The Qur'ān and Modern Science

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There is no human work prior to modern times that contains statements which were equally in advance of the state of knowledge at the time they appeared and which might be compared to the Qur'ān.

There is, perhaps, no better illustration of the close links between Islam and science than the Prophet's Ḥadīth:

"Seek after science, even in China"** which is a veritable invitation to man to enrich his knowledge.

More significant, if it is possible, is the famous Ḥadīth:

"The scholars’ ink is more precious than the martyrs’ blood"**

It comes as no surprise, therefore, to learn that Religion and Science have always been considered to be twin sisters by Islam and that today, at a time when science has taken such great strides, they still continue to be associated, and furthermore certain scientific data are used for the better understanding of the Qur'ānic text. What is more, in a century where, for many, scientific truth has dealt a deathblow to religious belief, it is precisely the discoveries of science that, in an objective examination of the Islamic Revelation, have highlighted the supernatural character of certain aspects of the Revelation.

When all is said and done, generally speaking, scientific knowledge would seem, inspite of what people may say, to be highly conducive to reflection on the existence of God.

Once we begin to ask ourselves in an unbiased or unprejudiced way about the metaphysical lessons to be derived from some of today's knowledge (for example our knowledge of the infinitely small, about or

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text. There is a suggestive example in a verse of Sūrat al-'A'rāf about the Creation. Its common translation is:

"Your Lord is God who created the Heavens and the Earth in six days".

Nevertheless we note that the Arabic word "'ayyām', the usual translation of which is "days", appears in the Qur'ān with the meaning of very long periods of time. It is not equivalent to the precise meaning of the word "day" as it appears in the Bible, where the days of the week are considered, the seventh one being the "sabbath" when God is described as having rested. The Qur'ān does not mention rest at all.

The major notion to be derived from the Qur'ān concerning the Creation is a concomitance in the celestial and terrestrial evolutions, with the fundamental data about the existence of an initial unique gaseous mass whose elements, although at first fused together, subsequently became separated. These notions are expressed in Sūrat Fuṣṣilat:

"Then (God) turned to the Heaven when it was smoke".

And in Sūrat al-'Anbiyā':

"Do not the unbelievers see that the Heavens and Earth were joined together, then We clove them asunder?"

The separation process resulted in the formation of multiple worlds, a notion which crops up a dozen times in the Qur'ān. For example in Sūrat al-Fātiḥah:

"Praise be to God, the Lord of the Worlds."

All this is in perfect agreement with modern ideas on the existence of a primary nebula and the process of secondary separation of the elements that had formed the initial unique mass. This separation resulted in the formation of galaxies and then, when these were divided, of stars from which the planets were to be born. All that is in perfect agreement with modern notions concerning the history of the Universe.

Moreover, reference is made in the Qur'ān to an intermediary creation between the Heavens and the Earth, as in Sūrat al-Furqān:

"He who created the Heavens, the Earth and all that is between them..."

This intermediary creation corresponds to the modern discoveries of bridges of matter which have been demonstrated as present outside organized astronomical systems.

How can we imagine that a man, much more than a thousand years ago, could have been the author of such reflections which proceed from a general concept of the Universe, when this concept was not formed until centuries after his death?

In the Qur'ān, we find notions about the nature and the movement of celestial formations. For example, the sun and the moon, which were previously defined in the Bible as "luminaries", are distinguished by the use of different epithets: light (nūr) for the moon, torch (sīrāj) for the sun. Allāh says:

"And made the moon a light in their midst and made the sun as a glorious lamp."

Presently we know that the first (moon) is an inert body which reflects light, the second (sun) is a celestial formation in a state of permanent combustion and a source of light and heat. The word star ("najm" in the Qur'ān) is accompanied by a qualifying description, which indicates that it burns and consumes itself as it pierces through the shadows of the night; it is described as "thāqīb", "the star of piercing brightness".

The word "kawkab" definitely seems to mean the planets which are celestial formations that reflect and do not produce light, unlike the sun.

Today we know that the celestial organization is balanced by the position of the stars in defined orbits and the interplay of gravitational forces related to their mass and speed of movement, each within its own specifically defined orbit and their own self-motion, as the foundations of this balance, are precisely what the Qur'an describes in Surat al-Anbiya':

"(God is) the One who created the night, the day, the sun and the moon. Each one is travelling in an orbit with its own motion."

This movement is expressed by the verb "sabāha" (yasbahan in the text), the primitive meaning of the word carrying the idea of a motion which comes from any moving body, be it the movement of one's legs as one runs, or the action of swimming in water.

The sequence of day and night is expressed in terms that today are highly significant from a scientific point of view. By using the verb "kawwara", made into a sphere (ball), Sūrat al-Zumur describes the way the night "winds" or "coils" itself about the day, just as, in the original meaning of the verb, a turban is wound around the head: a totally valid comparison.

"... the night overlays the day and the day overlays the night..."

The evolution of the Heavens and the notion of a
settled place for the sun are also mentioned in the Qur'ān

"and the sun runs his course...".¹¹

Such statements are in agreement with well established modern ideas.

The Qur'ān seems to have alluded to the expansion of the Universe. "And the earth we have spread out..."¹²

There is also the conquest of Space. This has recently been undertaken thanks to remarkable technological progress and has resulted in man's journey to the moon. And this surely springs to mind when we read Sūrat al-Rahmān.

"O assembly of Jinn and Men, if you can penetrate regions of the Heavens and the Earth, then penetrate them! You will not penetrate them save with Power."¹³

This power comes from Almighty. The subject of the whole Surah is an invitation to recognize God's beneficence to man.

Let us now return to the Earth, and, among many statements, let us quote verses concerning the mountains.

Modern geology has taught us the phenomenon of folding which formed the mountain ranges. The stability of mountains is linked to this phenomenon, since the folds were to provide foundations for the reliefs that constituted the mountains. What do we find about them in Sūrat al-Naba'?

"Have We not made the earth an expanse and the mountains stakes?"¹⁴

The stakes, "'awtad", which are put into the ground like those used to anchor a tent, are the deep foundations of geological folds.

The same harmony with modern knowledge is noticed in the case of the numerous reflections in the Qur'ān concerning the water cycle in nature. This is a topic which is very well known today and the verses of the Qur'ān referring to it seem to us to express ideas that are now totally self-evident. But if we consider the ideas prevalent at the time of the Revelation, they appear to have been clearly marked more by myth and philosophical speculation than by facts, such as those observed and studied nowadays. Similarly, on other topics as well, such ancient and wrong notions never appear in the Qur'ān.

Let us consider, for example, this verse in Sūrat al-Zumur:

"Hast thou not seen that God sent water down from the sky and led it through sources into the ground? Then He causes sown fields of different colors to grow."¹⁵

We must compare one of the aspects of the water cycle to which this verse alludes to, and other details about it, given in the Qur'ān, with the ideas prevalent long ago. The first coherent description of the water cycle in nature dates back to the sixteenth Century with Bernard Palissy. Prior to this, people talked about the theory whereby the waters of the oceans, under the effect of winds, were thrust in to the interior of the continents. They then returned to the oceans via the great abyss, the 'Tartarus' of Plato. In the seventeenth century, Descartes still believed in this theory, and even in the nineteenth century it was theorised that water was condensed in cool mountain caverns forming underground lakes that fed springs. Today we know that the infiltration of rainwater is responsible for this.

But more than anything else, I have been impressed by statements in the Qur'ān dealing with living beings; the animal and vegetable kingdoms, especially with regard to the origin of life, the origin of man and reproduction.

It is only since modern times that scientific progress has made the content of many such verses comprehensible to us. The ancient commentators presented them according to their apparent meaning which was of utmost importance, since it evokes Divine Omnipotence. But they could not understand their real meaning, lacking essential scientific knowledge which is necessary to understand them. Even today numerous translations and commentaries of the Qur'ān, made by men with only a literary background, give a mistaken view of their real meaning. Only a scientist is able to give an explanation.

The biological allusions in the Qur'ān are highly significant. Such is the case of a verse in Sūrat al-Anbiyā':

"... and We got every living thing out of the water. Will they then not believe?"¹⁶

This is an affirmation of the modern idea that the origin of life is aquatic.

At the time of the Prophet, in no country was progress in botany advanced enough for it to be established as a rule that plants have both male and female parts. Nevertheless, we can read the following in Sūrat Tāhā:

"(God is the One who) sent water down from the sky and thereby We brought forth elements of couples of plants, each separate from the other."¹⁷

In Sūrat al-Ra'd we read the following:

"Of all fruits (God) placed (on the earth) (they are)
two elements of a pair” 18

In another Surah, Sūrah Yāsīn, there is a clear
tollusion to the existence of components of couples in
plants, as well as in the human beings whom the verse
is referring to:

“Glory to Him who created the components of
couples of every kind; of what the earth produces, as
well as their own (human) kind, and (other) things of
which they have no knowledge” 19

In the field of physiology, there is a verse which
appears to be extremely significant. To understand it,
we have to know that chemical reactions occur in the
intestine and that substances extracted from food in-
side the intestine pass into the blood stream, and that
the blood transports these substances to all organs of
the body, among which are the milk-producing mam-
mary glands. That is precisely what is said in this
verse of Sūrat al-Nahl:

“Verily, in cattle there is a lesson for you. We give
you to drink of what is inside their bodies, coming
from a conjunction between the contents of the in-
testine and the blood, a milk that is pure and pleasant
for those who drink it.” 20

The Qur’ānic Revelation considerably enriched
man with data about himself, but its teachings have
been clearly and completely understood only in
modern times.

As a medical doctor, particularly attracted to the
Natural Sciences and Physiology, I must confess
that, when I read the Qur’ān in the original text, i.e.
in Arabic, for the first time, these data concerning
Man were those which impressed me the most. This is
the reason why, as soon as I finished my first study
“The Bible, the Qur’ān and Science”, I seized a
favourable opportunity to deliver a lecture before the
French Academy of Medicine with a special reference
to human reproduction in the Qur’ān.

In order to carry out a valid comparison, one must
remember that a host of superstitions and myths
about this topic existed in the old days, and I must
emphasize the absence of any reference in the Qur’ān
to any of the mistaken ideas prevalent at the time of
its communication to Man.

Let us mention that several verses evoke the com-
plicity of the male fertilizing liquid and the fact that
an infinitely small quantity of this liquid (expressed
by the word “nufalah”) is required to ensure fertili-
sation. It is also expressed by “quintessence”, if I may
so translate the Arabic word “sulalah”.

The implantation of the fertilized egg in the female
genital organ (uterus) is perfectly described in several
verses by the word “aliaq”, as in Sūrat al-‘Alaq:

“(God) fashioned man from something which clings.” 21

I do not think that there is any accurate translation of
the word “alaq” other than to use its primitive mean-
ing, i.e. to cling. To speak here of an “adherence” or
a “blood clot” is a mistake: they are both derivative
meanings quite out of place in this context.

The evolution of the embryo inside the maternal
uterus is the subject of reflections whose simple
words correspond exactly to fundamental stages in its
growth, as it appears in this verse of Sūrat al-Mu’mūnīn:

“We fashioned the thing which clings into a chewed
lump of flesh and We fashioned the chewed flesh into
bones and We clothed the bones with intact flesh.” 22

Thus an initial aspect of embryonic development is
evoked, and there after the muscles covering the
bones are found.

We know that the embryo passes through a stage
when some of its parts are out of proportion with
what is later to become the individual. Sūrat al-Ḥajj
seems to allude to this:

“We fashioned you... into something which clings,
into a lump of flesh in proportion and out of propor-
tion...” 23

In Sūrat al-Sajdah there is a reference to the senses
and the viscera:

“...He gave you the faculties of hearing and sight,
and of feeling (and understanding)....” 24

All these quotations are in harmony with what was
to be discovered many centuries later. 25

In view of the state of knowledge in Prophet
Muhammad’s day, it is inconceivable that many of
the statements in the Qur’ān which are connected
with science could have been the work of a man. It is,
therefore, perfectly legitimate not only to regard the
Qur’ān as the expression of a Revelation, but also to
award it a very special place on account of the
guarantee of authenticity it provides and the presence
in it of reflections which, when studied today, appear
as a challenge to human explanation.

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17. Glorious Qur'an, Chapter 20, verse 53.
18. Glorious Qur'an, Chapter 13, verse 3.
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20. Glorious Qur'an, Chapter 16, verse 66.
22. Glorious Qur'an, Chapter 23, verse 2.
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*The Reference Section was added to the speech by the editor.