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# An Analysis on Cosmology in the West and in the Malay World

## Suatu Analisa Terhadap Pandangan Kosmologi Barat dan di Alam Melayu

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*ABSTRACT*

*Ideas of the cosmos is quite an ancient idea where we find it mentioned in the earliest of writings of the Greek philosophers. It seems that ever since man looked at the sky they have often wondered how, what the universe is and of course their place in it. Much of what man had discovered and theorized were based on ideas connected to the Greeks and world religions. In Islam the universe or 'alam in Arabic has dual meaning, one it points to the physical universe and more, and secondly it points to what is not God but are His manifestations. Thus an understanding of cosmology in Islam is frequently based upon that connection between the profane and the sacred, the earthly and the transcendent. However since western scientist had discovered that the universe is in a perpetual state of expansion, much of western cosmology is based upon a material/ physical understanding of science. Since the discovery of the cosmic microwave background in 1965, the theory of the big bang became the standard model of the physical universe. Much of this has issues with how cosmology is approached in Islam. Therefore this paper will analyse this often tense relation between religion and science philosophically. The development and discussion on the foundations of western science especially cosmology will be exposed for the sake of reimagining the boundaries of science. Avenues of mergence between the two have been suggested in the past in various guises the most famous of which is the Islamic science idea. This paper will look critically at the notion of Islamic science and suggest ways of application which will be done via the utilization of Islamic cosmology as propounded by Ibn 'Arabi and his followers in the Malay world. Reimagining's and paradigm shifts has to be undertaken in order for the Islamic science project to take off from an obscure basis towards being grounded in local and traditional wisdom. The usage of sources close to Nusantara is one such example.*

*Keywords: Islamic science; cosmology; Nusantara; west*

*ABSTRAK*

*Idea mengenai kosmos merupakan suatu idea yang agak lama kerana ia dijumpai dalam kebanyakan tulisan ahli falsafah Yunani. Sejak manusia itu mula mendongak ke langit, mereka sering berfikir bagaimana dan apakah alam ini dan juga di manakah tempat mereka di dalamnya. Kebanyakan yang difikirkan dan dicapai oleh manusia adalah berasaskan kepada idea yang berkait rapat dengan golongan Yunani dan juga dari agama dunia. Dalam Islam, alam yang merupakan perkataan Arab mempunyai dua makna, satu merujuk kepada alam fizikal dan lain-lain; yang kedua ia merujuk kepada semua yang bukan Tuhan tetapi yang merupakan manifestasiNya. Oleh itu suatu kefahaman kosmologi di dalam pandangan Islam sering berdasarkan kepada hubungan antara apa yang dianggap sia-sia dan yang dianggap mulia, antara duniawi dan apa yang melampauinya. Walau bagaimanapun sejak ahli saintis Barat berpandangan bahawa alam ini adalah dalam keadaan yang sentiasa berkembang, kebanyakan faham kosmologi Barat ditafsirkan berasaskan kepada suatu kefahaman sains yang bersifat materialistik atau hanya fizikal. Sejak penemuan gelombang kosmik pada tahun 1965, teori Big Bang menjadi seolah-olah suatu model contoh bagi alam fizikal ini. Kebanyakan pandangan tersebut bagaimanapun mempunyai banyak permasalahan apabila dibandingkan dengan pandangan Islam. Oleh itu kertas ini akan cuba menganalisis hubungan yang agak tegang antara agama dan sains secara falsafah. Perkembangan dan diskusi mengenai asas sains Barat terutamanya kosmologi akan didedahkan dengan tujuan untuk memikirkan semula sempadan sains. Kawasan yang menghasilkan pertemuan antara keduanya telah pun dicadangkan pada masa lampau melalui pelbagai bentuk terutamanya melalui idea Sains Islam. Kertas ini akan melihat secara kritikal kepada teori Sains Islam dan akan cuba mencadangkan agar gabungan dilakukan dengan menggunakan kosmologi Islam sebagaimana yang telah dihuraikan oleh Ibn Arabi dan pengikutnya yang ada di Alam Melayu. Pemikiran semula dan anjakan paradigma perlu dilakukan agar projek Sains Islam dapat berlepas dari asas yang tidak dikenali ke arah sebuah asas yang berpusat pada tradisi lokal dan kearifan tempatan. Penggunaan sumber-sumber yang berada di Nusantara adalah salah satu contoh yang wajar.*

*Kata kunci: Sains Islam; kosmologi; Nusantara; barat*

## INTRODUCTION

Before we can begin to study the idea of cosmology in Islam we need to look at how Islam views science. By Islam I mean Muslim scholars because Islam cannot speak for itself, it needs its scholars or those who are well rooted in knowledge to speak about it to the masses. Those are the *wal rasikhunna fil 'ilm*.

Amongst the many scholars who have written about Islam and its relationship to modern science, there is Seyyed Hossein Nasr[1], someone who have written on the theme since 1960s. His *Science and Civilization in Islam* is considered to be a classic by some and in fact paved the way for the discussion to come.

> Many people feel that in fact there is no such thing as the Islamic problem of science. They say science is science, whatever it happens to be, and Islam has always encouraged knowledge, *al-ilm* in Arabic, and therefore we should encourage science and what's the problem? -there's no problem. But the problem is there because ever since children began to learn Lavoiser's Law that water is composed of oxygen and hydrogen, in many Islamic countries they came home that evening and stopped saying their prayers. There is no country in the Islamic world which has not been witness in one way or another, to the impact, in fact, of the study of Western science upon the ideological system of its youth.
>
> (Seyyed Hossein Nasr in a speech given in front of academics in Pakistan-1996)

Nasr sums up his view on science and the world of nature by saying,

> "one might say that the aim of all the Islamic sciences and more generally speaking of all the medieval and ancient cosmological sciences is to show the unity and interrelatedness of all that exists so that in contemplating the unity of the cosmos man may be led to the unity of the divine principle of which the unity of nature is the image".[2]

## ISLAMIC COSMOLOGY

When we look at the whole spectrum of Muslim thought in the field of Islamic cosmology it is very hard to deny the significance of the work of Syed Hossein Nasr. His *Islamic Cosmological doctrines* is by far the most lucid exposition of the idea of Islamic cosmology. For obvious reasons his views on Islamic cosmology would be discussed in its outlines so that we get an overview of this important aspect of Islamic science.

In his magisterial work, *Introduction to Islamic Cosmological doctrines*, Nasr sums up his idea on cosmology from a traditionalist perspective:

> The ancient cosmological sciences were for the most part based upon the unicity of Nature and searched for the transcendent cause of things and were, therefore, far from un-Islamic even if they antedated the historical manifestation of Islam. It was this common factor of seeking to discover and demonstrate the unicity of Nature among such ancient cosmological sciences as those of the Pythogoreans and Hermeticists that made them conformable to the form of the Islamic Revelation and easily asimilable into its perspective. The form of the Islamic Revelation was in this way directly responsible for the integration of the ancient sciences into Islam as well as for the types of sciences cultivated in the Muslim world itself".
>
> "The doctrine of the unicity of Nature which is based upon that of Unity and which thus relies on the essence and spirit of the form of Revelation in Islam is, therefore, the ultimate aim of all the sciences of Nature, and the degree to which a science succeeds in expressing this unicity (is) the criterion by which the success and validity of that science are judged.[3]

Therefore to Nasr, the idea of looking at the cosmos and even natural science for that matter has to be with the aim of demonstrating and propounding the unicity of Nature. This to him is also the message of the Qur'an and he points to the verse

> XLI:53 *Sanurihim ayatina fil afaq wa fi anfusihim hatta yatabayyana lahum annahu al-Haqq* "We shall show them Our signs in the horizons and in themselves until it be manifest unto them that it is the Truth".

This approach to cosmology is an approach with a certain frame of mind or philosophy which is different from the empirical/mathematical approach. Nature, the cosmos is interpreted from this particular perspective. That man is made to view this so as to not lose his way from his Maker and Creator. This making-sense-of-the-cosmos philosophy is prevalent in the Muslim mind and to me it is the most important signifying feature of the Muslim approach. Such discussion is of course different from how cosmology is being taught today in Physics.

Over there it is the physical cosmology that predominates and it is not interpreted with any metaphysical philosophy. Instead it is empty of such "making-sense" approach as seen here given by Nasr.

Nasr also outlines the problem that modern western science does not explain the meaning of scientific facts to its adherents apart from its functional aspect. As Nasr says so eloquently,

> Modern science is successful in telling you the weight and chemical structure of a red pine leaf, but it is totally irrelevant to what is the meaning of the turning of this leaf to red. The ``how'' has been explained in modern science, the ``why'' is not its concern. If you are a physics student and you ask the question, `what is the force of gravitation?', the teacher will

tell you the formula, but as to what is the nature of this force, he will tell you it is not a subject for physics. So [science] is very successful in certain fields, but leaves other aspects of reality aside.

It is following this worldview that is based upon the teachings of Islam that Nasr propounded the view that modern science too has its own worldview,

"…that science has its own world-view. No science is created in a vacuum. Science arose under particular circumstances in the West with certain philosophical presumptions about the nature of reality. As soon as you say, m, f, v, and a, that is, the simple parameters of classical physics, you have chosen to look at reality from a certain point of view".

From here he also points to the view that science is not value free,

"There is no mass, there is no force out there like that chair or table. These are particularly abstract concepts which grew in the seventeenth century on the basis of a particular concept of space, matter and motion which Newton developed. The historians and philosophers of science in the last twenty [or] thirty years have shown beyond the scepter of doubt that modern science has its own world view. It is not at all value free; nor is it a purely objective science of reality irrespective of the subject you study. It is based upon the imposition of certain categories upon the study of nature, with a remarkable success in the study of certain things, and also a remarkable lack of success [in others], depending on what you are looking at".

His argument that science is not value free is based upon the writings of historians and philosophers of science in the west. This can be seen in the writings of Whitehead, Heidegger and others.

In general Nasr's view on science can be summarized as below:

Nasr's clear philosophical position on modern science and technology can be summarized as follows:

1. Modern science is not the only legitimate science of the natural order, but is simply a science of nature, legitimate only within the premises of its assumptions of the nature of both the known object and the thinking subject;
2. Islamic civilization cannot simply emulate Western science and technology without destroying itself; to those who know well both the religion of Islam and the nature of modern science, it is very clear that modern science is a direct challenge to the Islamic worldview;
3. Modern science and technology is not neutral or value-free; it imposes on humanity the worldview and the value system inherent in its operators.[4]

## ISLAMIC SCIENCE

Nasr believes that modern science is not the science that was practiced by the Muslims before. He called that "Islamic science" which to him is an independent way of looking at nature. He claims it as his project which he had written in the 60s and after.

"…with its humble beginning in books which I wrote in my twenties, has won a lot of support in the Islamic World. And this perspective is based on the idea that Western science is as much related to Western civilization as any Islamic science is related to Islamic civilization. And as science is not a value free activity, it is fruitful and possible for one civilization to learn the science of another civilization but to do that it must be able to abstract and make its own. And the best example of that is exactly what Islam did with Greek science and what Europe did with Islamic science, which is usually called Arabic science but is really Islamic science, done by both Arabs and Persians, and also to some extent by Turks and Indians".

So it is not Arabic science but Islamic science which is a way of doing science as we have stated above.

In a sense that Islamic science which Nasr mentions in his works is connected to that universal view which he had outlined in his *Islamic Cosmological doctrines* book. He believes it strongly that there is a science that is based upon the teachings of Islam. Even though the Muslims took some mathematical formulae from outside of its civilizations (i.e. from the Greek Euclid) the Muslims brought it and used it intellectually in the "Islamic universe" perhaps in their interpretation of science.

It seems here there is a conflation of two distinct dimensions of science i.e. science as it is theoretical science and science as its application. Nasr seems to think that there is no separation between the two and that the way you interpret science will necessarily influence and impact upon how you do science. To him there is no difference.

One can argue today that we can still have an interpretation of science which is rooted in the Islamic worldview while we do science in its empirical and experimental way thus there is no need to conflate the two dimensions together.

## DISCUSSION

The other problem would be how would adherents of Islamic science deal with facts which comes from the experimental science when they come to impact the way we think of science? This is a controversial

question because if we believe as Nasr wants us to believe above then there is no way that experimental science can influence that realm or that dimension of thought.

This is where there is some disagreement. On the one hand you have the scientist who believe that whatever theory we have on science or in this case the cosmos, it must come from observable or phenomena that can be observed or mathematical. Then you have Nasr's group and others who say that realm cannot be influenced at all by the findings of the empirical.

Then the question would be where would you put such findings then? Would it be even considered as part of science? Or science that we accept? In other words what would the response be of our Muslim scientist towards data that is to be found in their findings of the cosmos?

Should we tell them that whatever that you found that is finding which should be at that level of your field and nothing more. Once you leave your lab then you can bring back your religion and religious teachings and interpret it as such?

This is precisely what the Ijmali group founded by Ziauddin Sardar had found when they conducted research on Muslim scientists regarding their views on science.[5]

Perhaps the logical way out of this paradox is to accept that science have to be interpreted within the Islamic worldview. This is what Nasr had said earlier on but it does not solve the problem of which one comes first or which is the principle?

In fact Nidhal Guessoum argues against this in his book, *Islam's quantum question* where he identifies the point that even the understanding of the cosmos which Muslim scholars believe are based upon the findings of science which were available to them. So to these Muslim scholars, the cosmos is based upon what science they had understood then given by perhaps the Greeks in the past but also modern science of the cosmos !

Guessoum is a well read scholar however he himself has no complete solution to the problem apart from saying he does not agree with Nasr. To him who is a practicing scientist, the cosmos is to be studied with both the Qur'an and modern scientific method.

"The challenge, however is how to construct a theology that marries the religious conceptions of God (as a personal god) with a 'natural theology', which identifies God with the origin of the underlying orderliness of the cosmos, the basis upon which the universe was built. To be sure we cannot accept theologies that clearly clash with or contradict rational methods and scientific results; we cannot compromise our intellects".[6]

However he does not really explain how he solves the contradiction between the two. Neither does he discuss which one has more priority as we have discussed above. Nonetheless he accepts his limitation and inability to synthesise the actual relation between cosmology and Islam and suggest another figure.

"Although I am far from able to formulate a full and self-consistent theistic cosmology, I believe some synthesis, perhaps similar to the one that some of the medieval philosophers (Averroes in particular) produced, is still possible."

He does not however explain which aspect of Averroes he takes and how that solves the issue. He does however suggest a project for the two to come together. He goes on to explain how he sees the project to be pursued (independent from Nasr's view, of course),

"I believe that a double programme must be pursued: (1) Some new theology must be proposed that would be consistent with modern science even if it does not adhere to the sacred beliefs and writings in a literal way; (2) a less materialistic cosmology must be produced, one that would allow for some meaning and spirit to be found in the universe and in the existence".[7]

It is difficult to gauge such an understanding properly as it is a new one. It attempts to marry the insights from Islam with findings in modern science. His basis for this approach is

"In my view, the greatness and power of the creation lies in its absolute elegance and perfection. God is the perfect abstraction of all being and Reality; He is the underlying principle upon which everything is built, and rests. This principle then 'sustains' the universe like a spirit pervading all of the existence, like a necessary but undetectable field".[8]

It seems a very straightforward view based upon some verses of the Qur'an. Such as the verse in surah al-Mulk, *thummarji'I basara hal tara min futur*?

I think almost all of the scholars believe that their understanding of Islam and its relation to science is based upon a particular reading of the Qur'an. In other words all of them find their understanding to be based upon an interpretation of the Qur'an which to them is the most correct.

I think the way of getting out of the paradox is by evaluating the facts against what is mentioned in the Qur'an. Some would say evaluating scientific findings and interpret it based upon what is found in the worldview which is in turn based upon the Qur'an.

So all scientific finding would be interpreted from a religious perspective. What conforms to religion is accepted and what is not would be rejected.

There is a particular way of reading the Qur'an then as according to Attas,

"Islamic science must interpret the facts of existence in *correspondence with the Qur'anic system of conceptual interrelations and its methods of interpretation*, not the other way around, by interpreting the system in correspondence with the facts".

There is a system in the Qur'an between the concepts. This system is the method of interpretation used to understand the Islamic worldview and would in turn determine which scientific interpretations (or facts?) will be accepted. It is not the other way around where scientific phenomena is used to interpret the Qur'an.

This conceptual system that is mentioned in the Qur'an as claimed by these scholars is also open to interpretation, surely.

What has been proven in fact is that there is a certain worldview that should be employed when dealing with scientific enterprise

The starting point for Nasr seems to be the traditionalist perspective and some have said it is the Sufi perspective.

However I believe it is the Islamic perspective and the reason for me saying it is based upon the Qur'an itself where there is the verse in surah al-Fussilat, "wa ma khalaqtul jins wal ins illa liya'budun" For surely we have not created the jins and man except for worship.

Here the commentator and cousin of the Holy Prophet, Ibn Abbas had remarked that to worship means to know. Thus creation is made by God to know Him. This is very close to the Sufi understanding of religion and Islam which is a process of knowing God from a very personal perspective.

In Islamic cosmological doctrines nature and the cosmos is studied to find this unicity and unity of Nature and God. In the sense that God is witnessed.

William Chittick on Cosmology connected to that particular perspective:

"Muslims who practice the Prophet's Sunnah and live in the Qur'anic universe cannot help but think of cosmos and soul in terms of the revealed divine names. These are not strictly personal names, nor are they impersonal. God is alive, knowing, desiring, powerful, speaking, hearing, seeing, creator, life-giver, death-giver, forgiving, pardoning, avenger, bestower, withholder, and so on. The names of the ultimate reality establish the meaning and signif- icance of what people encounter in the signs. The universe is imbued with purpose, and the individual instances of its purpose become clear when situations are understood in terms of the divine attributes that become manifest through them".[9]

In another place Chittick summarises it by saying:

From the point of view of Islamic cosmology, what we call "science" is a reading of the universe that ignores all but the most insignificant meanings that the cosmos has to offer. When the universe is named by names that apply primarily to dead things or to machines or to impersonal processes, we will understand it in terms of death and mechanism and impersonal process. We will necessarily miss the significance of the life, mercy, and awareness that suffuse its every atom.

Chittick mentions one of the most important points when discussing Islamic science, he says:

"their cultural context is every bit as important as their overt content. How did Ibn al-Haytham or al-Bırunı understand their own scientific works? Was their optics, mathematics, astronomy, and geology totally distinct from their metaphysics and spiritual psychology? And more importantly, how were their works read by their contemporaries? The work of the medieval Muslim "scientists" was understood in terms of the dominant worldview of the time".

Or to paraphrase, the cultural context in which the Muslim scientist works in is important for it somehow determines the superstructure of scientific research. This is the worldview determining the science.

## ATTAS

Another Muslim scholar who have spoken on science and its connection to religion is Syed Naquib al-Attas. His approach is different from Nasr but bear some close resemblances in the final outcome. As sciences claim to explain reality thus Attas took the initiative to explain what is reality according to the views of Muslim scholars i.e. philosophers and theologians. Al-Attas maintains that it is *wujud* (Existence) that is the real "essences" of things and that what is conceptually posited as mahiyyah ("essences" or "quiddities") are in reality accidents of existence. This is explained in his monograph, Islam and the philosophy of science. He explains,

"The multiplicity of existents that results is not in the one reality of existence, but in the manifold aspects of the recipients of existence in the various degrees, each according to its strength or weakness, perfection or imperfection, and priority or posteriority. Thus the multiplicity of existents does not impair the unity of existence, for each existent is a mode of existence and does not have a separate ontological status".[10]

Attas's view on science in general is summed up below,

"We do affirm that religion is in harmony with science. But this does not mean that religion is in harmony with modern scientific methodology and philosophy of science. Since there is no science that is free of value, we must intelligently investigate and study the values and judgments that are inherent in, or aligned to, the presuppositions and interpretations of modern science. We must not indifferently and uncritically accept each new scientific or philosophical theory without first understanding its implication and testing the validity of values that go along with the theory. Islam possesses within itself the source of its claim to truth, and does not need scientific or philosophical theories to justify such a claim. Moreover, it is not the concern of Islam to fear scientific discoveries that could contradict the validity of its truth".[11]

## SCIENCE IS NOT FREE OF VALUE

Muslims have to be careful and study critically the values, judgments which are within the interpretation of modern science. Perhaps to be careful of the implied meaning contained therein. Here it is similar to Nasr and his critique of scientism. Third Islam is not dependent upon science for its validity. Perhaps going against scientistic philosophy those who believe that science can explain everything. Al-Attas maintains that reality is at once both permanence and change, not in the sense that change is permanent, but in the sense that there is something permanent whereby change occurs. Change does not occur at the level of phenomenal things, for they are ever-perishing, but at the level of their realities which contain within themselves all their future states.

Since science deal with hard facts then according to Attas,

"Since the role of science is to be descriptive of facts, and facts undergo continual change by virtue of their underlying reality which is process, modern philosophy and science, in a secular way, consider change to be the ultimate nature of reality".

Attas in his *Prolegomena* believe that the world is in a process of perpetual becoming and he sees it as a process of becoming. This is similar to Whitehead and his process theology. It shows clearly that from Attas the tools of theology and understanding of philosophy or hikmah are to be borrowed into the teaching and understanding of modern science. Thus he justifies whitehead's idea of process theology with a theory that is derived from his reading of the Sufi concept of *tahawwul*. Further in his other writings he also suggest that epistemological tools be brought into modern science perhaps to Islamize it (?).

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"Existing empirical science is defective, for it journeys horizontally; it sees no principle for the world and nature, considers no end for it, and does not treat its knowledge as a divine gift granted by God. This view which disintegrates the reality of being and does not see nature as creation…but merely studies the corpse of nature…in fact it delivers a dead science, for it looks at the subject of his study as a corpse…the revival of that carrion and repair of that defective science-such revival being called the 'Islamization' of sciences an universities…is dependent upon a fundamental change in viewing science and nature, compiling superior textbooks, considering cognitional realms in harmony, and returning physics to the bosom of theology".[12]

Correcting the worldview is required for us to move forward in this relationship between science and religion. The worldview of science has to be corrected so as to move science from a horizontal based knowledge towards something that is driven by the vertical.

## CONCLUSION OF THIS SECTION

When we study the views of Islam on cosmology which we find in the Qur'an we find the view that is often opposed to how western cosmology is studied. I think there are a few prominent features:

1. Western cosmology does not include the meaning of the cosmos and its relevance to our lives in this existence
2. There is no hierarchy in western cosmology unlike the one proposed by Islamic cosmology where the world is a series of self-disclosures of God.
3. Western cosmology's view rests upon complex mathematical instruments and calculations.
4. God is the starting point of Islamic cosmology unlike western cosmology whose starting point is the belief that the cosmos is a physical world.
5. Therefore in general, western cosmology is based upon physicality and Islamic cosmology is based upon spirituality.

## A WAY IN BETWEEN

When we oppose anyone we try and find a middle path between the two extreme positions. The relationship between science and religion that we find ourselves in today is something that requires

the middle path. This is so that the scientists can work while still being a Muslim and the scholars of Islam can learn and accept some of the findings of modern science and not treat or dismiss it as being pure empirical garbage !

I think and thus believe that there are some presuppositions that we put when we talk about modern science.

1. Modern science is empirical
2. Modern science is western science and not the pure science that came from the Muslim world
3. Modern science is material and based on materialistic basis.
4. Inputs from modern science can be turned into a philosophy of life or a worldview of life which is called scientism[13].

The response to these presuppositions are varied in the past 50 years or so.

## WESTERN PHILOSOPHERS AND THEIR VIEWS ON MODERN SCIENCE

When we say modern science we mean the science that emerge after the medieval ages. Most western philosophers such as Descartes, Spinoza, Kant, Heidegger and Whitehead have spoken about it at some length and treated some parts of it in their discussion on aspects of philosophy. What we find is that a majority of these thinkers do believe that this new science that have been molded by Copernicus and most importantly Newton is truly materialistic or based upon material principles.

The laws of motion as propounded and argued at length by Newton is one such example. Newton had expounded this in his three volume, *principia mathematica*. Even though it is called principles of mathematics it doesn't mean mathematics as we believe it to be in our daily conversation i.e. of numbers. It being mathematics is more to what Heidegger had mentioned it being mathematisis which has to do with

In an article about the philosopher Alfred North Whitehead is said,

"Significantly, many of these key aspects of Whitehead's metaphysics run counter to the traditional view of material substance: "There persists," says Whitehead, a fixed scientific cosmology which presupposes the ultimate fact of an irreducible brute matter, or material, spread through space in a flux of configurations. In itself such a material is senseless, valueless, purposeless. It just does what it does do, following a fixed routine imposed by external relations which do not spring from the nature of its being. It is this assumption that I call 'scientific materialism.' Also it is an assumption which I shall challenge as being entirely unsuited to the scientific situation at which we have now arrived".[14]

This scientific materialism is what we are witnessing today. It is clear that this attitude towards the world which is built upon this materialistic understanding of science is exactly what is called scientism is against the principles of Islam.

Heidegger when discussing modern science agrees with the view that it was Isaac Newton who had revolutionized and made science into a physical unit as we see it today. When discussing Newton's first law, which outlines motion for the physical bodies, he says:

"The mode of questioning and the cognitive determination of nature are now no longer ruled by traditional opinions and concepts. Bodies have no concealed qualities, powers and capacities. Natural bodies are now only what they show themselves as, within this projected realm. Things now show themselves only in the relations of places and time points and in the measures of mass and working forces".[15]

Indicative of the physicality of the universe as projected by Newton. Following from there he also suggest that such an understanding also limits the realm of research into what can be seen and experience or in Latin *experiri*.[16]

## ISLAMIC COSMOLOGY AND ITS POTENTIAL TO CONTRIBUTE TOWARDS MODERN SCIENCE

Which aspects of Islamic cosmology? As propounded by the *mufassirin* or by the philosophers-theologians or theologian philosophers? That is also another question which we can put at the beginning of this section. Once we have settled this question we can then see which aspects of science that this specific view can contribute to modern science. When I say contribute I am also thinking of adopting, changing, evaluating critically and later modifying.

Of course as someone who believe that Islam has a bigger role to play in thought and philosophy rather than just prescribe activities beneficial for the betterment of the next life, we would have to begin by discussing the primary source of Islam i.e. the Qur'an.

In the few verses of the Qur'an that deals with cosmology which is identified at the following verses, the operational word is 'alam. 'alam is

always translated as universe and sometimes used to denote a weltanschauung or worldview.

Meaning of 'alam also indicates a sign or ayat.

"*Sanurihim ayatuna fil afaq wa fi anfusihim hatta yatabayyanalahumul al-Haqq*" (al-a'raf:53)

"We will show them Our signs in the horizons and within themselves until it becomes clear to them that it is the truth".

I don't think that is useful for us today, what is needed is an interaction with modern science at the level of philosophy and practice of science by its practitioners and for a certain aim. That is why I believe the works of philosophers working in the east and west can greatly enlighten us as to a way forward. For I am not having my cake and eating it as well, but what I am saying is that we can benefit from their writings as we try to make our philosophy or our conception of cosmology as current into the basis and foundation of that modern science or science that is practiced here in our own backyard. Because I agree with the idea that science is not neutral does not mean that I have to subscribe to the views of the traditionalist in fact on the contrary I may subscribe to that view based on reason arguments which is accepted. That argument will not be dealt with here but will be treated more fully in my other writing on the subject. So I am not having my cake and eating it..well not the whole slice anyway !

The prescription method or approach is not useful here for we are not engaging with the issues in science if we do that. We can debate and ask why we do not bring in our cosmology into modern science and then go down the road of listing down our cosmology and ask people to implement it as a part of the core syllabus but that does not change anything fundamental. As most of the time what happens is that the cosmology take the first part of the semester of say a physics course and then the rest would be physics which is still based upon that foreign cosmology which we want to displaced and discard in the first place.

This approach where I believe Professor Mulyadhi mentions as ayatisation is the short way out of the problem. It doesn't solve anything but gives the doer a kind of feel good that we have included Islamic cosmology in modern physics. It's akin to having ice-cream to relieve oneself of sorrow, its temporary but feel good nevertheless !

I think a more substantial approach a more grounded approach has to be push forward and that is the changing of that physics field to be based upon Islamic cosmology. An integration of sorts have to be done however it requires courage and time. Both of which we are lacking today.

As our education system is determined by market forces we rarely engaged in groundbreaking research which may take more than 5 years to achieve. Whatever be the case I believe this has to be done.

Critique on Nasr:

"The reason behind our misunderstanding lies in our failure in distinguishing between the functional knowledge and the symbolic system. Nasr seems to have made this mistake due to his inability to distinguish between a symbolic system and functional knowledge. He then accuses modern science with intruding the religious-symbolic sphere and condemns it for failing to perform a proper cultural role. He then uses the religious symbolism as a remedy to all the spiritual inefficiencies in the natural world. His attempt to revitalizing the nature and reconnecting it with religious symbolism has downgraded the level of science, in a Parmenidean fashion, to merely a second position after religion in the true understanding of the world around us.This might be quite attractive to the religionists, but the issue with it is that it will eventually downgrade the position of natural scientists whose main objective is to discover the truths about the world around us, regardless of how such truths are interpreted".[17]

This unrealistic view is unrealistic because of its ignorance of the scientific position and thus technology. Muslim philosophers should be more aware of the various aims of the scientific enterprise, one of which is to understand the world around us and manipulate it for the sake of human betterment and advancement in all fields.

"The view of the philosophers vary from those who reject the notion of science as a sign of mercy, to unrealistic philosophies of science which claims the legitimacy of scientific research even without committing to the rules related to scientific practice".[18]

Without a proper understanding of this main point, I don't think what we say and argue here or elsewhere will change the science that is practiced out there. In fact western philosophers of science has already understood the problem associated with science's claim that it can explain all of reality.

Physicists and philosophers of science, such as Niels Bohr and Werner Heisenberg, get the credit for mooting, perhaps for the first time, the idea of the limitations of ordinary language expressions of physical reality. For these physicists the tools of ordinary language do not satisfy the requirements to answer such questions and the nonvisual language of mathematics will be required to step in. As Heisenberg puts it:

"When this vague and unsystematic use of the language leads into difficulties, the physicist has to withdraw into the mathematical scheme and its unambiguous correlation with the experimental facts" (Heisenberg 1958: 154,155).

As Chittick points out the problem with the cosmological view as propounded by moderns science is that it is mathematical. However it is recognized by Muslim hakim that at that higher level of reality, it is symbol for language has no role to play in explicating reality.

"Modern science is a metaphysical system that asserts that man unaided by spiritual agencies or divine guidance is singlehandedly capable of understanding and grasping the laws that govern man and the universe".[19]

## A BRIEF DESCRIPTION OF ISLAMIC COSMOLOGY VIEWS OF MUSLIM SCHOLARS AND THINKERS

I would like to show how Malay Sufis had brought in this cosmology into their works and thus bring forward the argument that a metaphysical view / worldview is necessarily upon explorations on science.

## APPROPRIATING IBN 'ARABI'S COSMOLOGY VIA THE UTILIZATION OF THE TEACHINGS OF HAQQ AL-YAQIN OF SHAMS AL-DIN AL-SUMATRA'I

The *Haqq al-Yaqin* is one of the famous works of Shams al-din. Its popularity is testified by the fact that it was one of the writings of Shams al-din mentioned by al-Raniri[20]. The text was recently discovered in Manuscript form at the Pusat Manuskrip Melayu National Library. It has never been studied before by western and eastern writers alike. The internal organization of the text seems to be a summary of the main metaphysical teachings of the Ibn al-'ArabÊ school. It is similar to JāmÊ's *Naqd al-Nusus* where the first 73 pages of the text was a summary of the main teachings of the school. The *Haqq al-Yaqin* displays the author's ability to use quotations from Arabic and Persian in explication of his teachings. The level of discussion is also very complex and intricate with various terminologies which go beyond the terminologies we find in the works of Hamzah as well as Burhanpuri. This indicates the depth of Shams al-din's understanding of metaphysics as well as his acquaintance with the sources predominantly used in the Ibn al-'Arabi school. As the main scholar at the court of the Sultan it would not have been too difficult for him to acquire the sources necessary for his own understanding.

In the introduction to the text, Shams al-Din The aim of writing of the text was to cater for the need of those Sumatrans who wished to follow the footsteps of the Verifiers (Muhaqqiqin) in achieving gnosis of God. They however lacked the language ability to read the writings of these enlightened beings directly. Shams al-din had therefore taken the liberty of writing this treatise with the aim of filling this gap. Technical terms used as well as the discussion within each of the chapters are all taken in one way or another from the writings of various verifiers.

Shams al-din had concentrated upon the issue of metaphysics as it is prevalent in the school of Ibn al-'Arabi. Instead of delving into metaphysics straight away, Shams al-din's started by showing how important it is to be on the path towards achieving enlightenment and how knowledge of God is considered to be compulsory upon people just as it is compulsory to fulfill the other tenets of religion i.e. the 5 daily prayers. He then goes on to give a detailed explanation on some of the common terms used by the verifiers (Muhaqqiqin) in their explication of Islamic metaphysics. The contrast between the word wujūd and ''adam, 'āsyiq and ma'syūq, 'ilm and ma'lūm is explicated. The various denominators or modes of wujūd is explained in some considerable detail leading towards a discussion on our own wujūd and how that is connected to wujūd muÏlaq. The second chapter is regarding the various entification of God to the main 3 levels i.e. Ahādiyyah, Wāhidiyyah and Wahdah. The third chapter is regarding He-ness i.e. God in His own self. Shams al-din explains that it is the state which is unclear and we cannot know God at this level. Proceeding from there the only way of knowing God is through His many divine names and attributes. The fourth chapter deals with the concept of al-Anniyyah in which we could understand God. The fifth chapter deals with the various level of God's presences. It is in this chapter that Shams al-din shows his preference for Muhammad ibn Shaykh FaÌl Allāh al-Burhanpuri's 7 level of God's presences. The sixth chapter is a chapter used to explain the intricate details of God's divine names and attributes and their relation or affinity with the rest of creations. The discussion on a few divine

names and the division of the attributes to two i.e. sifāt al-jamāl and sifāt al-jalāl is presented to the seeker. The seventh chapter discusses the perfections of God. Shams al-din presents the complex discussion on perfections of God's at the level of his essence and at the level of His divine names. The following eighth chapter deals with the topic of coming close to God. Discussions on the various ways of coming close to God, the concept *fanā', fanā' fil fanā', baqā', baqā' billah, baqā' bil baqā'* are treated in some considerable detail. The last chapter aptly titled the End (khātimah) has within it a discussion of practical aspects of Sufism. After a short introduction on the virtues of dhikr, vigilant concentration (murāqabah), attentiveness towards God (tawajjuh) and witnessing (mushāhadah), Shams al-din goes on to explain each in a separate section within the chapter thus making this final chapter the longest chapter in comparison to the whole text. In the few final lines, Shams al-din cautions the reader of these lines that what he has written in this treatise are the secrets of God and only to the select few should this secret be divulged for fear of misunderstanding of God's way by the layperson.

This treatise had been written in prose style with quotations from various figures or the verifiers (muhaqqiq) of the east and west of the Muslim world. Apart from these quotations, we also have quotations from the Qur'an and Prophetic traditions (ahādith nabawiyyah). In this manner Shams al-din had written this treatise following the many other sufi treatise that are available in Arabic and Persian.

## COSMOLOGY OF HAQQ AL-YAQIN

What is the world and how is it related to God? According to the Muslim philosophers or hakim, the world is an endless manifestation of God as he presents Himself through various manifestations or presences.

Shams al-Din al-Sumatra'I is explicit when discussing this point:

"Surely all the Verifiers had named it as presences because God's essence and existence pervades all the worlds which in turn are His self-disclosure (tajalli) and places of His self-manifestation (Zuhûr) from eternity without beginning (azâl) to an eternity without end (abad).As God says in the Qur'an:"Is it not enough (O Muhammad) that your Lord does witness all things?"[41:53]"God as he is understood here self-discloses to the verifiers or those endowed with knowledge".

In the understanding of philosophical sufism God the transcendent reveals or self-discloses himself through various stages of which he is present. Philosophers dispute regarding the number of such stages some following the famous sufi author Ibn al-'Arabi regards it to be 5, some regard it to be seven. For the sake of the conference and the fact that we are in Southeast Asia we shall not be discussing in detail this intricate discussion suffice that we examine the idea of self-disclosure of God and how does it connect to the discussion on cosmology. As God reveals himself through self-disclosures His knowledge also comes about in what can be seen as the permanent archetype. According to Shams al-Din:

"The first of the seven levels is the level of Non-Entification, self-disclosure and self-manifestation. The six other levels are levels of Entification, self-disclosure and self-manifestation. Two of the six levels are called inner self-disclosure and inner self-manifestation i.e. it is the presence of God's predispositions or divine states and it that presence whose world are the immutable entities. The (other) 4 levels (are called) outward self-disclosure and outward self-manifestation which are the presence which has as its worlds the world of spirits, imaginal world and the world of bodies, and world of the perfect man or world of man-animal".

It is the third level that concern us here and that is according to Shams al-Din: The third divine presence: The level of Inclusive-Unity (which is) unseen. The world is the world of the immutable entities which are within the world of God. Hence everything in this level is the objects of knowledge which are both specific (muayyan) and relatively differentiated (mufassal).

This is the level of the immutable entities which is the object of His knowledge. These entities are the divine names and attributes of God as such are the objects of His knowledge. It is through these names that we come to know God and His attributes. It is here that Islamic cosmology tells us that God is present everywhere in the cosmos. As God is known as the names itself and these names teach us regarding how the universe comes into existence.

## INFLUENCE OF THE TEXT UPON LATER MALAY SCHOLARS

This idea of the 7 levels as a schema for Shams al-din's explanation of how God manifest Himself to the cosmos is taken by many Malay Muslim scholars after him. You find the idea being replicated in

Shaykh Abdul Samad al-Palembani's (d.early 18th century) *Siyar al-Salikin*, Shaykh Arshad banjari (d.19th century) and even in the twentieth century by various anonymous Malay authors writing on issues connected to man, the cosmos and God. There is also a well known treatise "The 7 levels" (Martabat Tujuh) which unfortunately had been banned by some religious authorities in Malaysia.

## CONTEMPORARY VIEWS ON COSMOLOGY-CLOSING REMARKS

With the advent of modernity, a new type of cosmology had been adopted by the education system which is totally different from how it is understood above. In the name of science this new type of cosmology had displaced the cosmology seen above which is regarded as unscientific or even nonsensical. In this new cosmology, the world or the cosmos is seen to be out there disconnected with the human soul and consciousness[21].

"Modern science is a metaphysical system that asserts that man unaided by spiritual agencies or divine guidance is singlehandedly capable of understanding and grasping the laws that govern man and the universe".[22]

## CONCLUSION

Cosmology or knowledge of the cosmos deals with the understanding of the world and its relationship to the individual human being. Cosmology is studied as a connection between man and the universe. In Islamic philosophical Sufism the universe is a manifestation of the divine names of God. Divine names such as alive , knowing , desiring, willing, powerful, speaking, hearing, listening, life-giver, death-giver, forgiving, avenger, bestower, merciful, compassionate and so on. Muslim traditions relate a report from the Holy Prophet Muhammad (pbuh) that He has 99 divine names although many other authors say the names are limitless as He unveils or self-discloses Himself in all situations. Man's understanding of the universe in the Islamic *weltanschauung* or worldview cannot but relate to God the Absolute. Thus a Muslim's view of the cosmos or his knowledge of the cosmos has to be in the context of understanding the connectedness of God with the cosmos through the divine names.

Continuing from Huft:

A. I. Sabra's concept of the "naturalization" or "Islamicizing" of the natural sciences in Islam by assimilating them to the intellectual outlook of the Islamic worldview. As Professor Sabra put it, "The hnal results of all this is an instrumentalist and religiously oriented view of all sec- ular and permitted knowledge. This is the view that accompanied the limited admission of logic and mathematics and medicine into the madrasa and the conditional admission of the astronomer into the mosque".

The cosmos today had been reduced to complex mathematical formulae and seems very distant from human being. It is mechanistic and yields only utilitarian purposes for mankind. As a result the cosmos can only be used for various consumer purposes and aims which is against its main purpose of awakening man to his purpose and that is to be a witnesser of God as it is stated in the two prong *shahadah* uttered by the Muslims daily. I bear witness that there is only One God and I bear witness that Muhammad is His Messenger.

## NOTES

1 Seyyed Hossein Nasr is a Professor in Islamic Studies at the George Washington University where he has been for the last 30 years or so. He has written more than 20 books and authored numerous other articles. Almost all of his books have been translated into various languages including Bahasa Indonesia, Persian and Turkish. For further details on Nasr's background and philosophy see Hahn, L.E., Auzier, R.E. & Stone, L.W. (2000). *The Philosophy of Seyyed Hossein Nasr* (Library of Living Philosophers), USA: Open Court Publishing Company.

2 Nasr, *Science and civilization in Islam.*

3 *An Introduction to Islamic Cosmological Doctrines*, revised edition 1978, pg. 5.

4 See Ibrahim Kalin's article, "The sacred versus the secular" for the best summary on Nasr's view on Science. The article is available at www.muslimphilosophy.com/kalin/

5 See Muzaffar Iqbal, *The makings of Islamic science* where he describes the ijmali approach.

6 *Islam's quantum question, reconciling Muslim tradition and modern science*, pg. 217.

7 Ibid. pg. 217-8.

8 Ibid. pg. 218.

9 Science of the cosmos, science of the soul, The pertinence of Islamic cosmology in the modern world.

10 Islam and the Philosophy of Science which appears as Chapter III in his *Prolegomena to the Metaphysics of Islam, an exposition of the fundamental elements of the worldview of Islam*, pp.111-142.

11 Ibid, pg.38.

12 *An Introduction to contemporary Islamic Philosophy*, pg. 193.

[13] I shall not be dealing with the issue of scientism in my paper. A good discussion on scientism can be seen at http://sts.um.edu.my/MJSTS/Vol_9_2011/(1)Vol7_Maryam.pdf

[14] http://plato.stanford.edu/entries/whitehead/#WM accessed 10th November 2014.

[15] See "Modern science, metaphysics and mathematics" in *Basic Writings*, pg. 292.

[16] Newton writes in Latin.

[17] Maryam, pg. 11.

[18] Ibid.

[19] Ibid, pg.97.

[20] See my "Presence of God according to Haqq al-Yaqin, a sseventeenh-century treatise by Shaykh Shams al-Din al-Sumatra'i (d.1630)", *Journal of Islamic Studies* 21:2 (2010), pp.213-234.

[21] See William Chittick, *Science of the Cosmos, Science of the Soul, The Pertinence of Islamic Cosmology in the Modern world*, Oxford: Oneworld Publications, 2007.

[22] Ibid, pg.97.

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