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Tin- Symbolic Importance of Birds in the Qur'an: Implications for Science and Technology

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Introduction

The call of the Qur'an to ponder on the '*ayat* of Allah' is buttressed by some prophetic traditions, which put high premium on seeking of knowledge over worship. A particular *hadith* cited by Bello (2003: 64) reported that the Prophet enjoined Abu Dhar to seek knowledge in the following statement:

0 Abu Dhar! If you go in the morning and learn one *ayat* from the book of Allah, it will be belter for you than your offering one hundred *rak'at* of *nafilet salat*.

The fact that a particular reference is made to 'one *ayat* (a verse) from the book of Allah' does not imply that Muslims are to glue themselves to learning how to read, recite and memorize the Qur'an alone, believing that such practice could make them excel others in human endeavours. Rather, such practice must be accompanied with adequate contemplation on the other '*ayat* of Allah, which can make them understand the Qur'anic '*ayat* more. What can be inferred from this is that an '*ayat* connotes not only a scriptural verse, but also a sign of the creatures of Allah. In the same vein, the "book of Allah" has two connotations, namely the book of Allah's revelation and the book of His creation. According to al-Alwani (1995: 7), the book of Allah's final revelation is the Qur'an and the book of creation is the natural universe from which nothing has been omitted. A confirmation of the fact that the natural universe is an '*ayat* and a book of creation is testified to in the following verses of the Qur'an:

They say: "why is not a sign (*ayat*) sent down to him from his Lord?" Say: Allah is able to send down a sign (*ayat*), but most of them understand not. There is not an animal in the earth, nor a flying creature flying on two wings, but (forms part of) communities like you. We have neglected nothing in the Book, and they (all) shall be gathered to their Lord in the end (Q6: 37-38).

Behold! In the creation of the heavens and the earth; in the alternation of the night and the days; in the sailing of the ships through the ocean for the profit of mankind; in the rain which Allah sends down from the skies and the life which He gives therewith to an earth that is dead; in the beasts of all kinds that He scatters through the earth; in the change of the winds, and the clouds which they trail like their slaves between the sky and the earth; - (Here) indeed are signs for a people that are wise (Q2:104)

The point we are trying to make here is that the Book of revelation is needed for effective study of the book of the natural universe, while the book of revelation can be made understandable and intelligible to humanity through the proper understanding of the book of creation. This explains why the book of revelation constantly enjoins the study of the book of creation. One of the aspects of the natural universe the Qur'an calls mankind to study is the bird as a community. Its usages in the Book convince us that there is a great lesson for mankind to learn from the bird community. The purpose of this paper therefore is to look at birds as pictured and presented in the Qur'an with a view to appreciating the wisdom of Allah in creating such a wonderful creature, as well as serving as a guide for those who are making efforts at exploring the universe for the benefit of humanity. Through this effort, the scientific and technological traits of the Muslims can be harnessed, reinforced and energized via the cordial interactions between science, technology and religion as enunciated in the Qur'an.

Birds: Features and Characteristics

Birds, found virtually everywhere on earth, are warm-blooded vertebrate animals that have wings, feathers and a beak, among others. They have skeleton, powerful flight muscles and an efficient one-way breathing system more efficient than that of mankind (www.enchantedlearning.com). According to ornithological discoveries, there are about 9,703 different species of birds, divided into 23 orders and 142 families (www.earthlife.net/birds). The most common bird in the world is domestic chicken called the Red Junglefowl. Attempts to give the total population of birds on the planet by ornithologists could be likened to an attempt to give the total number of pebbles in the world. That notwithstanding, between 100,000 and 200,000 million adults has been estimated, while the Red-billed Quelea from south of the Sahara in Africa is considered the most common or populous wild bird in the world (www.earthlife.net/birds).

It has been discovered that not all birds can fly and not all flying animals are birds. Bats, flying reptiles and flying insects are not birds. Ostrich is a bird Which cannot fly, but it is the fastest two-legged runner of all the animals on earth. The peregrine falcon is also one of the fastest birds and has been clocked at between 90 and 200 miles per hour in a dive(Yahya, 2002:70).

Songbirds are endowed with syrinx, which is a vocal organ that makes them sing beautiful and diversified songs. Air is blown from the lungs through the syrinx and this produces songs (www.enchantedlearning.com). Yahya (2002:67) equally describes boobies as birds which can dive into the sea to catch fish and can even remain under water to swim long distances.

For birds to fly effectively, they need a lot of oxygen, which they get by breathing air using lungs. They have a well-developed respiratory system much more efficient than human system, and this gives them enough oxygen for flight. The circulatory system of a bird is equally stronger than that of human beings. While human's heart beats about 60 - 90 times per minute, a bird's heart beats much faster than that. A hummingbird's heart beats about 1,000 each minute (www.enchantedlearning.com).

Birds in the Qur'an

The word bird in its singular and plural forms has been mentioned in the Glorious Qur'an eighteen times. The Qur'an without mincing words informs that birds are creatures of Allah and like all other living creatures; they do celebrate the praises of Allah. The Qur'an 24:41 reads:

Seest thou not that it is Allah whose praises all
beings in the heavens and on earth do celebrate,
and the birds (of the air) with wings outspread?
Each one knows its own (mode of) prayer and
praise. And Allah knows well all that they do.

The Qur'anic story of prophet Sulayman and his hoopoe manifests that animals from their tiniest to the biggest one, and particularly birds have their own language with which they communicate among themselves (Q. 27: 16). A number of functions of birds as used in the Qur'an includes:

a. Bird as an object of contemplation:

Several verses of the Qur'an call on man to study birds as they are created for him to realize the power of Allah. A verse calls on man to open his eyes widely to see the miraculous movement of birds in the air. "Do they not look

at the birds, held poised in the midst of (the air and) the sky? Nothing holds them up but (the power of) Allah. Verily in this are signs for those who believe" (Q. 16:79). In another verse it says:

Do they not observe the birds above them
spreading their wings and folding them in?
None can uphold them except the Most
Gracious (God) (Q67: 19).

The invitation to study birds had been honoured by scholars who took a keen study of every aspect of birds with a view to realizing the wonderful Creator for these wonderful creatures. Suffices to cite few of such scholars here. In his *al-Illikmali ft Makhluqat Allah*, Al-Ghazali (cited by Dadri, 2000) considers the intricate creation of birds in his contemplative observations thus:

.....the Almighty created the bird and made it light to help it fly, with nothing heavy to weigh it down.....He created feet for the bird but no hands, making the skin of the legs coarse and well wrought for it might need to alight in places where there is water and mud.....Were the legs covered with feathers, they would be harmed by wetness and dirt.... All this helps the bird in its flight..... Then contemplate a single feather, and you will see that it is woven, like a cloth, from then threads strong enough to hold together, and flexible enough so that it does not break. He created the tail feathers to help the bird fly steadily; otherwise the wings would pull right and left during flight, thus the tail acts like a rudder that steadies the movement of a ship (Badri, 2000: 94-95).

The clarion call of the Qur'an for man to contemplate on birds has yielded fruitful results, as discovery of salient peculiarities in the creation of birds had been made. Yahya (2002: 60), in his *Wonders of Allah's-Creation* identifies some of these birds with their peculiar characters. Among those identified are heron, peacock, ostrich and other waterbirds like ducks, booby and penguin. On penguin, he observes its ability to live in a freezing environment where the temperature falls to 40°C (104°F) below zero and its ability to sleep on ice without any injury. While discussing the disparities between human beings and penguin, he says:

Allah has covered penguins' bodies with a very thick layer of fat, so that they won't feel the cold. The layer of fat prevents them from feeling the cold, and acts as a fur. Conversely, the layer of fat surrounding our bodies is quite thin and this is why we quickly become cold (Yahya, 2002:60).

Another peculiarity in penguins is that when cold becomes unbearable to them, they imbibe the culture of coming together to form a circle to warm each other up, while they switch positions so as to allow the ones left outside the circle to also become warm.

One amazing peculiarity in penguins is that while the female penguins lay eggs, it is the male ones that incubate the eggs for four months. While the males are in incubation period, the females move about to find food for their husband and baby. Another amazing feature in penguin is that the egg is not allowed to touch the ground for the four months to avoid freezing. The male penguin carries the egg in-between his feet even while moving about. The kind of devotion to the care of the newly born penguin baby is unequal. While the mother feeds it with the food she has stored in her throat, both parents prevent the baby from freezing by carrying it in between their feet and keeping it warm with the fur of their abdomen (Yahya, 2002: 59-61).

Another bird contemplated upon psychologically by Yahya (2002) is the bee hummingbird which is said to be able to lift and flap its wings around two and a half million times and so one of the birds that can traverse very long distances among others. Boobies, on the other hand, could dive into water from great heights and they are endowed with flipper type of foot for them to swim on the surface and in the depths of the sea catching fish.

Ostrich is considered the largest living bird of 2.74m (9ft) high and can weigh as much as 160kg (353 lb). Despite this weight, ostrich can run extremely fast at speeds of up to 70 kilometres per hour (www.earthlife.net/birds/). In the case of ducks, they can fly with speeds of up to 50km per hour. The zigzagging movement of the birds is a protective measure from predators and they are as fast as lightening while diving into water, and this makes it difficult for hunters to hunt them down (Yahya, 2002: 70).

The hunting skill of the heron is interesting. When it wants to catch fish, it spreads its wings in an umbrella shape to produce a shadow and prevent reflections from the surface of the water and through this, it clearly sees its prey under the surface of the water (Yahya, 2002: 69).

b. Bird as a Teacher

The story of the two sons of Adam, Habil and Qabil (Abel and Cain) is very relevant here. Following the acceptance of his sacrifice by Allah, his elder brother, Cain, whose sacrifice was rejected, deliberately killed the righteous and innocent Abel. After committing the havoc, he became confused, as he did not know what to do with the corpse of his brother and he had not seen a dead body before nor witnessed what to do with the corpse. To bail him out of this puzzle, Allah brought into the scene two birds both engaging each other in a fierce fighting which consequently led to the demise of one of them. The surviving bird quickly started digging the ground to make a hole. He then buried the dead body in the hole dug by him. Seeing this drama, Cain quickly followed the burial procedure of the bird by digging the ground to make a hole and so he buried the corpse of his brother (Q.5: 27-30).

c. Bird as an Object of Experimentation

As philosophy is the study of why of the universe, science is the study of how of the universe, which involves among others, experimentation and observation. According to Bidmus (1996: 47), some experiments involve examining evidences that human intellect and reasoning can discern and use such evidences to facilitate understanding of the target beliefs, concepts and ideas. Of such experiment, is the request of Prophet Ibrahim as recorded in the Qur'an (2: 260) thus:

Behold! Abraham said: My Lord! Show me how
You give life to the dead. He said: "Do you not
then believe?" He said: Yea! but to satisfy my
own heart.

To show His power over life and death, Allah instructed him to take four different birds, cut them into pieces and then put a portion of them on every hill around him. After doing this, he was instructed to call each of the birds and the birds were seen each gathering itself together and running towards him. From this, Prophet Ibrahim really confirmed the power and wisdom of Allah to give life to the dead.

d. Bird as a Communication and Security Agent

The fact that nature has been subjected to human use is demonstrated in the Qur'anic history of Prophet Sulayman and his hoopoe (Hud-Huda). Apart from the fact that he was taught the speech of birds, they were marshaled and kept under him to use at will. An episode of Sulayman and his hoopoe is narrated in the Qur'an (27:20-24) thus:

And he took a muster of the birds; and said: "Why is it I see not the hoopoe? Or is he among the absentees? I will certainly punish him with a severe punishment, or execute him, unless he bring me a clear reason (for absence)." But the hoopoe tarried not far: he (came up and) said: "I have compassed which thou hast not compassed, and I have come to thee from Saba with tidings true. I found there a woman ruling over them and provided with every requisite; and she has a magnificent throne. I found her and her people worshipping the sun besides Allah: Satan has made their deeds seen pleasing in their eyes, and has kept them away from the path, - so they receive no guidance."

From the above, it can be deduced that the hoopoe provided Sulayman some security services informing him of what transpired elsewhere, as there were limitations to what he (Sulayman) could see and know despite his knowledge and wisdom. After receiving the information, Sulayman quickly took action by sending a letter through the bird, to the Queen of Sheba, saying: "Go with this letter of mine, and deliver it to them: then draw back from them, and (wait to) see what answer they return" (Q27:28). The bird acted as commanded. It took the letter and dropped it to the Queen who after reading through, reacted by inviting her chiefs for advice on the content of the letter. The invitation of Queen of Sheba to acceptance and worship of Allah by Sulayman was facilitated by the hoopoe, which discovered the kingdom of Sheba and the ignorance of its citizens in worshipping the sun besides Allah. Its delivery of the letter of invitation to monotheism and its patience in knowing the reaction of the people to the content of the letter hastened the acceptance of and submission of the Queen to Sulayman's will.

e. Bird as a Model

There is no doubt that bird possesses some attributes worthy of emulation by human beings. In the Holy Bible, Jesus calls the attention of his people to an attribute in birds saying:

Therefore, I tell you, do not be anxious about your life, what you shall eat or what you shall drink, not about your body what you shall put on. Is not life more than food and the body more than clothing? Look at the birds of their air:

they neither sow nor reap nor gather barns, and yet your heavenly Father feed them. Are you not of more value than they?(Mathew 6: 25-33).

In view of the nature of birds, it is our conviction that they need a lot of energy for them to fly, hence the need for them to take a lot of food. That apart, in addition to such other miraculous deeds like healing the blind and the lepers, and bringing the dead into life, 'Isa ibn Maryam is equally said to have moulded clay in form of a bird, breathed into it and the bird flew away. This is confirmed in the following Qur'anic verse:

And Allah will teach him the Book and Wisdom, the Torah and the Gospel. And (appoint him) a messenger to the children of Israel (with the message): "I have come to you, with a sign from your Lord, in that I make for you out of clay, as it were, the figure of a bird, and breathe into it, and it becomes a bird by Allah's leave... .(Q3:49).

f. Bird as an Agent of Destruction

Suratul-Fil (Qur'an 105) reveals the protection of Allah upon the Holy Ka'bah ever before the birth of Prophet Muhammad. Being fired by religious fanaticism as well as jealous of the way people flocked the Ka'bah, Abraha Ashram the Abyssinian governor built a mighty church in San'a', for the purpose of diverting peoples' attention from Makkah and the Ka'bah. Contrary to his expectation, there was no positive response to his mundane call. Rather, the house was turned to a latrine for those who came to ease themselves there in the night. Furious with anger, Abraha decided to change his plan, this time around, to destroy and demolish Ka'bah. He then led a big expedition against Makkah with elephants in his train. As Abraha's army was too strong for the Makkans to confront, no effort was made to defend the House. When Abraha and his elephants approached the House, they could not touch it due to Allah's invisible garrison around it. With their failure to realize this and their insistence to carry out this treacherous plan, Allah's miraculous ammunition and ordinance which were far superior to Abraha's elephants and weapons descended on them from His arsenal and they were all annihilated just like eaten straw and stubble found in the lung of animals. The most marvelous aspect of this happening is that it was a flight of birds that Allah sent to discipline and destroy the people and their elephant. This episode is adequately documented in the Qur'an (105:1-5) thus:

Have you not seen how your Lord dealt with the
People of the Elephant?
Did He not make their treacherous plan go astray?
And He sent against them flights of birds.
Striking them with stones of baked clay.
Then did He make them like an empty field of stalks
And straw (of which the corn) has been eaten up.

Implications for Science and Technology

Since science aims at answering the question of how the world and nature were constituted through reliance on observation and experiment and not basically on theory, some useful scientific and technological hints could be drawn from the wonderful creation of birds if carefully contemplated upon. The ability of birds to fly elegantly in the sky has attracted mankind to attempt to imitate birds. It has been historically asserted that in the year 861 CE (247A.H), an Arab scientist, Ibn Firnas attempted to fly like a bird in the city of Cordova. He made two wings for himself and climbed up to the top of a minaret of about 300 metres height from where he jumped and flew over the city. His failure to fit a tail to act as a rudder during turning led to his inability to direct himself and control the flow of air, and so, he fell to the ground and gave his life for the benefit of humanity (Hamidullah, 1981:192). A development upon this could be said to have led to the invention of modern aeroplane.

It should be observed that the conquest of space is a remarkable technological development, which has resulted in man's journey to the moon. This should not be a surprise, as Allah enjoins man to attempt passing beyond the zones of the heavens and the earth when He says:

O assembly of *jinn*s and men! If you can
penetrate regions of the heavens and the earth,
then penetrate them. You will not penetrate
them save with (Our) power (Q.55: 33).

The power to explore and discover things comes from Almighty Allah and there is no limit to this. No wonder then that Prophet 'Isa moulded a bird from clay, breathed into it and it flew away (Q.3: 49). In the same vein, a birdlike shape could be made and man can use his scientific and technological expertise to make it fly like bird as well. Therefore, the test-tube baby experiment should not be seen as a mystery in the medical line, but an attempt to explore further the mighty work of Allah.

While contemplating on the creation of birds, Ali considers the arrangements of the birds' feathers and bones, their stream-line shapes, their soaring with outstretched wings, darting about with folded wings, their stabilization in the air, their motions upwards and downwards, their resting on their feet as useful ideas to man in the science and art of aeronautics (Ali, 1983: 1580).

In addition to the above, boobies are birds that can dive into water (Yoni great heights and they are endowed with flipper type of foot for them to swim on the surface and in the depths of the sea. The marine industry has a lesson to learn from this. If it fails to appreciate this, it has to acknowledge the fact that some creatures of Allah, which are not as developed as man, have been using this opportunity ever before him and that man can borrow a leaf from this. The ignorance of Cain to decide on how to bury the corpse of his brother and the consequent lesson he received from an ordinary bird, which taught him the burial procedure drives home this point. Likewise, the invention of modern locomotion such as high-speed cars and supersonic planes could be as a result of inspiration from the fast movement of birds on air and land.

The dissection of birds by Prophet Ibrahim is highly relevant in anatomy. The al-Faruqis (1986: 325-326) quoted one Abdul-Latif al-Baghdadi's *Al-Ifadah wal-I'tibar* that he (Abdul-Latif) had access to a large pile of human skeletons and corpses from which he learned truths contrary to what he read in the works of Galen and others. They (al-Faruqis) thus refuted the claim that the *Shari'ah* had prohibited dissection to Muslims based on the fact that the *Shari'ah* permits the prohibited if it leads to the good of the people. Anatomy as a course of study could not be successfully taught to students without resorting to dissection of dead bodies and if not this, surgery could not have developed.

Conversely, the observation learning theory of Bandura and Walter emphasizing the study of humans rather than animals could not be totally acceptable to us. This assertion contradicts the spirit of Islam, which emphasizes the study of Allah's creatures in its entirety. The claim limits human environment to its local environment alone and thus retards the scope of its knowledge to itself and not to other creatures. After all, many psychologists have used different animals to propound different theories, B.F. Skinner's Operant Conditioning was arrived at through his experiment on hungry rats and pigeons. Thorndike (1922) carried out his work on rats, dogs, chickens, fish and monkeys among others. Before arriving at his Classical Conditioning theory, Pavlov (1846-1936) made extensive use of a

clog, while Kohler (1925) made use of a chimpanzee and banana for his Cognitive Theory of Learning. One thus agrees with the latter that animals are capable of grasping problem situation as a whole and through insightful learning provide a solution (Odu et.al, 1992: 159-210). So, the call of the Qur'an to ponder on the nature is to allow people endowed with a good sense of imagination and instinctive knowledge to learn.

The artistic and colourful design of Allah can highly be appreciated in birds. Many of the birds are endowed with beautiful and attractive colours, which can be a source of inspiration for painters. Yahya (2002: 128) examines this unique characteristic of birds and thus remarks:

The feathers of birds have very complex features that help them fly. The feathers of each species of birds have different colours and we enjoy looking at them quite a lot. For example, the feathers of the peacock are so beautiful that people have made them the subjects of painting or needlepoint canvases.

The usage of hoopoe by Prophet Sulayman to communicate the Queen of Sheba could be developed as a means of effective communication. The consequent acceptance of Islam by the Queen and the imposition of king Sulayman's supremacy on the Queen are instances of the homogenization and hegemonization syndrome of contemporary explosive expansion in the technology of transport and communication in the name of globalization. Apart from this, the manifestation of globalization in the realm of military science and human warfare is confirmed, as the fear of extinction became the thread of unity between Sulayman and Balqis (Adebayo, 2005:124).

Conclusion

The wisdom of Allah in putting in place all necessary and useful objects, living and non-living, tangible and intangible that are beneficial to mankind ever before He created man is highly appreciated. Man himself cannot claim to be the harbinger of all his discoveries, as Allah has already put a replica of such in place. The characteristics and uses of birds as enshrined in the Qur'an inform our conclusion that mankind is only trying to imitate birds in some of his modern technological discoveries especially in the field of communication and transport. This implies that no new discovery is possible unless there exists a sort of experience preceding the mind's cognitive

operation. It is then left for mankind to tap the nature for the purpose of more discoveries.

It is however pathetic to observe that Muslims throughout the world are reading repeatedly the Qur'an daily, rehearsing the past contributions of their fore-bears and their legacies but without little or no attempt to improve on such. Their lukewarm attitude and the changing perceptions of modern science despite the motivating verses that encourage it in the Qur'an, call for a positive address. We thus uphold the adoption of 60:40 student ratios in the admission of students into courses in Sciences to Humanities respectively. Muslims must be encouraged to study science and technology-related courses. Also, appropriate curricula must be fashioned out so that students of Religions will be exposed to some science-related subjects, while science students too will have to take compulsory courses in Religious Studies, especially courses on science related verses in the Qur'an. This would make students to appreciate the verses and challenge them for further researches. After all, some modern scientific discoveries like the worker bees being female (Q.16: 68), the spherical shape of the earth (Q.7:54; 36:37; 31:29), the big bang theory (Q.21:30), the development of the human embryo(Q.23: 12-14) and many others have been properly documented in the Qur'an, all which modern discoveries are confirming. However, the current Islamization of knowledge undertaking is an attempt at synthesizing the two together so that both science and religion are integrated for the consumption of learners.

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