theodorson (1969) define the scientific method as "the building of a body of scientific knowledge through observation, experimentation, generalization, and verification." They also add that it is based on "the assumption that knowledge is based on what is experienced through the senses . . . [and] must be empirically verifiable" (p. 375).

The same source defines "positivism" as "the philosophical position holding that knowledge can be derived only from sensory experience" (p. 306). A variant of positivism, "logical positivism," only concedes that "logical analysis is needed to clarify meanings that have been verified or falsified through sense experience, but such analyses should be closely associated with empirical observation . . . " (p. 307). Logical positivists at the same time condemn " . . . as nonsense [really non-sense: i.e., complete absence of factual meaning] . . . all moral, aesthetic, and metaphysical assertions" (Feigl 1979, 879).

"Logical empiricism," a modified version of the above that was developed during the middle to the second third of this century, relinquished the designation "positivism" due to the negative attitude it carries towards the existence of any "theoretical" entities. "Empiricism," however, is retained as it insists on "the requirement that hypotheses and theories be empirically testable" (ibid., 881). Logical empiricism, which is the dominant philosophy guiding scientific inquiry today, also insists that "all statements about moral . . . or religious values are scientifically unverifiable and meaningless" (Levi 1975, 273).

But how can we explain a) that messianic zeal revealed by the empiricist tradition in defense of the senses as the only source of acceptable "scientific" knowledge, and b) that vehement insistence on the complete exclusion of all other sources for obtaining knowledge, especially revelation? It would be interesting to trace the historical development of science and the scientific method in order to give detailed answers. That, however, goes beyond the scope of this paper. Fortunately, there exists a vast literature on the subject, some of which is fairly accessible, to which the reader may be referred (Levi 1975; Ravetz 1975; Sperry 1988).

Suffice it at this point to conclude with Polkinghorne (1984) that:

> In Western philosophy, there has been an ongoing search for a foundation or ground upon which to secure true knowledge. After *scriptural authority* and Descartes' clear and undoubtable ideas

> . . . were found wanting, there was a general acceptance of sense experience as the base for certainty. (p. 418) [emphasis mine].

There seems to be general agreement today that the emergence of that biased positivist-empiricist tradition, with its single-minded emphasis on human sense experience, was the bitter harvest of the unfortunate church-science conflict during the Renaissance and the Enlightenment. While scientists were determined to break loose from church authority at any price, it seems that they went on to throw the baby out with the bathwater.

We are told by historians that

> Western philosophy in the Middle Ages was primarily a Christian philosophy, clarifying the divine revelation . . . [but] the Renaissance mounted its revolt against the reign of religion and therefore reacted against the church, against authority, against Scholasticism, and against Aristotle. (Levy 1975, 261)

Toulmin (1975) adds that

> Francis Bacon, author of the method of exhaustive induction . . . reacted against the scholastic reliance on Aristotle's authority by calling for a return to firsthand experience . . . [and] was preoccupied with empirically observed facts as the starting point for all science . . . . (p. 378)

To get away from Aristotle, whose ideas were adopted as official church doctrine, an alternative and independent source for gaining true knowledge had to be found and consecrated. Sense experience, available to everybody and not monopolized by the clergy, was the answer. However, to free science forever from the grip of the church or any other arbitrary authority, sense experience was to be the "sole source" of scientific knowledge. This was meant to completely exclude revelation—true or false, Christian or otherwise—from the scientific enterprise.

These conceptions served their purposes very well when physical scientists studied natural, nonhuman phenomena. Their subject matter, by its nature, was amenable to observation through the senses and through equipment designed to extend their reach. Verification of findings was guaranteed via the replication of experiments. Certainty was easier to achieve, or so it seemed, up to a point. This explains the exemplary success of the "traditional" scientific method as regards natural phenomena.

Hoping to achieve a comparable degree of success in the study of humanity, scientists (or rather philosophers) demanded that the methods used in the natural sciences be applied to the social sciences. But this was not the only motive behind the call for emulating physical science; scientists wanted to end any influence the church could still claim on the "scientific" study of humanity. This is where Auguste Comte's positivism fits in, with its insistence that "the methods of physical sciences are

regarded as the only accurate means of obtaining knowledge, and therefore the social sciences should be limited to the use of these methods and modeled after the physical sciences" (Theodorson and Theodorson 1969, 306). Feigl (1975) points out the anti-church motive behind this call when he states that "in its basic ideological posture, positivism is thus worldly, secular, antitheological, and anti-metaphysical" (p. 877).

But what did this mean for social science and the helping professions? How did nineteenth-century views on the world and the methods of knowing about it held by physical scientists affect the study of humanity?

Impact on the Social Sciences

In 1843 John Stuart Mill wrote: "The backward state of the moral (human) sciences can be remedied by applying to them the methods of physical science, duly extended and generalized" (Polkinghorne 1984, 416). This advice has been taken very seriously by social scientists. Similar sentiments are still being aired by such leading philosophers as Willard Quine (Wilber 1990, 25). The consequences of emulating the physical sciences were dire indeed. To appreciate the extent of the damage done, let us examine the character of science and its methods which were applied in the physical sciences at that time and which still drag on up to this day. Authorities on the subject would tell us that nineteenth-century science could be described as materialistic, mechanistic, and reductionist, reflecting conceptions of reality prevalent in that era.

In physics, Newton's formulations have since the seventeenth century been successfully applied to explain much of the physical world on the basis of the existence of "matter" alone. As a result, scientists came to view "materialism" as part and parcel of the scientific method itself (Augros and Stanciu 1984). This was, according to Capra (1982), coupled with a "mechanical" view of the cosmos:

> For two and a half centuries physicists have used a mechanistic view of the world to develop and refine . . . classical physics . . . . Matter was thought to be the basis of all existence, and the material world was seen as a multitude of objects assembled into a huge machine . . . [that] consists of elementary parts . . . . Complex phenomena could be always understood by reducing them to their building blocks and by looking for the mechanisms through which these interacted. This attitude, known as reductionism, . . . has often been identified with the scientific method. (pp. 31-2)

There is general agreement that the traditional scientific method, when applied in the social sciences, reflected these same characteristics. Humanity was understood and has been studied in the same mechanical, reductionist, and materialist terms. Research methods and research designs reflecting these same ontological and epistemological assumptions were used (Ford 1984). All this was done without serious reflection on how the

subject matter of the social sciences differed, in very significant ways, from that of the physical sciences. This type of confusing very different phenomena is sometimes called a "category error" or a "category mistake," which "occurs when very different categories of phenomena are treated alike" (Weick 1987, 222). The effects were debilitating indeed.

We do not need to go to great length to document the failure of the behavioral and social sciences to understand humanity and account for its behavior, for it is well documented and familiar. Many critics are beginning to see the connection between these failures and the use of that outdated view of the world and science that still dominates the social sciences.

Critics of psychological research and practice, for example, are expressing this in words not very different from the following:

> Psychology has an identity problem. After more than a century of official existence . . . there is even debate of our subject matter . . . . Staats and Koch agree that psychology's splintered condition results, at least in part, and probably most importantly, from the existence of sharply polarized opinion about the epistemological underpinnings of psychology. (Kimble 1984, 833)

Similar assessments of the situation in psychology abound (Howard 1985; Augros and Stanciu 1984; Bergin 1980; Polkinghorne 1984). The same applies to sociology (Dixon 1973; Gouldner 1970). Echoes of the above can also be heard in the other social sciences (Moten 1990). In social work, a heated debate has been going on for a decade to the same effect (see references to such works in Peile 1988).

The basic themes of most of these critical reviews revolve around the fact that human beings are different in many ways from things, machines, or other living organisms. This fact should, accordingly, entail corresponding modifications in the theoretical models and research methods used to study them. Howard (1985, 259-60) puts it nicely: " . . . if humans possess characteristics that are unlike the characteristics of subject matter studied by other sciences, then an appropriate science of human behavior might need to be somewhat different from other extant sciences." Polkinghorne (1984) identifies five areas in which the "human realm" is different and suggests the appropriate research stance corresponding to each. The human realm is different in terms of:

a) Its systemic character; i.e., contextual relations are more important than those among parts;

b) Its unclear boundaries as the rule, not the exception; i.e., deductive -numeric operations are inappropriate;

c) Its unfinished quality; i.e., as the human realm is in flux and has a history, correlations between its various elements may hold at one time but not at another;

d) Its composition; i.e., knowing human beings is a "human" activity and thus there is no absolute point outside ourselves from which to investigate; and

e) Its difficulty of access; i.e., the human realm is not directly observable from the outside and is saturated with meaning, which denotes that we have to accept evidence of a different nature.

Another theme prevalent in such criticism is the total exclusion of a human being's "spiritual" or religious dimensions. Bergin (1980), for example, reports that "an examination of 30 introductory psychology texts turned up no references to the possible reality of spiritual factors. Most did not have the words God or religion in their indexes." Any comparable study of textbooks used in most Muslim countries would certainly reveal comparable findings. How can this ever be explained in our case except on account of uncritical emulation or blind imitation?

Fortunately, Sperry (1988) describes a "theoretical turnabout" taking place in psychology. He tells us that the emerging

> new view of reality . . . accepts mental and spiritual qualities as causal realities. Instead of excluding mind and spirit, the new outlook puts subjective mental forces near the top of the brain's causal control hierarchy and gives them primacy in determining what a person does. (pp. 609-9)

But how did this turnabout happen? Was it the result of literal "soul"-searching on the part of behavioral and social scientists experiencing a theoretical near-breakdown? Far from it! The emerging new paradigm was, to a great extent, a direct result of revolutionary discoveries in the physical sciences! Classical physics had, first, to fail under the weight of new discoveries in the first three decades of this century. Then it began to replace old conceptions with a new paradigm in physics. The social sciences had to wait another fifty years, till the new developments sank in, before sheepishly following the new physical science paradigm. As far as Muslim social scientists are concerned, they first had to see all of these changes unfold before they could allow themselves to act.

The New Paradigm

Augros and Stanciu (1984) claim that science has, since the beginning of this century, undergone several exciting revolutions in physics, neuroscience, cosmology, and psychology. Capra (1982), a physicist, who documented them in detail, followed through with a description of the ramifications and consequences, and then mapped out radical changes in our present culture that are clearly mandated by these changes. He says that the

> dramatic changes of concepts and ideas that have occurred in physics . . . [and] in our current theories of matter . . . [have] brought about a profound change in our worldview: from the mechanistic to a holistic and ecological view . . . [with] deep insights into the nature of matter and its relation to the human mind . . . . The worldview implied by modern physics is inconsistent with our present society . . . . A radically different social and economic structure will be needed: a cultural revolution in the true sense of the word. (pp. xvii-xviii)

Space does not allow a fuller appreciation of the fascinating developments that shaped modern physics as a result of Einstein's pioneering work on relativity, and of Bohr's and Heisenberg's work on quantum theory. Capra's work contains sufficient details in that respect. However, because of the centrality of the subject to our argument, we will quote Capra extensively. Capra tells us that these developments

> shattered all the principal concepts of the Cartesian world view and Newtonian mechanics. The notion of absolute space and time, the elementary solid particles, the fundamental material substance, the strictly causal nature of physical phenomena and the objective description of nature—none of these concepts could be extended to the new domains into which physics was now penetrating. (p. 62)

A very important consequence of the theory of relativity was

> the realization that mass is nothing but a form of energy . . . . Physicists . . . measure the masses of particles in the corresponding energy units . . . . Atoms consist of particles, and these particles are not made of any material stuff. When we observe them we never see any substance: . . . [only] dynamic patterns continually changing into one another—the continuous dance of energy. (pp. 81-2)

The new discoveries in atomic and subatomic physics came as a "great shock" to scientists. Even Einstein reportedly felt as though "the ground had been pulled out from under one." Far from being hard, solid particles, atoms were found to consist of vast regions of space in which electrons move about the nucleus, which in turn is comprised of protons and neutrons. Even those subatomic particles

> were nothing like the solid objects of classical physics . . . [they] are very abstract entities which have a dual aspect. Depending on how we look at them, they appear sometimes as particles, sometimes as waves . . . . The situation seemed hopelessly paradoxical until it was realized that the 'particle' and 'wave' refer

> to classical concepts which are not fully adequate to describe atomic phenomena. An electron is neither a particle nor a wave, but it may show particle-like aspects in some situations and some wave-like aspects in others. (p. 67)

The discovery of the dual aspects of matter has far-reaching consequences for our understanding of the universe. As Bohr wrote:

> Isolated material particles are abstractions, their properties being definable and observable only through their interaction with other systems! Subatomic particles, then, are not 'things' but are interconnections between 'things,' and these 'things,' in turn, are interconnections between other 'things' and so on. In quantum theory you never end up with 'things'; you always deal with interconnections. This is how modern physics reveals the oneness of the universe (69-70).

Capra comments on these insights by saying that theories of contemporary science reveal a conception of the world which can be "in perfect harmony with [the working scientists'] spiritual aims and religious beliefs." Capra's critics, in particular Alvarez (1988), spare us the need to comment on the connection he makes to Eastern religions.

New developments in neuroscience and psychology during the last twenty years have proven to be no less revolutionary than those described above in physics. The "traditional" model of neuroscience and psychology

> had proclaimed a full account of brain function and behavior to be possible in strictly objective physicochemical and physiological terms, with no reference to conscious experience . . . . Things such as moral values, the human spirit, purpose, dignity, and freedom to choose, if they existed at all, were supposed to be only epiphenomena . . . [that] supposedly, in no way changed the course of events in the real world . . . . (Sperry 1988, 607-8)

Sperry says that the early 1970s brought about, with awesome speed, a revolution in the scientific treatment of the relation of mind and brain:

> The new mentalist thinking brings basic revisions of causal explanation that provide scientists with a new philosophy, a new outlook, a new way of understanding and explaining ourselves and the world. The full range of the contents and qualities of inner experience . . . are not only given a new legitimacy in science but are also given primacy over the more physicochemical forces. (p. 608)

He further elaborates on the causality model on which this "cognitive," "mentalist," or "humanist" revolution is based. He explains that:

> The traditional assumption in neuroscience . . . implicit in . . . all the natural sciences, supposes everything to be determined from below upward, following the course of evolution. In this materialist 'microdeterministic' view of nature, all mental and brain functions are determined by, and can be explained . . . [in the last analysis] in terms of subatomic physics and quantum mechanics . . . [In contrast] the new mentalist-cognitive tenets . . . take into account new, previously nonexistent, emergent properties, including the mental, that interact causally at their own higher level, and also exert causal control from above downward . . . over their constituent neuronal events—at the same time that they are determined by them. Microdeterminism is integrated with emergent determinism." (p. 609)

The new paradigm has now been reflected in a "new philosophy of science." It seems to be gaining rapid momentum in all of the social sciences and the helping professions. It is manifesting itself in many different ways. Declarations, for example, that the basic assumptions that informed the traditional model of science are "no longer considered viable" are repeatedly made. In 1974, Suppe wrote that "the vast majority of working philosophers of science seems to fall on that portion of the spectrum which holds the [traditional view of science] fundamentally inadequate and untenable." Starting from Suppe's statement, Polkinghorne lists the indictments against the traditional scientific method: a) difficulties with using observational methods as foundational; b) difficulties with moving from individual observations to general statements; and c) difficulties in relating language to extralinguistic reality (p. 420). He elaborates on and gives supporting evidence bearing on each count.

Sociologists are increasingly voicing dissatisfaction with the experimental model, with operationalization, and with the constant preoccupation with statistics and numbers. Another significant aspect that reveals the extent of dissatisfaction is the revolt against the once-popularized "myth" of value-free sociology. Gouldner (1973) strongly attacked the dogma that "thou shalt not commit a value judgment," which many sociologists propagated. After analyzing Weber's position on value-free social sciences, he concluded that it was only time- and place-bound. It served, for Weber, both personal and institutional purposes. Interestingly, however, Gouldner relates that doctrine also to the science-religion conflict:

> . . . the doctrine of a value-free sociology is a modern extension of the medieval conflict between faith and reason. It grows out of, and still dwells in, the tendency prevalent since the thirteenth century to erect compartments between the two as a way of keeping the peace between them. (p. 20)

Advocates of value-free social science would still argue that this doctrine is meant to guarantee the scientist's objectivity and nonpersonal

bias. However, we saw earlier how the new paradigm replaces objectivity with intersubjectivity. "External reality, as existing apart from the perceiver, simply cannot be objectively known. Shared realities are intersubjectively valid, but their objective validity cannot be known" (Strong 1984, 471). Excluding values will not solve the problem. The cause of scientific inquiry may be better served if the particular values on which a theoretical framework is founded were explicitly laid out and thus open to criticism by others, instead of allowing them to operate *sub rosa*.

A search is on, by way of either reform or revolution (Peile 1988), for alternatives to the narrow positivist-empiricist orientation. The new discoveries in neuroscience referred to earlier gave a new legitimacy to the study of inner experience—including the spiritual aspects—as causal factors in determining human behavior. Many theoreticians and clinicians are beginning to question traditional formulations denying any legitimate place, either in theory or practice, for spiritual or religious factors. This was unthinkable in the past, when only individuals with extreme personal and scholarly courage ventured into that realm—a side-issue in the shadow of more "important" and broader subjects.

We may need to pause here for a moment to recapitulate. In the previous section we showed that new developments in science, reflected in a new philosophy of science, seem to be ushering in what may be called the postpositivist era in the social sciences. The new paradigm recognizes the important role played by cognitive and other inner, conscious phenomena in determining human behavior. In this way, "empiricism is seen in its rightful place, that is, as only one of many approaches to knowing" (Weick 1987, 223). We found that the spiritual factors and religious insights, after all, have an important, rightful place in the "scientific" enterprise. Let us now turn to an exploration of what all this means for theory building from an Islamic point of view.

Theory Building: An Islamic Perspective

A human being, according to the new paradigm and to Islam, is not only a material being. Rather, he/she combines material, observable, empirical aspects (body) with spiritual, nonempirical aspects (soul), in an integrated, indivisible unity (as long as he/she lives). Human behavior is the result of the dynamic interplay between these forces. Thus humanity cannot be understood when reduced to just one of these components, or when "interaction" between the two components is ignored.

But this is where similarities between the two end, for Islam does not stop at the vague idea that there are "spiritual" factors at work on human behavior. Islam provides us with a coherent account of the relationship between body and soul, the source of which is no less an authority than the Creator of humanity, through authentic divine revelation. According to the Qur'an and the verified hadith, before human beings were brought into this world, a covenant was made between them (their souls) and their Creator, in which they declared that He is their One and Only Lord, their

Sustainer. This event is the original point at which human beings knew about their Lord, the point at which the spiritual relationship between humanity and God originally started:

> When thy Lord drew forth from the children of Adam—from their loins—their descendants, and made them testify concerning themselves saying: Am I not Your Lord (Who cherishes and sustains you)? They said Yea! We do testify! (This) lest ye should say on the Day of Judgment: we were never mindful, or lest ye should say: our fathers before us may have taken false gods, but we are their descendants after them: wilt Thou destroy us because of the deeds of men who were futile? (Qur'an 7:172-3)

Individual human beings are then born and brought up in human environments in which they may either keep their original spirituality (*fiṭrah*) intact or become forgetful of their God and His covenant and thus go astray. But God sends messengers with scripture containing prescriptions on how to return, to " remember" the original covenant. Those who are sincere, who have kept their *fiṭrah* intact, will immediately follow the guidance. Those who have become callous and unmindful will not. God has decreed that those who keep a strong affinity with Him and obey His commands will live a "good" life now and will be saved and duly rewarded in the hereafter. Those who dissociated themselves from Him will live a miserable life now and will be duly punished in the hereafter:

> As is sure, there comes to you guidance from Me, whosoever follows My guidance will not lose his way nor fall into misery. But whosoever turns away from My message, verily for him is a life narrowed down, and We shall raise him up blind on the Day of Judgment. (Qur'an 20:124-4)

It is clear, then, that Islam assigns a very high place to spiritual factors (i.e., the quality of the relationship between the human being and God) in determining human behavior. So we may conclude that in Islam, there can be no "science" of human behavior that excludes the spiritual aspects of human beings. Humanity's relationship with its Creator is the most important influence on a person's life. How can social scientists ever achieve any insights into the "unseen" human make-up and into the dynamics of the interactions among those "unseen" components except through divine revelation? But the inclusion of revelation as a source for social scientific facts, in addition to (or should we say over and above) sense experiences and mental processing, introduces new issues that will have to be dealt with in a rather unconventional fashion.

Normally, we do not face any serious problems when the focus of our study is on the observable and the empirical. After all, most of our research methods and techniques in the past have been geared to the investigation of such phenomena. Our "senses" provide the raw material for

knowledge, and "reason" is supposed to enmesh these together "logically" in a meaningful way. The big question is: how are we to study the non-empirical aspects of our being? The soul and the spiritual aspects are, by definition, not amenable to study through sense experience. This aspect of human existence is not space- or time-bound. The vehicle for understanding such phenomena cannot be the sense organs. Nor can it be reason alone, for reason can only process bits of data, sensory or otherwise, in accordance with its innate rules.

Now that we have agreed to incorporate revelation into our epistemology, how can we incorporate it at the methodological level? This may be done by considering theory building from a traditional perspective and from a new paradigm stance before we consider the Islamic perspective.

There is general agreement that "the goal of science is to develop theory (Turner 1978, 24). As Dawis says: "theory is the end product of scientific activity, but an end product that is never final because it is subject to revision and eventual rejection if a better theory is found" (1984, 468). Kerlinger (1979) explains the "high" esteem held by scientists for theory. He tells us that such esteem "springs from the basic purpose of science, and theory is the vehicle for expressing the purpose. Science, then, has no other purpose than theory, or understanding and explanation" (p. 280).

Many people see empirical observations as the solid building blocks of science. However, the new paradigm has shown that observations are first made and then interpreted and given meaning only within a specific frame of reference, a theory of sorts, either explicit or implicit. So observations—whatever the degree of validity ascribed to them—do not determine theory. Howard (1985) explains the nature of the relation between observation and theories as follows: "Because empirical 'facts' can support a multitude of incompatible theoretical positions, and [because] observations in science are, in fact, theory dependent, the link between theory and observation must be tentative" (p. 257).

But theories are based on certain assumptions that "are not for testing" while they limit the situations under which the theory applies. If a situation violates the assumptions, "it is not legitimate to apply the theory" (Lin 1976, 16). How then do we appraise theories?, asks Howard. "What are the criteria whereby choices among theories are made? McMullin held that the appraisal of theory is in important respects closer in structure to value-judgement than it is to . . . rule-governed inference" (Howard 1985, 257). For this reason, assumptions upon which a theory stands should be always explicitly laid out, even if they cannot be tested. This makes it possible for others to agree or disagree with the assumptions and to produce alternative assumptions that may prove more useful when hypotheses based on them are tested.

And it is here that the value of Popper's idea of falsifiability is appreciated. For him, theories are often "bold conjectures." Scientists should be encouraged to construct theories "no matter how they deviate from the tradition." But:

> all such conjectures should be subjected to the most severe and searching criticism and experimental scrutiny of their truth claims. The growth of knowledge thus proceeds through the elimination of error, i.e., through the refutation of hypotheses that are logically inconsistent or entail empirically refuted consequences. (Feigl 1975, 880)

In this way, according to Champion (1985), Popper destroyed the logical positivists' theory of induction. He proposed a "theory of conjectural objective knowledge that grows by a process of trial and error, controlled by imaginative criticism and empirical tests." Champion adds that this is based on a realization "that there are numerous sources of knowledge: tradition, observation, imagination, mathematical and logical deduction . . . but none of these provides anything like a certain base or a criterion of truth" (p. 1415).

Informed by these insights, one can hardly disapprove of Dawis' call for allowing the largest number of theories:

> The world of science should be like a classical free enterprise marketplace, with theories as commodities. When there is a demand for theories (of one sort) it is to the consumers' advantage to allow the largest possible supply . . . I find no problem with including objectively unobservable 'internal states' in our theories, so long as such theories can be tested. (Dawis 1984, 469)

In the same vein, Bergin (1980) encourages us to examine our values, admit that they are subjective, and be clear and open. Then we state our values as hypotheses *for testing* and common consideration by others and *subject them to test*, criticism, and verification (emphasis mine) (p. 102). He goes on to further offer a few testable hypotheses as example. And, it should always be borne in mind that "the ultimate test of an epistemology is in the crucible of empirical or theoretical trials" (Borgen 1984, 450). That is the end of where the new paradigm leads us.

This is where "revelation" fits into the general picture of developing an Islamic social science theory. If theories are made possible in the traditional model by the creative use of our imagination, what do we lose if we substitute this with insights gained from revelation? Homans (1980, 19) tells us that "a leap of imagination" is required to bring observations together in a meaningful way. Dubin (1978) also asserts that "a theoretical model is limited in no way except by the imagination of the theorist in what he may use as elements in building the model . . . ," and then it is for research tests to decide on its reality (p. 12).

We cannot exempt the insights generated from *our understanding* of what revelation stands for from these rules. Scripture is one thing, and our human understanding derived from it is another. The basic strategy for incorporating religious insight into the development of social science theories, without loss in external validity, would include the following:

1. Theoretical frameworks on human nature, humanity's place in the universe, societal arrangements, and causes of individual and social problems would be generated from religious sources, i.e., the Qur'an and the verified hadith, alongside their interpretations by authorities.

2. Hypotheses would be generated from these theoretical frameworks for testing in the "total reality," which includes both the empirical world and the nonempirical aspects (as shall be elaborated upon later).

3. If hypotheses derived from theoretical frameworks generated from religious sources are confirmed, this means that: a) we succeeded in generating valid facts, and b) our confidence in the theoretical framework derived from religious sources increases.

4. If hypotheses were rejected, this means that: a) our research methods and our research procedures are wanting, or b) our understanding or interpretation of revelation is incorrect and needs reformulation.

5. We do not expect contradictions between the Qur'an and the verified hadith, or their correct interpretation on the one hand and validated facts on the other, for God is at once the source of scripture and the Creator of the universe.

The proposed strategy rests on the following assumptions:

1. To the extent that we interpret the Qur'an and understand the verified hadith correctly, we can generate theoretical frameworks that meet the demands of rigorous testing in "total reality."

2. Generating such theoretical frameworks from Qur'anic and hadith sources guarantees valuable insight with higher degrees of certainty, when compared with mere conjecture, and thus is more economical in terms of the research effort.

3. If hypotheses generated from such frameworks fail the test of research in "total reality," it would be prudent to examine and reexamine our research procedures before jumping to conclusions about the theoretical framework. Those involved in research projects know about the myriad vulnerabilities of our research procedures.

4. Testing hypotheses derived from these theoretical frameworks dictates devising methods and techniques able to tap "total reality." Siporin (1985, 212) tells us about "the desire to gain better ways of understanding the subjectivity and consciousness of the person, as well as how better to relate to the person in his or her *full humanity*, including the moral and religious dimensions . . . " (emphasis mine).

Conclusions

We have described some of the fascinating developments in the physical sciences that have led to a revolution in the way we see ourselves and the world around us. This, in turn, has led to a new philosophy of science. The inadequacies of the traditional scientific method, deeply ingrained in a positivist-empiricist paradigm, were pointed out. In addition, its negative consequences for the social sciences, the helping professions, and for our contemporary societies were discussed.

This new philosophy of science allows for the study of nonempirical and empirical phenomena. This was shown to have far-reaching implications for social scientific research, which is still clinging to outdated empiricist traditions. A real scientific revolution is badly needed in social scientific research, one in which the nonobservable would enjoy equal treatment with the observable. The role of spiritual and religious factors in determining human behavior was emphasized, and the potential of "revelation" as a source of plausible knowledge was examined. How Islam takes it from here was explained. The need for Muslim social scientists to be involved in vigorously overhauling their disciplines and their methodologies through the utilization of divine revelation was stressed.

The important issue of how to combine insights derived from transcendental sources with those gained through empirical observations was also delineated. The beginnings of what may be a reasonable strategy to do just that is suggested. The main goal of this strategy is not to discard anything that may prove valuable, while at the same time preserving our freedom from unwanted dogmatism and unwarranted authority.

We hope that this plan for including insights derived from the Qur'an and the verified hadith in a systematic and testable way will lead to a better understanding and utilization of religious insights in the social sciences.

The proposed strategy should help set the record right with regard to the relationship between science and religion. But even here, the new paradigmers jump in with their conclusions which are, as always, a great leap forward in comparison with the stand taken by the traditionalists—but alas! They are insufficient, unable to finish the task at hand.

Wilber (1990), for example, proclaims that

> the conflict between empirical science and religion is, and always has been, a conflict between the pseudoscientific aspects of religion and the pseudoreligious aspects of science. To the extent that science remains science and religion remains religion, no conflict is possible—or rather, any conflict that occurs can always be shown to reduce to a category error . . . . (p. 35)

While this holds promise for transcending the current situation in which scientists are inflicting their godless religions on societies (remember Auguste Comte?), Wilber's vision still smacks of the compartmentalization of the scientist's existence.

If the suggested strategy holds true, Muslim social scientists need to develop more sophisticated research designs and more refined data collection techniques capable of tapping humanity's "unseen" aspects. Such designs and techniques are in short supply today, for the traditional focus on the observable remains dominant. A growing literature, however, seems to lead the way towards achieving that goal (Reason and Rowan 1981; Howard 1984; Polkinghorne 1984).

More important yet: it is incumbent on every Muslim social scientist today to do a little unlearning and some new learning. A lot of what has been taught and what he/she teaches is in need of a (very) critical review; some knowledge may even have to be discarded, if it is found to be defective, if he/she holds the value of "truth" in any high esteem. As stated in the Qur'an: "And conjecture avails nothing against Truth" (53:20).

Most Muslim social scientists, on the other hand, need to acquire a better understanding of the so-called religious sciences. By now, it should be clear that this designation and the distinction made between these and the social sciences is artificial. It is, of course, hard to start again, but such an undertaking is nevertheless a sine qua non for modern social science scholarship.

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