

BOOK REVIEWS

Alparslan Acikgenc, *Islamic Science: Towards a Definition* (Kuala Lumpur: ISTAC, 1996), vi + 106 pp, Pb, ISBN 983 99002 8 5

One of the aims of defining Islamic Science is to generate theoretical understanding of and insight into the nature and meaning of the concept and enterprise of Islamic Science, and thus to formally differentiate it, to the extent possible, from other sciences, especially modern western science, or even from other salient manifestations of Islamic civilization, like Islamic Art. Of course formal definitions have their limits, but a basic working definition, if sound and critically accepted, can provide a degree of rigor, direction and coherence to a discourse that at times tends to be as disunified as the number of participants engaged in it, which is significant lately, mainly because, as Acikgenc himself realizes, “they did not first try to understand what he [al-Attas] meant by *islamization*” (p. 1).

Hence, this little book by Acikgenc (formerly of ISTAC and presently at Fatih University, Turkey) has been of considerable interest to participants in the ongoing discourse on Islamic Science. The book consists of an “Introduction” and three chapters entitled respectively “The Concept of Islamicity”, “The Islamic Concept of Science” and “The Historical Background of Islamic Science”. Many would see it as a courageous attempt at a conceptual understanding of Islamic science that may facilitate its revival as an existential reality, and thus they would like to see to what extent his attempt has been successful. Moreover as Acikgenc himself puts it, “...in order for science to perform its vital role in a society, and more specifically in a Muslim society, a clear definition of it must be provided by the ‘ulama’,” a.k.a. “scholars of Islam” (p. 4).

In the “Introduction” Acikgenc says his book “was constructed, not only as an endeavor to unify my thought into a coherent theory of Islamic science and philosophy, but a struggle to grasp and disclose the grand project of the islamization of knowledge which was for the first time developed by Professor al-Attas... (p. v).” Thus, one eagerly anticipates in the pages of this book an explication, or at least a lucent definition, of Islamic science in authentic Attasian terms. Acikgenc appropriately begins with al-Attas’

definition of islamization as “liberation” from “the magical and the secular world views,” as “devolution to original nature,” and as “involving first the islamization of language” (pp. 1-2). Defined as such, islamization is not a “new phenomenon” that only recently appeared in the process of engagement with the modern world, but something dynamic, ongoing and continually manifested whenever Islam and Muslims have confronted situations which challenge their sense of self-identity. This understanding of islamization is of course quite obvious to all who are familiar with al-Attas’ works.

Therefore the term ‘Islamic science’ is in a sense a statement of self-identity—an identity that has to be defined and asserted with respect to that domain of human activity called science, because it is realized that science is not value-neutral but imbued through and through with the identity of the culture cultivating and promoting it. Since science is value-laden then a self-conscious assertion of self-identity is needed to avoid an unconscious or unwitting loss of identity due to the surreptitious introduction into the receiving culture of a science that presents itself to be universal but whose apparent universal aspects blind the vision to other aspects that on closer inspection turn out to be very particular and contextual.

That is the gist of the “Introduction” and of the second chapter, namely that since science is value-laden then it is derived from, conditioned by and integrated into the worldview of the people practicing it, and hence science cannot be Islamized from the outside in a “mechanical” fashion, but from the inside by a process of reconceptualization of the whole meaning and purpose of science. But thereafter the exposition is marred by a somewhat ad hoc invocation of Kantian terminologies and of an inconsistent and hence confusing treatment of the key-term ‘worldview’. In this regard the three most pertinent aspects of Acikgenc’s exposition that readily open themselves to criticisms are (i) the less Attasian than Kantian framework, (ii) the conception of worldview, and (iii) the definition of Islamic science itself.

Acikgenc begins by citing and discussing al-Attas’ definition of ‘islamization’ but he does not thereby proceed to explicate the implication of that definition for arriving at his chosen definition of Islamic science. Such an explication, if attempted, would require some elaboration on (i) the

presuppositions of al-Attas' definition, presuppositions that are grounded in his conception of the "nature of man and the psychology of the human soul,"¹ and (ii) how a definition of Islamic science can be consistently worked out from that prior definition of islamization. Instead, he abruptly brings in the Kantian conception of *a priori* knowledge (i.e., the synthetic *a priori*) simply because "our exposition of worldview shall utilize the knowledge available to us from even other sources as well," (p. 9) without at all explaining precisely just how such a conception is or can be connected to al-Attas' definition of islamization, and thus be utilized. Without clarifying the conceptual affinity, if any, between Kant and al-Attas, the introduction of the former into the "exposition" is arbitrary, irrelevant and distracting. Thus al-Attas is relegated into the background and the Kantian synthetic *a priori* effectively becomes the real starting point of the exposition, not Attasian 'islamization' or 'worldview', for, indeed, al-Attas has given a definition of what he meant by the term 'worldview' which Acikgenc does not cite at all.

Also, al-Attas has said that "science is definition of reality,"² (this Alparslan also overlooks or ignores) which is consistent with his definition of the Islamic worldview as the Islamic vision of the totality of being and existence and not of this temporal, phenomenal world alone.³ Now, this realist definition of science and worldview will be problematic from within the perspective of the famous Kantian distinction, even demarcation, between *noumena* and *phenomena*. For it follows from this demarcation that (for Kant at least) science can only be about phenomena and never noumena, whereas for al-Attas, true science must ultimately be also about noumena, i.e., that the study of phenomena should lead the intellect into some insight into the underlying noumena. The danger for Muslim scientists and philosophers who unwittingly follow the Kantian framework

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1. In Syed Muhammad Naquib al-Attas, *Prolegomena to the Metaphysics of Islam: An Exposition of the Fundamental Elements of the Worldview of Islam*, 2nd ed. (Kuala Lumpur: ISTAC, 2001); henceforth *Prolegomena*.
 2. Al-Attas, Syed Muhammad Naquib, *The Concept of Education in Islam: A Framework for an Islamic Philosophy of Education* (Kuala Lumpur: ISTAC, 1991), p. 2.
 3. *Prolegomena*, pp. 1-2.

lies in the neglect on their part of any serious attempt at an ontological interpretation of empirical scientific data that is consistent with their religious belief-system or worldview. If this happens, science will be purely instrumentalist, manipulative and exploitative in the Baconian sense, and never really cognitive and hence salvific, and so bye-bye to islamization and Islamic science.

To make matters worse, in his attempt to work out his conception of 'worldview' from the Kantian synthetic *a priori*, Acikgenc falls into tautologies, circularities, conceptual gaps, inconsistencies and contradictions too numerous and tedious to exhaust in any detail here. By way of indications, one may cite the many cases in which claims are asserted as conclusions only to be reasserted as conclusions with no new informative content (pp. 8-9); in Kant the synthetic *a priori* is not conceived as being the property of a created mind and hence ontologically grounded in a transcendent "noumenal" intellect, whereas Islamic epistemology posits the real objective existence of a universal intellect as the ontological ground for all human cognitive processes (p. 10); proper procedures of inference are absent throughout the book since the conceptual gaps between propositions and conclusions are not filled; his statement that "no scientific knowledge is possible" within certain worldviews (p. 12) is a mere assertion without citing any anthropological studies, and which contradicts the very notion that "human reason is by nature architectonic" (p. 11). For if human knowledge is *by nature* architectonic, then scientific knowledge is possible in all worldviews, even in so-called primitive, pre-historic cultures, unless of course one chooses to define science by the way science is being done in the high-tech, overly commercialized modern West.

In sum, the first chapter on "Islamicity" turns out to be an attempt to explicate the Kantian synthetic *a priori* rather than the Attasian conceptions of islamization, worldview and science, which explication turns out in the final analysis to be neither Kantian nor Attasian nor anything coherently novel. Would it not have been more relevant, consistent and fruitful to begin simply from al-Attas' outline of Islamic faculty psychology as the framework for Islamic epistemology, flesh out the conceptual connections between that outline and his definition of islamization, worldview and science, and then proceed thereby to a definition of Islamic science? The inferential procedure in this case would then be something like this schematically:

Psychology/epistemology → worldview → islamization →
 philosophy of Islamic science → normative and/or
 descriptive/positive definition of 'Islamic science'

Quite apart from ignoring or overlooking altogether al-Attas' own definition of 'Islamic worldview', the term 'worldview' is given by Acikgenc a number of mutually conflicting connotations such that it is understood in the (i) generic sense, (ii) specific sense, or as (iii) referring to mutually exclusive concepts, thus causing much categorical confusion, all within the same pages 10-11. Examples abound: worldview as mind itself, thus taken in the generic sense; worldview as mental framework, thus taken in the specific sense, i.e., as a sub-category of mind; worldview as "condition of mind," thus taken in the super-generic sense as a super-category of mind or as meta-mind (he says, "The worldview thus becomes the environment within which the mind operates, and without which it cannot function at all"). This notion of worldview as meta-mind brings about categorical confusion. To summarize, he gives us worldview as "environment of mind," i.e., that surrounds the mind; as conceptual environment of science, i.e., that surrounds science specifically (p. 38); as mental framework, i.e., framework within the mind (p. 10); as "ground of mental operation," i.e., as meta-mind (p. 1); and as mind per se, i.e., mind as such (p. 10).

Consequently, the precise relationship between mind (cognitive faculty) and worldview (religious or transcendental vision of reality) remains obscure, and this obscurity is subsequently compounded in his cursory and bibliographically vacuous account of the rise and function of worldviews and the various cognitive structures, processes and functions constituting them. Here again, "the major factors that form a worldview" are breezily asserted and iterated tautologically as if they are self-evident without any informative clarification of the complex interplay of these factors and how they collectively come about to "shape" a worldview.

Although it is true and truistic to say that the worldview is the "mental environment of science," such a statement does not carry us very far to an understanding of the nature of scientific activity as such, for not only science but also other distinctive aspects of human activity such as art, music, ethico-moral conduct, literature and the various forms of socio-cultural interactions and institutions are also functions of the same worldview. Hence the real issue here is precisely just how do we formally demarcate between the organization of experience and thought that is expressed in the human activity termed 'science' from all these other, also "worldview-bound" activities.

A consistent account of the relationship between mind and worldview should rather go something like this: in general, the worldview arises in the mind as a result of the mind exercising its various cognitive faculties to

organize its experience of and interaction with the natural and social environment. However, from within the perspective of Islam, and insofar as the Islamic worldview is concerned, we may say further that the worldview arises in the mind as a result of the mind exercising its various cognitive faculties to organize its experience of and interaction with the natural and social environment in accordance with its affirmative apprehension of Revelation as objectively manifested in the Qur'ān and realized in the person example of the Messenger.

Furthermore, if human reason is by nature (i.e., by divine endowment) “architectonic” (i.e., divinely endowed with pre-experiential cognitive faculties), then it follows that there are both worldview-bound knowledge systems specific to particular cultures as well as non-worldview-bound knowledge common to all cultures and which render inter-cultural or inter-religious dialogues possible, for it surely cannot be said that the Qur'ānic revelation is addressed only to those who already believe and hence is understandable only to them. On the contrary the Qur'ān itself claims to be revealed to all humanity, and hence its message is in principle accessible to all, believers and non-believers alike, and this presupposes a common, trans-cultural, trans-religious non-worldview-bound knowledge binding together believers and unbelievers on the basis of a shared, “architectonic” human intelligence. Since there is a form of knowledge that is prior and hence basic to all worldviews and which sets the conceptual parameters of any particular worldviews, then it would be inaccurate to say that “all” knowing and acting are worldview-bound. In short, the more fundamental cognitive aspects of human knowing and acting, understood (in the Chomskyan sense, for instance) as ‘competence’, are not worldview-bound, but rather they constitute or provide the very conditions for the formation of any particular worldview.

It follows furthermore from the foregoing that science as a conscious, reflective, critical and systemic investigation of experience can in principle arise in any worldview by virtue of the nature of human reason itself, though in practice, the “science-forming capacity”⁴ is activated or evoked by a certain complex of natural and social factors that may not obtain in all

4. Chomsky, Noam, *Language and Problems of Knowledge: The Managua Lectures* (Cambridge: MIT Press, 1989), 156-9.

cultures in all periods of their intellectual history. This is especially true of the ‘high’ sciences of great civilizations such as the Egyptian, Babylonian, Chinese, Indian, Persian, Greek, Islamic and medieval Latin-European, for though we see in them the light of science shining and dimming in turn, can it be said in the case of the Greeks, for example, that they lost their cognitive competence to do science? Hardly, for though as a nation they may have been eclipsed by other nations in science, there are surely many present-day individual Greek scientists doing scientific work more or less on par with the Americans and other scientifically ‘advanced’ nations of the West.

Without resorting to Kantian notions, which are moreover left unjustified by Acikgenc, one can easily derive a schematic sketch of how to go about defining the various Islamic organized activities, including science from a careful reflective study of Professor al-Attas’ *Prolegomena to the Metaphysics of Islam*. Such a schematic sketch is suggested below:

Revelation + Mind + Experience → Islamic Metaphysics → Islamic
Worldview → Islamic Organized Activities
→ science
→ art
→ literature
→ ethics and morality
→ social institutions/structures

Acikgenc’s definition of ‘science’ in terms of “subject matter,” “body of problems,” “method” and “theories” (p. 34) requires specific historical substantiation to be compelling. Instead, we are again served repetitive assertions *ad nauseam* of the validity of these four terms on the claim to having examined “all disciplines” when in fact he does not bother himself at all to examine in any factual detail even a single prominent episode or figure in the history of Islamic science, whether the remarkable episode of the rise and consolidation of the linguistic sciences in early Islam, or, let’s say, the emergence of experimental and mathematical optics with Ibn al-Haytham, and both episodes are well studied and documented by the way. In another place he compares (or constrasts?) the science of *kalām* with Greek physics without discussing in detail a single Greek or *kalām* physical work or aspects thereof. These and other similar problematic aspects of his exposition abound in Chapters II and III, but others with more mental tenacity may want to review them in detail.

Lastly, as for Acikgenc's definition of 'Islamic science' itself (p. 38), it is unsurprisingly (considering the foregoing) a tautology. It goes like this, brackets, caveats and all:

Islamic science is that scientific activity which takes place ultimately within the Islamic Worldview (which can now be identified also as the Islamic conceptual environment); but as an extension of it directly within the Islamic scientific scheme (which can be identified also as the Islamic context of science).

Such a definition (let us bypass its grammatical awkwardness) is already implied in the term 'Islamic worldview' such that it does not give us any substantial information about Islamic science as an activity that is distinct from other activities like Islamic art or Western science. Moreover the definition has an expressive structure that is too general inasmuch as the word science can easily be replaced by any word referring to any activity to which the adjective 'Islamic' is attachable. In other words, the definition is at best purely analytical with neither descriptive nor delimiting content; at worst it is what grammarians might term a "pleonasm, a redundancy of expression, needless repetition."⁵

If Islamic science involves interaction between an "architectonic" mind and sensible experience, then it should be defined both analytically, i.e., by explicating aspects of its internal conceptual or semantic structure and synthetically, i.e., by indicating aspects of substantial, external realization of the concept in actual practice (by reference to the history of Islamic science, for instance). Put another way, the abstract concept of Islamic science, in order for it to have practical meaning, presupposes a real existential counterpart that serves to substantiate the very concept itself, moreover since Islamic science was already a reality long before the need arose for its formal conceptual definition or systemic existential description. Thus an adequate definition of Islamic science (i.e., one that may serve to guide its contemporary revival) will have to display some central aspects of the subtle interplay between the theoretical concept and the historical reality.

Acikgenc begins very well with some manifestly true propositions acceptable to many people who believe in the Islamization of the sciences,

5. Mautner, Thomas (ed.), *A Dictionary of Philosophy* (Oxford: Blackwell, 1996), s.v. "tautology".

but instead of substantiating them with well-documented historical case studies, he remains content with tautological redundancies and general assertions which are left bibliographically vacuous for the most part. Here and there he makes references to al-Attas' psychology and philosophy of science, but his program is neither conceptually nor substantially explicative in any self-consistent manner of al-Attas' program. A more historical than analytical approach to the philosophy of science should be more fruitful for coming to a more substantial and meaningful definition of Islamic science. At any rate, one cannot and should not avoid studying how great figures of Islamic science such as Ibn al-Haytham, al-Bīrūnī, Ibn Sīnā and Fakhr al-Dīn al-Rāzī reflected on the philosophical and empirical sciences in which they excelled.



Pietro Croce, *Vivisection or Science? An Investigation into Testing Drugs and Safeguarding Health* (London and New York: Zed Books, 1999), viii + 209 pp, Pb, bibliography, index, ISBN 1 85649 733 X

This remarkable book packs a lot of intellectual punch in a relatively compact yet accessible volume, especially considering its focus on the scientific rather than the ethical aspects of vivisection. Here, the prominent Italian doctor, professor and medical researcher from Milan, Pietro Croce, tackles the problem of live animal experimentation (vivisection) from the scientific, methodological and medical rather than from the ethico-moral point of view. To quote from the back cover:

He highlights the increasing dangers to human health resulting from the animal experimenter's [unexamined and unproven] assumption that the biological systems of humans and other species are sufficiently similar for valid biomedical comparison. And for the medical researcher, he provides an introduction to the range of alternative methods, including epidemiological research, computer simulation and *in vitro* techniques.

The book consists of a very brief one-page introduction which sets out his aim to reach both the medical professionals and the educated public by avoiding unnecessary technical jargon without however sacrificing "scientific rigor, so that those who possess a suitable scientific background will be