CHAPTER XI

DISCUSSION
Al'Quran is universal, unchangeable and for all times. Allah has revealed it and Allah will preserve it. He has prescribed norms for living on this earth and these have to be followed. The learned among us have to understand the 'muhkamat' and explain them to the common man. In this way, each generation of scientists can add to the understanding of the all embracing teachings of the Holy Quran. And so we have also to fulfil our obligations and show it to the world that the knowledge which Allah has given us through his revelations in the Holy Quran can be understood, but gradually. This then is the object of the present work. The author has tried to study and explain some of the biological teachings of the Holy Quran relating to the creation of the biosphere, structure of human body, reproduction in man, dependence of man on other animals and plants, personal hygiene and environmental pollution. And this, as suggested by Latif (1969) has been done by correlating modern concepts in biology with the verses of the Holy Quran and the sayings of the Holy Prophet (may the peace and blessings of Allah be on him).

The basis of belief in Science is the fact that the apparent mysterious mechanism of the universe can be understood by human reason. Once these laws are comprehended it becomes easy to understand and explain the phenomena involved. This is why Muslims have been correlating reason with religion for
more than 1400 years and a scientific era began after the Holy Prophet (may the peace and blessings of Allah be on him) proclaimed 'Seek knowledge from cradle to grave'.

Let it be clearly known that the heavens and the earth were of one piece till these were divided by the Almighty Allah into separate pieces. These pieces then started revolving in space and the whole planetary system moulded out of the molten mass of gas and dust. Afterwards, the period being far more than human reckoning, the surface of the earth cooled down and a crust was formed. The interaction of various gases produced water and life was created on the earth (Kazim, 1974). In this way water became the source of life on this earth.

"Cannot the unbelievers realise that the heavens and the earth were (in the beginning) of a piece together, and that we separated them and through water did we give life to everything?" (Latif, 1969).

The presence of smoke in the early stages of the universe as referred to in the Holy Quran corresponds exactly to the concept of primary nebula of gaseous material of modern scientists. Once the basic constituents were created these provided the necessary nutrients for the developing embryo. Bones were formed, got covered with flesh and man assumed a definite shape. He became alive when spirit was breathed into

1. Al-Anbiya : 30
him because it is Allah Who 'whenever He intendeth a thing, He but sayeth 'Be' and there it is'. (Latif, 1969)

The way in which the living matter reproduces itself has also been told to us in the fifth and twelfth to fourteenth verses of Surah Al-Hajj and Surah Al-Muminun. The verses clearly reveal the position of human beings in the scheme of things made by Allah. We are told how the sperm gets deposited in the ovum, fertilizes it and how the fertilized ovum is safely lodged in the mother's womb for further development. The fertilized ovum is converted into a sort of clot of thickly congealed blood. This is what the biologists call as embryo. It is, as pointed out by Abdullah Yusuf Ali (1938), from this lump that bones, flesh and organs are formed and an infant is born. Indeed, the Quranic revelations concerning human embryology are exactly what we have learnt from modern histological techniques.

Al-Quran dispelled all kinds of myths concerning the sex of a child. The sex of a child is ordained by the Almighty Allah at the time of conception through the kind of sperm which mingles with the egg. If therefore, an sperm with an 'X' chromosome gets into the egg and pairs with 'X' already there, a daughter is born just as fertilization between a sperm with a 'Y' chromosome and an egg with a 'X' chromosome results in the birth of a son.
Once born, it is the duty of the parents to care for their children and bring up the baby in the best possible way. Islam strictly forbids infanticide on the ground that daughters are a liability. Allah provides sustenance for his creation and no one has any right to interfere in the biological phenomena of life and death. The mothers should feed the babies on their own milk for there is no substitute for mothers' milk. Kimball (1952) observed that while 2.0 to 3.0 percent of the 844 breastfed infants died in England within a period of one year, 12.1 percent of the 140 bottle-fed babies died during the same period.

Modern researches have shown that no child is born rickety and that rickets results from malnutrition. If therefore, the mother nurses her child, the baby will grow well and would be healthy. Mothers' milk contains certain constituents which are essential for the development of the child. The baby cannot digest starch and so the Holy Prophet (may the peace and blessings of Allah be on him) told the mothers that it is always better to continue suckling for thirty months. It is such feeding which saves the child from gastrointestinal troubles and ensures normal physical and psychological development.

But Allah never burdens anyone beyond his capacity. Thus, in cases where the mother is unable to feed the baby, a foster mother may be employed, and if the parents cannot afford a foster mother, the baby may be fed on the milk of a cow or a goat that is quite similar to human milk.
A human being has been moulded in the best of form and constitution and Glory be to Allah Who has created man in the goodliest form.

"And in the earth are signs for those who are of firm faith, and your own selves, can ye not notice them?" (Latif, 1969)

1. Al-Tin : 4
2. Al-Zariat : 20-21
The innumerable species of plants and animals around us have to be recognized before these can be utilized by man. That is why the ever Merciful Allah taught Hazrat Adam (may the blessings of Allah be on him) the names of all things before sending him on this earth. In this way, the foundation of the Science of Classification was laid by the Almighty Himself. This science tells us to divide things in various groups, name and distinguish them. Thus there is a group of organisms which moves on bellies and another that walks on legs. Still others fly with their wings. These groups have their own distinguishing features and are held together into biotic communities. For instance, the honeybee has a very characteristic system of communication which enables it to collect food and return to the hive to communicate to fellow workers the kind, amount, direction and distances of the food source. Is this not the knowledge which can be used by man to obtain honey of desired hue? Let us recite the sixty eighth and sixty ninth verses of Surah An-Nahl and convince ourselves of the ways in which Allah imparts scientific knowledge to mankind.

The kind of food which may be eaten by the believers has been fully described in the Quran and the Hadith. While we are permitted to eat all good things, carcasses of animals, blood and flesh of swine are forbidden. We are also not permitted to take any drink that intoxicates. But what is the scientific explanation for such sanctions? As everybody knows, carrion and blood are articles of food which cause disgust to any refined
person. A number of harmful parasites are found in the blood and different kinds of bacteria capable of causing diseases thrive in the tissues of decomposed animals. Pork is very rich in cholesterol and is therefore, harmful to us. It also contains *Trichinella spiralis* *Enchinostoma malayanum* and other parasites which can be transmitted to human beings through the eating of infested pork. On the other hand, the meat of cattle, sheep and goat is a delicacy to eat. It contains protein, iron and phosphorous in health-giving quantities. The meat of camel provides the much needed salts to people living in the tropics who quite often suffer from cramps because of the loss of sodium chloride through perspiration. Fishes are also a good source of proteins. They are prolific breeders in fresh waters and the seas and are easily available to the common man. A pound of fish is worth 300 to 600 calories of food value and the oil obtained from the liver of the cod and the shark is very rich in vitamin A.

Invoking the name of Allah enables us to slaughter in the correct way. All the blood can be easily drained off so that the toxins contained in the blood of the slaughtered animal do not reach the body of the person eating it. The mixing of globins with varying amino acids is also prevented when the blood is completely drained off and such meat is less liable to the attack of putrefactive bacteria.
The milk of cow, buffalo, sheep and goat is a wholesome drink containing growth promoting proteins and other nutrients. It is a sign of the wonderful way in which Allah sustains His creation. Through domestication and selective breeding, a female cattle can be made to produce milk much in excess of the requirements of her young ones. This can be consumed by human beings. Honey is another such food which can be easily assimilated. Through intricate processes of digestion, ripening and dehydration, the honey bee converts the nectar of flowers into honey. The aromatic constituents obtained from the flowers are responsible for the aroma and flavour of the honey which contains valuable minerals and digestive enzymes.

The rain is a great blessing of Allah. It enables us to grow vegetables, fruits and grains of all kinds and eat them. Several fruits have been found mention in the Holy Quran. Dates are one of them. They are easily assimilable and serve as a tonic for the heart and the eyes. Some of them contain more than half their weight of sugar and nearly 2.0% each of protein, fat and minerals and are of considerable economic importance. Other varieties containing a rather low content of sugar can be used as a substitute for bread to provide daily nourishment to people living in the desert regions of the world.
The dietary and energy giving value of fig and olive becomes clear when we recite the first verse of Surah Al-Tin. Besides their nutritive value, figs have also been used to cure constipation. Olives are rich in fat and olive oil is an excellent cooking medium. It also cures muscular pains. And so is the pomegranate, a fruit of great value both as food and as medicine. This is why the Holy Prophet (may the peace and blessings of Allah be on him) asked his people to eat the pomegranate to purge the system of envy and hatred.

It is really interesting that while fresh grapes and dried resins are rejuvenating and refreshing, fermented grapes in the form of alcohol make us lose our senses and we become diseased. This is why Islam has forbidden such drinks for its followers. However, since the people of Mecca were habitual alcoholics and it would have been very hard on them to stop the use of wine all of a sudden, the order prohibiting the use of wine was given in a very scientific way. At first the people were warned of the dangers of drinking wine. Then they were told not to offer prayers when in a drunken state. Finally, the drinking of anything that intoxicates were banned.

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

(Latif, 1969)

1. Al-Baqarah : 219
"O ye who believe! Come not to prayer in a drunken state until you know what you utter." (Latif, 1969)

"O ye who believe! Verily wine and games of chance, stone altars and driving arrows, are abomination, the hand-work of Satan; So avoid them that ye may prosper." (Latif, 1969)

Besides providing meat and milk, animals serve us in many other ways. The dog is an excellent guard animal, and the Camel an important source of power and transport in hot and dry deserts. The horse has been a constant companion of man in war and peace. In the words of John Moore 'wherever man has left his foot print in the long ascent from barbarism to civilization, we will find the foot print of the horse besides it' (Gorman, 1961). Some of the internal glands of sheep have pharmaceutical value. The small intestine are valuable sausage casings and are beneficial from the point of view of international trade as these are used to make surgical appliances and surgical catgut.

1. Al-Nisa : 43
2. Al-Maida : 90
Books have been written and are being written about the products of commerce which are obtained from the animals. The sheep provide us with high quality wool while the skin of a slaughtered animal is better tanned and fetches a higher price than that of an unslaughtered one. The horns are cut and polished to make combs and decorative wares and the bones of these animals are used for the production of manure and bone meal. And then there are the pearls, a real bounty of God. These are formed in the bodies of shelled animals called molluscs and are one of the most expensive of all ornaments.

"And it is He who hath subjected for you the sea that you may have for your food fresh fish out of it, and bring forth therefrom what you may use for your ornaments." (Latif, 1969).

1. Yasin : 71-73
2. Al-Nahl: 14
But all animals are not useful. There are destructive ones as well. Vermins, locusts and similar pests have often plagued man and therefore, despite the fact that we are not allowed to even have a hair cut during the period of Haj, we have been permitted to kill the injurious organisms. The Holy Prophet (may the peace and blessings of Allah be on him) has granted permission to kill rabid dogs, rats, kites, crows and scorpions even while wearing ihram. However, indiscriminate killing of animals is not permitted and one of the fundamental principles of Islam is to be kind to others for Allah loveth those who do good. Our animals need care and kindness, clean food and uncontaminated abode. The Holy Prophet (may the peace and blessings of Allah be on him) has directed that travellers should try to cross the desert as quickly as possible in order to avoid unnecessary hardship to the camels. They should be given enough rest and sufficient time to graze. The owner should also try to find a resting place free of vermins for them.

As reported by Hazrat Abu Huraira (may Allah be pleased with him) any good deed in respect of an animal would be rewarded by the most benevolent Allah.

Nothing can better emphasize the importance of personal hygiene and environmental cleanliness than the teaching of the Holy Quran: 'Allah loveth those who keep themselves clean.'

We were ordained to shun pollution centuries before Rachel Carson, (1963) woke up the Western World and warned them of the
complexities of atmospheric pollution and unhygienic environment. The Holy Prophet (may the peace and blessings of Allah be on him) declared that Islam means cleanliness and keeping the environment clean is a basic principle of religion. A person has to bathe and purify himself with water containing some deodorant before being initiated into Islam. We have to wash our hair and keep the skin free of pollution. The law of 'wadhu' is an important step in this direction.

1. Al-Maida : 6

Dental hygiene has been accorded the highest priority in Islam. Bad teeth do not masticate food adequately and the imperfectly masticated food causes indigestion. Brushing of teeth with a 'miswak' (a softened stick) removes phlegm and inhibits the growth of disease causing germs in the oral cavity. A 'miswak' made of olive stick is specially recommended. It is pleasing in taste and checks abnormal growth of the gums.

In matters of dress, Islam has always advocated clean, dignified and not too costly, loose-fitting garments that allow a stratum of air between the dress and the skin and help...
in the maintenance of bodily heat. This is why a loose-fitting 'kurta' was the preferred dress of the Holy Prophet (may the peace and blessings of Allah be on him).

Islam strictly prohibits indulgence in any kind of excesses and whenever a people create undesirable situations for themselves they have to suffer the consequences. But this happens only after they are warned and do not heed the decree of Allah. The present day environmental crisis is a glaring example of such indiscriminate exploitation of Allah's bounties by man to serve his greed for short term gain.

Man has been constantly polluting his surroundings without thinking that the entire biosphere is a single interrelated system. A single source may deteriorate the quality of air, contaminate the land with solid wastes and pollute the rivers and lakes and therefore any approach to pollution control would mean going through the entire ecological chain, observing the changes as they occur and then determining the total exposure of man to the danger. And this is not an easy job. The best thing is, therefore, not to pollute the environment for control of nature is a phrase that has been conceived in arrogance and would only accelerate our destruction. We should understand that material wealth is of no avail unless we live within the limits prescribed for us by the Almighty Allah. This is the teaching of Quran and this is the only way to live happily on
this earth.

(1) فَطُورَةُ اللَّهِ الَّتِي فَطُورَتْ عِلْبَةَ لا تُهْيِدُ يَلِ لِخَلْقِ اللَّهِ ذَلِكَ الْهَيْدُ العَلِيمُ

"So turn steadfastly to the way, the way of God, for which man (by nature) had been fitted. There is no altering in what God hath devised. This is the right way (of living)." (Latif, 1969)

History tells us that the intellectuals among the Muslims always understood the situation. As early as 850 A.D. Ibne Rabban described the adverse effects of chemical toxicants on human health and welfare. When asked to select a suitable site for the construction of a hospital, Al-Razi caused pieces of meat hung up at different places in Baghdad and chose the place where these showed the least sign of decomposition over a prescribed period of time, as mentioned earlier.

Architectural ambition has never been encouraged in Islam but community hygiene is a religious obligation. We have to keep the mosques free of pollution. The 'mihrab' has to be embellished with floral designs and spiritual atmosphere of contemplation has to be created. The lustre added to floral paintings on the walls and evoking Qur'anic description of paradise is indeed a discovery of Islamic mind. No one should even spit in such a place. Thus, when a woman was found removing dirty spots from the wall and the floor of the mosque and

1. Al-Rum : 30
sprinkling perfume she was much praised for this act of hers.

One of the greatest contributions of Islam is in the field of public health. Almost all epidemic diseases have a defined period of incubation and one of the best ways of preventing their occurrence at any particular place is to restrict the movement of people from one place to another. A legislative measure in this regard was first promulgated by the Holy Prophet (may the peace and blessings of Allah be upon him) when he ordered that people should not go to a place where an epidemic of plague was prevalent. They were also told not to leave such a place if they happened to be there at the time of the epidemic. This concept of promulgating quarantines is yet another contribution of Islam to modern science.

Such then is the nature of Quranic science. We have to understand the teachings given to us to prove that Islam has always advocated reasoned struggle. Every science is Islamic science because it is a divine science. The Holy Prophet (may the peace and blessings of Allah be upon him) remarked that the latter days of the Ummah would be improved only by what improved its beginning. Of course, an understanding of the teachings of the Quran and Sunnah were the guiding principles that made us the leaders of the scientific world in a matter of decades. It was the intellectual boldness and ability to synthesize productive ideas within the frame of Islamic norms that enabled us to reach the climax (Sardar, 1984). Islam is a complete way of life and
it is our duty to find out the causes and cure of the present-day environmental problems and gain a fresh understanding of the concept of 'ilm' for our own benefit and for the welfare of our posterity.