IN THE NAME OF ALLAH, THE MERCIFUL, THE COMPASSIONATE

Living in harmony with divine laws and search for truthful knowledge are the fundamental principles of Islam. The ever-powerful all-knowing Allah is the Creator of the Universe and He has created each and every thing with a purpose. All purposes are inter-related and this makes the world a telic system, alive and full of meaning. Birds in the sky, fishes in deep sea and plants on land and in water are all parts of this integral and constitute the web of life. Thus if a bird eats a butterfly or a lion devours another animal, it is not a chance phenomenon but a well defined physiological activity the understanding of which means defining and applying the relevance of Islam to the Science of Biology. How narrow is therefore, the belief that there can be no relevance of the scientific discoveries with the teachings of Islam and that knowledge and religion are separate entities. It is also said that scientific knowledge which is changeable cannot provide any explanation for the teachings of Islam which are unchangeable. Nothing can be further from truth than such an assumption for the very first surah which was revealed to the Holy Prophet (may the peace and blessings of Allah be on him) tells us that Allah teaches man what is not known to him.

"Read: And thy Lord is the Most Bounteous, Who teacheth by pen, Teacheth man that which he knew not." (Pickthall, 1975)

1. Al-Alaq : 3-5.
Indeed, Allah teaches us in many ways. Scientific investigation is one such way. Praise be to Allah Who has made us capable of investigating the various phenomena of life sciences. An endeavour should therefore be made to write a commentary explaining the significance and meanings of the teachings of the Holy Quran with the help of Hadith for the benefit of mankind. This is all the more necessary because today we live under the shadow of advanced technology and have to find answers to problems which come up because of the complexity of scientific discoveries. And this is possible only when we realize that Al-Quran blends science and religion harmoniously and our Holy Prophet (may the peace and blessings of Allah be on him) always emphasised the need to acquire knowledge from every source possible. Thus he advised his 'Ummah' to seek knowledge from cradle to grave and even travel to far off places in search of knowledge because he knew that it is the scholars who fear God and can reason out the nature of things.

And none understands them (natural phenomenon) except men of knowledge.” (Latif, 1969)

There is no doubt that Islam in its simple and straightforward way of expressing truth has a tremendous appeal for all sincere and rational persons. Allah teaches us in various ways and the Holy Quran includes knowledge of all branches of studies related to the Universe. This is true of biological

1. Al-Ankabut : 43
also. We were given knowledge about human reproduction, nutritional physiology, environmental biology, the inter-relations between plants and animals and various other phenomena much before the scientific world became aware of such happenings. And so we recite:

1. Ma'allah al-lah al-samas al-ar'd wa mamnawma ala al-haq wa ajal msa-

"God hath not created the heavens and the earth and all that is between them except to serve a serious purpose and for a fixed term." (Latif, 1969)

2. Ya'qul ma yishaa yibb lem man yishaa anata yibb lem man yishaa al-had

"He brings into being what He liketh and He giveth daughters to whom He will, and sons to whom He will: or He giveth them children of both sexes and letteth whom He will remain childless." (Latif, 1969)

3. Wa la allad anzal min al-sama' ma'ana haibi bi-ha al-ar'd ba'd mutabaa

"And God sendeth down water from the heavens and by it reviveth the earth after it hath been dead (dried up) Verily, even cattle can offer you food for reflection! Out of what there is in their bellies between dregs and blood, we give you to drink pure milk - a pleasant beverage for those that quaff it." And likewise from the fruits of the palm and the vine you get inebriating beverage and healthful nutriment."

(Latif, 1969)

1. Al-Rum : 8
2. Al-Shura : 49-50
3. Al-Nahl : 65-67
It was in obedience to these revelations and in fulfilment of the desire to glorify the Almighty Allah that the present author picked up courage and decided to make an humble attempt to study the subject of Biology against the background of Quranic allusion to the subject.

The subject matter of this book has been broadly divided into four parts. Part one deals with the teachings of the Quran relating to the creation of the organic world and of man himself and an attempt has been made to provide a scientific explanation of the fact that Allah is the Creator of the entire biosphere. This has of course been done keeping in view the well established facts of the Science of Biology.

We have been told that Allah has created the heavens and the earth and all that is there in between them in six days, the length of the day being very very long as far as human reckoning goes. He is who started the creation of man with clay and then ordained that the progeny be produced from a mingled fluid.

1. Al-Fatir : 11.

"God it is Who created you from dust; then, out of a drop of fluid, made of you two sexes." (Latif, 1969)
wonder that scientific endeavour of many centuries has led to the acceptance of the Quranic teachings that everything has been created from water.

That the form and structure of a living being has to be in consonance with its environment is a fundamental teaching of the Quran. The ninth verse of Surah al-ṣajdah tells us that Allah has shaped man in proper form, a fact which is self-evident by our ability to walk straight instead of crawling like a lowly creature. Our skeletal system is such that we can freely move our neck and turn our head from side to side. The uniqueness of the skin in protecting the vital organs, the tremendous grasping power of the fingers and the storing of each item of memory in the cells of the brain as also the power to bear, see and feel are real gifts of God to the humans for living in this world for an appointed period of time. Of course there is no escape from death and nobody knows as to how long he or she would remain alive. This is all according to His will which is most powerful, the most prevailing. How can we then deny the fact that Allah Who gives life and causes death will not gather us all on the day of judgement. He has made us living once and has the power to restore us to life again after death.

(1) 

"He Who gave them being at first, will give fresh life to them, and He knoweth how to bring forth every form of creation." (Latif, 1969)
The believers who reflect can also verify that it is because of the varying effects of ecophysiological factors on two adjacent plots that the quality as well as the quantity of crop yield in each of them is different. Is it not therefore, the duty of the Muslim scholars to conduct experiments for the manipulation of these factors and increase the productivity of agricultural land?

(1) Quran and the Hadith- biological explanation of such teachings forms the second part of the thesis. This book.

The term diet is used for the food which is taken by man for the sustenance of life and to fulfil certain structural and functional needs of the living body. It has to be clean, uncontaminated, nutritious and palatable. Meat is one such food and praise be to Allah Who has permitted us to eat it. It provides us with high quality of lipids, proteins, iron and phosphorous. People living in the deserts and often suffering from cramps, because of the deficiency of sodium chloride, get the much needed salt from the flesh of camel while the locusts with their high

1. Al-Rađ 4
salt and glucose contents provide energy to people travelling over long distances in the deserts.

The medicinal value of slaughtering in such a way that all blood is drained off the body is self-evident. Several haemoglobins occur in one species so that it is the type of globin which determines the oxygen combining properties of the blood of an animal and its ultimate health. It is, therefore, possible that mixing of globins with varying amino acids may endanger the life of a person who may receive them by eating blood-containing meat of another animal.

Moderation and judicious thinking is an integral part of Islam. Thus, where excessive fasting which may render a person unfit to offer his prayers is forbidden, excessive eating is also not favoured. In this way the phenomenon of eating is governed by certain rules that have been codified by the 'mufties' and other moralists. While animals which in their opinion are clean may be eaten, the eater has the choice to consume the so-called unclean animals such as the birds of prey and crawling vertebrates. But no believer can eat 'maithah' which while literally meaning 'dead' refers to an animal which has died in any way other than by slaughter. It signifies an animal that has not been slain in the ritually prescribed fashion and whose flesh cannot be eaten.

Fishes and locusts are, however, an exception and can be eaten without ritual slaughter. A possible explanation for this
could be the fact that the blood of a fish is pale and scanty as compared to that of the birds and mammals. The number of amoeboid corpuscles in the blood of locusts is very limited and it contains hemocyanin instead of hemoglobin. There is, therefore, no chance of the mixing of the two kinds of blood and consequent harm to the eater.

Milk is undoubtedly one of the oldest food that has been known to man. It has been used as food by man much before the beginning of recorded history and all available evidence suggests that people living in the grasslands of Asia kept sheep and cattle and obtained butter-like products from their milk. Even today, sheep, cattle and buffaloes are extensively reared in various parts of the world and constitute an important source for the production of a wide range of easily digestible milk-products. The importance of cattle milk was told to us more than fourteen hundred years ago. The goat's milk contains all the essential amino acids and is easily digested even by the infants. It is, therefore, no surprise that it has been called 'the wet nurse of the infant'. And since goats are also economical to be kept, the Holy Prophet (may the peace and blessings of Allah be on him) once remarked that the best gift which one can give to the needy is a goat which fills up a cup with its milk in the morning and another in the evening.

Another treasured food obtained from animals is honey. It is not only directly assimilated into the blood stream but is also an excellent medicine in all kinds of digestive disorders and in developing the formation of hemoglobin in the blood. It also acts as a preventive medicine as has been reported by Hazrat Abu Hurayrah (may Allah be pleased with him) who heard it from the Holy Prophet (may the peace and blessings of Allah be on him) that a person who would use honey for three mornings in a month would not suffer from any trouble.

(1) من أبي هريرة قال قل رضي الله عن النبي صل الله عليه وسلم من عمق


culuis reebrates all shehrelim yuhehe wissam na am alimulhul

Who could have dared to impart such knowledge than Rahmat-ul-Lil-Alamin whom Allah taught what nobody knew.

(2) ورأى ربي السائل التخل ان اتخذي من الجبل بيتا ومن الشجر وسطا


"And thy Lord inspired the bee, "provide thyself with places to dwell in the mountains and in the trees and in what men do build for thee;

Then feed thou out of every kind of fruit and pursue assiduously the way of living prescribed for thee by the Lord. From its belly cometh forth a liquid of diverse hues which serves as medicine for man. (Latif, 1969)

Soil is a substrate which contains organic material which plants can take root. Water plays an important role in this phenomenon. It affects the activities of nitrifying bacteria and other soil organisms. Falling as rain, water penetrates the

1. Ibn-e-Majah : al-sunan, Bab Fi Tib
2. Al-Nahl : 68-69
soil surface by gravity and is absorbed by plant roots and brings forth buds of all kinds. And this to me is the lesson that has been given in the ninth verse of the surah Qāf.

\[ \text{Qāf : 9} \]

"And We send down rain from the sky which brings with it blessings whereby We cause to grow gardens and the grain of harvest." (Kātib, 1969) /

The five fruits which have found special reference in the Holy Quran are the dates, grapes, pomegranates, olives and figs. Dates provide us with a wholesome diet while the grapes are highly rejuvenating and refreshing. The olive is a slow growing tree whose fruits provide us with oil which is much used for cooking and eating specially in Arabia. The Holy Prophet (may the peace and blessings of Allah be on him) ate bread with olive oil. It is also used for massaging the strained muscles. Pomegranates quench thirst, are an excellent remedy for dysentry, enlarged spleen and sore throat while the delicious figs cure constipation.

Alcoholic beverages have long been cherished for their stimulating and medicinal properties. They have been used for the healing of wounds and as tranquilizers and vasodilators since about 500 B.C. But once we become addicted to their use we realize the unhygienic effects of such drinks. Crude wines contain amyl alcohol which is extremely deleterious and may cause even brain
injury. Indeed it is a great favour of the Almighty Allah Who has taught us that wine is far more injurious than beneficial from the point of view of health.

(1) "They ask thee concerning wine and game of chance. Say, "In both is great harm as well as advantage to man; but the harm is greater than the advantage."

(Latif, 1969)

The importance of dietary hygiene is self evident in the Quranic injunction prohibiting the consumption of pork and ham which is not only very rich in cholestrol but is also responsible for Trichinella Spiralis infections in man. Echinostoma malayanum is another parasite which reaches human intestine when pork is eaten and causes intestinal disturbances.

It is really astonishing that while we are forbidden to taste alcohol, vinegar which is obtained by the action of bacteria on alcohol has been prescribed for us as an excellent food. The reason is quite simple. Besides being a wholesome diet, vinegar is also a medicine. It removes spots from the skin and is very effective in curing swollen and bleeding gums. It also acts as a preservative for meat products, fish, vegetables and fruits.

The spiritual and ethical value of Quranic Science becomes abundantly clear when we recite the following verse of surah Al-Baqarah.

1. Al-Baqarah : 219
"Mothers shall give suck to their children (for) two full years." (Latif, 1969)

A purely biological explanation of the above teaching is that mothers' milk is the best food for the baby. It makes him strong and healthy because of containing the right quality of proteins, minerals and vitamins and its anti-infectious and anti-allergic properties. The protein found in the mothers' milk is more soluble than casenogen and its composition varies during the first few weeks according to the nutritional requirements of the baby.

The ways in which man, as the custodian of God's gift on earth, has to use the animals and plants have been described in the third part of this book. He has to understand the spiritual values of these creations of Allah and acquire knowledge to use them in a manner that could be most beneficial for him. Keeping this in view, the present writer has studied the productive utility and otherwise usefulness of certain quadrupeds which have been domesticated since long.

There is no doubt that the camel, horse, cattle and dogs are real supports for human life. It is impossible to cross long distances on foot across the deserts so much so that even in this age of diesel-driven vehicles much use is made of the trusted ship of desert, who unmindful of thirst and surviving mostly on such vegetation as is not generally required by other animals carries

1. Al-Baqarah : 233
our heavy loads for several days at a speed of about twenty five miles per day. But it is not only in the deserts that the camels are useful to us. The Bactrian camel having two humps has become the most important beast of burden in colder climates.

The speed, agility and affection of horse for his master has made him a distinguished companion of man in war as well as in peace and all myths about the untouchability of dogs disappear once we know that the Holy Prophet (may the peace and blessings of Allah be on him) has permitted us to keep dogs for the protection of our farm animals and as guards in our homes. Of course we are not permitted to mix with them as this is necessary to avoid catching the fatal disease rabbis from which the dogs often suffer. And the cattle are a great gift of Allah. They give us milk and meat, plough our fields and provide us with high class leather, manure and bone meal.

The Almighty Allah has indeed brought forth the quadrupeds for us but we thank him little.

وَلَقَدْ مَكَّنَّكُمْ فِي الْأَرْضِ وَجَعَلْنَا لَكُمْ فِيهَا سَوَاتٍ ۚ (1)

"We have given you habitation on earth and also provided for you therein the supports of life." (Latif, 1969)

Plants are the producers of the animal world in the sense that they alone are capable of deriving nutrients from the soil and manufacture their food in the presence of sunlight. Indeed,
Allah sendeth down water from the heavens which is a drink for you and which enables the herbage to grow and by which you pasture your cattle. He causeth corn, olive, date palm and grapes to grow for you.

There is thus no doubt that plants and their products are the ultimate source of food for all kinds of animals. They not only provide stable, nutritive and cheap food to man but also building material in the form of wood. A single pumpkin fruit may weigh as much as twenty pounds and may be sufficient to feed a family. It can also be used as a live-stock feed. Cucumber is another such fruit, often recommended by the physicians as a refreshing and rejuvenating diet. When eaten with fresh dates, it is a wholesome food. This is why our Prophet (may the peace and blessings of Allah be on him) liked to eat cucumber along with fresh dates.

Mushrooms are rich in nitrogen and have pleasing odour. They have been called 'Mon', a gift-food from God. Extract of mushroom cures eye diseases just as the bruised leaves of 'henna' are used for the treatment of wounds and ulcers. Extract obtained from the leaves and flowers of 'henna' is a favoured treatment for

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1. Al-Nahl : 10-11
2. Al-Bukhari: al-Jami al-Sahih, Bab(Fi) Rutab bil Qishah
leprosy and is useful for patients suffering from jaundice (Dastur, 1962).

The medicinal properties of 'Senan' are best summarized in the remarks of the Holy Prophet (may the peace and blessings of Allah be on him) that if anything could save man from death, it would have been 'Senna'.

(1)

Dates which provide a stable diet for human beings are easily assimilable and serve as a tonic for the heart and the eyes. The sight of a palm tree laden with fruits is unforgettable. The fruits provide wholesome food and drink while the trunk is made into timber and the seeds are used as livestock feed. Olives which contain a very high percentage of fat are an excellent cooking medium, a good hair tonic and relieve muscular pain. Similarly, the figs provide us with vitamins A & B and cure constipation (Condit, 1961).

The last part of the thesis deals with human environment.

Al-Quran teaches us to shun pollution, personal as well as environmental. It is therefore, essential to bathe and wear clean clothes before embracing Islam. Of course the clothes need not be costly. A loose 'kurta' of ordinary material was the preferred dress of the Holy Prophet (may the peace and blessings of Allah be on him). Such a dress has a definite advantage. It protects the body from the extremes of climate and helps in maintaining normal body temperature.

1. Ibn-e-Majah: al-Sunan, Bab Fi Senna
And when it comes to dental hygiene, perhaps no religion has paid as much emphasis on keeping the teeth clean as Islam. The Holy Prophet (may the peace and blessings of Allah be on him) once remarked that it was only because of extreme inconvenience to the 'Ummah' that he did not order the brushing of teeth at the time of each 'wudhu'. The reason is clear. Brushing with a softened 'miswak' helps in digestion and removes phlegm. It improves eye sight and makes the food more palatable.

(1) Dietary hygiene has its own significance and that is why we have been asked not to eat pork which is very rich in cholesterol and also contains disease causing parasites like Trichinella spiralis and Echinostoma malayanum. A drunken man loses his senses, his brain is injured and his health is deteriorated. This is why drinking of wine has been strictly prohibited in Islam.

As far keeping the environment clean, we have been ordained not to work for our own ruin with our own hands for Allah never forgives people who indulge in excesses. Certainly the destruction of a people is not an arbitrary punishment from God but the people bring it on themselves. It is, therefore, no use exploiting the environment beyond certain prescribed limits. This makes the air unfit to breathe and water of lakes and rivers unfit to drink. Toxic substances become accumulated in animal tissues and affect us adversely through food chain. As pointed out by Carson (1963), we cannot control nature and the sooner we realize this fact, the

1. Tirmazi : al-Jami. Bab Fi al-Siwak
better it would be for us. Thus, it is our duty to keep the environment clean and free of disease.

Some of the fatal diseases of mankind are transmitted through droplet infection, improper disposal of waste material and the agency of insect vectors. This is why more than fourteen hundred years before the World Health Organisation emphasized the need for isolating the diseased persons, the Holy Prophet (may the peace and blessings of Allah be on him) warned his people not to go to a place where an epidemic of plague was prevalent and also not to leave such a place if they happened to be there at the time of the epidemic.

Such is the scope of the present thesis which aims at providing a biological commentary to some of the important teachings of the Holy Quran. The author has tried to scientifically arrange these teachings in four units dealing with the creation of the biosphere, structure, nutrition and reproduction of human beings and the relationship of man with other animals. The dependence of man on plants has also been studied keeping in view the teachings of Al-Quran and the sanctions of the Holy Prophet (may the peace and blessings of Allah be on him). The importance of personal hygiene and Quranic injunctions concerning environmental pollution have also been described. In this way the ever lasting truth of the revelations of Allah has been proved in the light of present-day knowledge of biology.

1. Al-Bukhari: al-Jami-al-Sahih Bab Ma Yadkar Fi Ta'un