

Science / Opinion of the scholars regarding the scientific miracles of al-Quran.

Several scholars have expressed their points of views regarding this topic. *Jawaheri* is one of them. He asks why the scholars have compiled thousands of books on Fiqh, whereas there are no more than 150 verses related to the Islamic Legal system as revealed in al-Quran. On the other hand there are more than 750 verse related to natural science. These are obviously which are related directly to these phenomenon, what about the rest which implies the scientific facts rather than speaking direct. So doesn't it look harsh that this nation remains involved in limited number of verses ignoring the majority?

Our forefathers mastered the legal studies which was prevalent at that time. But if they were alive today they would have given their lives for the study of modern science so that the nation may witness a faster pace of prosperity.

Opinion of Dr. Muhammad Abdullah Daraz:

Addressing this issue he wrote a book entitled "Al Bina al-Azim" in the year 1933 A.D. Here he added that al-Quran contains three kinds of miracles:

One that is related to literature. The second one is related to science and the third one is related to law.

Meaning of scientific miracles

All the messengers are sent with miracles suitable for his nation, time and message. The prophets before Muhammad (SM.) used to emerge to a particular nation for a particular nation for a particular period. So Allah has sent them with miracles that were mostly material and ephemeral. Such as, the stick of Musa (A.M.) and making the dead living again by the touch of Isa(A.M.) When the

power of these miracles diminished by the tide of time and people got astray by distorting the original message Allah used to send another messenger with new miracles fit for his age but ephemeral and short living.

But the case is quite different for the last Prophet Muhammad (S.M.) Allah decided to bestow him with messages that should be comprehensive and immortal in order to produce ever renewing guidance fit for all the times all the nations to come.

In the beginning of the 19th century science has become very much instrumental and more experimental. Scientists began to explore the secrets of the universe in and outside of the world. The more they revealed the secrets of the world the more they confirmed the truth of al-Quran which was revealed fourteen hundred years ago. To our great surprise this fact was confirmed by al-Quran at the very beginning:

“We will show them Our signs in horizons and within themselves until it becomes clear to them that is the truth” (41/53)

The signs of Allah in this verse have three meanings:

First: The creations created by Allah in the sky and the earth as Allah said:

“And of his assigns in the creation of the heavens and the earth and what he has dispersed through out them of them of creatures.”(42/29)

Second: the verses of al-Quran that describes the variations of the creation and they are so many.

Third: The evidence and miracles sent by Allah to support his prophet (S.M.) in various occasions and places reflected in the secrets of the nature intermittently,

Explaining the verse Qurtubi said in his Tafsir:

Ata said the meaning of “Horizons” in the verse that they are signs of Allah in the heaven such as the sun, the moon, the stars, the day and the night, the wind and all the things on the earth such as the cities, plants, mountains, thunders and oceans e.c.t”

Explaining the later part of the verse Jalalain said:

And the signs in themselves indicate the secrets of the harmonious creation.

So these are the signs described in the book of Allah. Their meanings are realized only now, centuries after the revelation by virtue of the scientific findings to prove that al-Quran is the truth revealed by Allah.

Some examples of the verses related to scientific miracles:

1) Extension of the Universe;

And the heaven We constructed with strength, and indeed We are its expanders.”(51/47)

Einstein has said the universe is extending with all its glittering stars. Natural scientists have discovered that the universal substances are separating from each other and the distance is increasing day by day.

So we can realize that the universe is not a substance that lies fixed but indeed it is extending day by day to the contrary of many material contents which never grow more than a certain limit.

In this regard Dr.Hubble said:

There is one common feature of the scattered stars. They move faster backward than forward, and the speed increases with the increase of the distance from each other.

Division of the atom:

It said in al-Quran:

“And not absent from your lord is any part of an atoms weight within the earth or the heaven or anything smaller than that or greater than that or greater but that is in a clear register.”(10/61)

Until the 19th century it was believed that the atom could not be divided any way. But they tried hard to find some theory contrary to that. At last only few decades ago they were able to

conduct the division of the atom, moreover they found the following facts and elements as well:

1. Proton 2. Neutron 3.Electron.

Here in this verse we see the mention of elements smaller than the atom. This is a clear indication of the possibility of the division of the atom.

Science and culture during the Umayyads and Abbasids

Al Masjid al Aqsa:

The Dome of the Rock is the shrine of which the Aqsa Masjid is the sanctuary. The term *al-Masjid al-Aqsa*, as we have learned before, is used in Arabic literature in a general sense to include the whole collection of sacred buildings comprising the Dome itself, the tombs, dervish monasteries (*sing.takiyah or zawiyyah*) And public fountains (*sing.sabil*) erected by many caliphs from 'Abd-al-Malik to the Ottoman Sultan Sulayman the Magnificent, which cover an area of some thirty – four acres. Strictly, the word Aqsa is applied to the mosque built by 'Abd-al-Malik not far from the Dome. In its construction use was made of the ruins of St. Mary's Church of Justinian, which stood of that site until demolished by Chosroes(Persian Kings). The Aqsa Mosque was rebuilt about 771 by the Abbasid al-Mansur following an earthquake, and was later modified by the Crusaders. Salahuddin al Ayyubi restored it (1187) to Islam. As in the Dome of our earliest description of it dates from Muslim historians.

Industrial activities during the Abbasids

Textile and Fabrics:

No commercial activity could have reached such dimensions had it not rested on extensive home industry and agriculture. Hand industry flourished in various parts of the empire. In western Asia it centered chiefly in the manufacture of rugs , silk, cotton, woolen fabrics, brocade(*dibaj*), sofa(from Arabic *Suffah*) and cushion covers as well as other articles of furniture and kitchen utensils. The many looms of Persia and al- Iraq turned out carpets and textiles maintained at a high standard by distinctive marks. The Muslim fabric was imitated by the Arabs in Spain and became popular in France, Italy and other lands of Europe.

Khurasan and Armenia were famous for their spreads, hangings and sofa and cushion covers. In central Asia, that great emporium of the early middle ages, Bukhara was especially noted for its prayer rugs. A complete conception of the development of Industry and trade in Transoxiana may be gained from the list of exports from various towns given by al-Maqdisi: soap, carpets, copper lamps, furs, ambers, scissors, knives, swords, bows, etc. Tables, sofas lamps, chandeliers, vases, earth ware and kitchen utensils were also made in Syria and Egypt. The Egyptian fabrics termed *Dimyati*, *dabiq*, and *tinnisi* were world renowned.

Glass Industry:

The glass of Sidon, Tire and other Syrian towns, a survival of the ancient Phoenician industry which after the Egyptian was the oldest industry in history, was proverbial for its clarity and thinness. In its enameled and variegated varieties Syrian glass as a result of the Crusaders became the fore runner of the stained glass in the prominent buildings of Europe. Glass and Metal vases of Syrian workmanship were in great demand as articles of utility and luxury. Damascus was the centre of an extensive mosaic industry. The square or hexagonal glazed tiles, sometimes figured with conventional flowers were named as *qashani*. They were used in exterior and interior decoration of buildings.

Paper Industry:

Worthy of special note is the writing paper industry introduced in the middle of the eighth century into Samarcand of China. The paper of Samarcand, which the Muslims captured in 704, was considered matchless. Before the close of that century Baghdad saw its first paper-mill. Gradually others for paper making followed: Egypt had its factory about 900 or earlier Morocco about 1100, Spain about 1150, and various kinds of paper, white and colored, were produced. Abbasid Caliph al Mu'tasim, credited with opening new soap and glass factories in Baghdad, Samarra and other towns, is said to have encouraged the paper industry. From Muslim Spain and from Italy, in the twelfth and thirteenth centuries, the manufacture of paper finally worked its way into Europe, where with the later discovery of printing movable type (1450-55) it made possible the measure of popular education which Europe and America now enjoy.

Mineral sources:

The leading mineral sources of the empire which made the Jewelers industry possible included gold and silver from Khurasan, which also yielded marble and mercury; rubies and other precious stones from Transoxiana; lead and silver from Karman(Iran); pearls from Bahrain and Iron from Mount Lebanon. Other mineral sources included kaolin and marble from Tabriz, antimony from the vicinity of Ispahan, bitumen and naphtha from Georgia, marble and sulphur from Syria-Palestine and mercury, pitch and tar from Farghana.

The Brethren of Sincerity:

About the middle of the fourth Muslim century (970) there flourished in al-Basrah an interesting eclectic school of popular philosophy, with leanings toward Pythagorean speculations, known as *Ikhwanus Safa* or the brethren of sincerity. The appellation is presumably taken from the story of the ringdove in *kalilah wa Dimnah* in which it is related that a group of animals by acting as faithful friends or *ikhwanus safā* to one another escaped the snare of the hunter.

They were opposed to the political order. Hence obscurity surrounded their activities and membership. A collection of their epistles, *Rasail*, arranged in encyclopedic fashions survives, bearing some obscure names as collaborators. The epistles number fifty-two and treat of mathematics, astronomy, geography, ethics, philosophy, embodying the sum-total knowledge that a cultured man of that time was supposed to acquire. The fifty-one epistles lead up to the last, which is the summation of all sciences. The language of the epistles shows that Arabic had by that time become an adequate language for expressing scientific thoughts in all its various aspects. It is said that great scholars like al-Ghazzaly were influenced by this intellectual society.

The Muslim Numerals:

The same scholar who brought to the court of al-Mansur the astronomical work *Sindhind* (*Sindhanta*) is credited with having also introduced Indian arithmetical lore with its numeral system and the zero. Al-Fazari's translation of the Indian works was therefore responsible for making the numerals known to Islam. The tables of al-Khawarizmi and Habash al-Hasib (867-874) probably spread the use of them throughout the Muslim world. As late as the eleventh century we find the Abu Bakr al-Karaji still writing out in his *al-kafi fil hisab* or the sufficient in arithmetic, all numbers in words. Others following the old Semitic and Greek practice used the letters of the alphabet which in Arabic is *Hisabul Jummal*. Ahmad al-Nasawi (1040), whose *al-Muqnif fil Hisab al-Hindi* or the convincer of the Indian calculation, explains the division of fractions and the extraction of the square and cubic roots in an almost modern manner, used the Indian Numerals as had al-Khawarizmi before him.

Zoology:

In the field of natural history the Arabs' least striking success was in zoology, whereas the Spanish Muslims made a great contribution in botany. Arabic writers on animal kingdom were primarily literary men whose works consisted of collections of names and epithets given by the Arabs to animals and illustrated by quotation of poets. But their study of the horse developed almost to the rank of Science. A number of special monographs were composed on these animals, enumerating its varieties up to designating its desirable and undesirable qualities.

An early representative of the zoological and anthropological sciences was al-Jahiz (869), who flourished in Basrah and whose *Kitabul Hayawan* or book of animals, is more theological and folkloric than biological. This work, in which the author quotes Aristotle, contains germs of later theories of evolution, adaptation and animal psychology. He knew how to obtain ammonia from animals' offal by dry distillation. His influence over later zoologists like the Egyptian al-Damiri is manifest. He is the greatest of Muslim zoologist. His *Hayatul Hayawan* or animal life was also translated into English in 1906.

Geography:

The institution of the Hajj, the orientation of the Masjids towards Makkah and the need for the determining the direction of the Ka'bah at the time of prayer gave impetus to the Muslim study of Geography. Astrology, which necessitated the determining of the latitudes and longitudes of the all places throughout the world, added its influence. Muslim traders reached China on the east both by sea and by land, attained the island of Zanzibar and the farthest coasts of Africa on the south, penetrated Russia on the north and were checked in their advance westward only by the dreaded waters of the "Sea of Darkness" (Atlantic). The reports of the returning merchants naturally aroused popular interest in distant lands and alien peoples. Sulaiman the Merchant, the account of whose journeys into the Far East was written by an anonymous author in 851, gives us the first Arabic description of China and the coast-lands of India. He reports the use of fingerprints as signatures by the Chinese. From this and similar narratives there gradually evolved the stories that have clustered around the name of Sindbad the Sailor. The earliest reliable account of Russia is that of ibn Fadlan, sent in 921 by the Abbasid Caliph al-Muqtadir to the king

of Bulgars, who resided along the Volga. Most of his account is reproduced in Yaqut's monumental geographical dictionary, *Mujamul Buldan*.

Ptolemy's Geography, which had a list of places located by latitude and longitude, was translated into Arabic in many ways. With this as a model al-Khwarizmi had composed *Suratul Ardh* or image of the earth, which served as a basis for later works and stimulated geographical studies. His work was accompanied by an image of the earth; a map executed by him and sixty-nine other scholars at the instigation of alMamun- the first map of the heavens and the world in Islam. Al- Mas'udi consulted this map while writing geographical history.

The great systematic geographers of the Arabs do not make their appearance until the advent of al-Istarkhi, ibn-Hawqal and al Maqdisi in the middle of the fourth Muslim century. Al- Istarkhi (950) produced his *Masalik wal Mamalik* with colored map for each country. At his request ibn-Hawql, who travelled as far as Spain, revised the maps and text of his geography. Ibn-Hawqal later rewrote the whole book. To this same school belongs the more original work of al Maqdisi of Jerusalem. He visited all the Muslim lands except Spain, Sijistan and India. In 985-86 he embodied an account of his twenty years of travel in a work, *Ahsanut Taqsim fi Ma'rifatil Aqalim* or the best of classification of the knowledge of regions, which contains much valuable information. Later, Yaqut introduced *Mujamul Buldan*, in which names of places are alphabetically arranged, is a veritable encyclopedia and contains in addition to the whole fund of geographical knowledge of the age, valuable information on history, ethnography, and natural science. Hence he was the greatest of the Eastern Muslim Geographer.

Archaeology

The 2,000-year-old remains of Ancient Rome in jJy are being excavated and mapped by these archeologists.

Archaeology (sometimes written *archeoiology*) or archeology is the science that studies human cultures through the recovery, documentation, analysis, and interpretation of material culture and environmental data, including architecture, artifacts, biofacts, and landscapes. Archeology aims to understand human kind through this humanistic endeavors.¹ In the United States it is a subset of anthropology, which contains: physical anthropology, archaeology, and linguistic anthropology.²¹ However in some universities in America and many in the United Kingdom and Europe, archeology is considered as a separate discipline entirely.

Methodology, theory and philosophy centralize archaeological (and anthropological) debate. Research, survey, excavation, analysis, and preservation are the tools of archaeological processes. 'Archaeological goals' are debatable. Some goals include the documentation and explanation of the origins and development of human cultures, understanding culture history, chronicling cultural evolution, and studying human behavior and ecology, for both prehistoric and historic societies.

In broad scope, archaeology relies on cross-disciplinary research. It draws upon anthropology, history, art history, classics, ethnology, geography,⁴¹¹ linguistics, physics, information sciences, chemistry, statistics, paleontology, paleozoology, paleoethnobotany, and paleobotany.

Origins and definitions

In parts of Europe and the Old World, the discipline has its roots in antiquarianism and the study of Latin and Ancient Greek, and so has a natural affinity with the field of history. The Italian Renaissance historian Flavio Biondo (1392- 1463), is recognized as one of the world's first archeologist.⁷¹ The first step forward towards archaeology as a science took place during the Age of Enlightenment, also known as the Age of Reason, in Europe in the 17th and 18th centuries.

Archaeology in the Middle East began with the study of the ancient Near East by Muslim historians in the medieval Islamic world who developed interest in learning about pre-Islamic cultures. In particular, they most often concentrated on the archaeology and history of pre-Islamic Arabia, Mesopotamia and ancient Egypt. In Egyptology, the first known attempts at deciphering Egyptian hieroglyphs were made in Islamic Egypt by Dhul-Nun al-Misri and Ibn Wahshiyah in the 9th century, who were able to at least partly understand what was written in the ancient Egyptian hieroglyphs, by relating them to the contemporary Coptic language used by Coptic priest in their time. Abdul Latif al-Baghdadi, a teacher at Cairo's Al-Azhar University in the 13th century, wrote detailed descriptions on ancient Egyptian monuments.⁹¹ Al ii Baghdad and other Muslim historian such as Abu al-Hassan al-Hamadani of Yemen (d. 945) and Al-Idrisi of Egypt (d. 1251) developed elaborate archaeological methods which they employed in their excavations and research of ancient archaeological sites.¹ The 15th-century Egyptian historian Al-Maqrizi also wrote detailed accounts of Egyptian antiquities. Archaeology in ancient China developed from antiquarian pursuits as well, specially from the scholar-official's desire to revive the use of ancient relics in state ritual. This pursuit of

Scientific culture during the Umayyads

As regard scientific culture, the age was no less important. The science of medicine reached the pinnacle of perfection in Arabia under the Umayyads. Khalid bin Yazid acquired vast scholarship in chemistry and medicine and wrote several books on them. He is said to have been the first in Islam to translate Greek science into Arabic. 'Umar II patronized learning and learned and is said to have been the first in Isaim to translate & Greek science into Arabic. Umar II patronized learning and the learned a dtiie-leamed and is said to have transferred the schools of medicine from Alexandria to Antioch. Under him, many Greek works were translated into Arabic. The great-grandson of Mi named Imam Jafar who was well- versed in most of the learning of his time was virtually the founder of the chief philosophical schools in Islam. Hasan al-13asri and Watjl bin Ata, the founder of the Murazilite schools were the distinguished disciples of Imam Ja'far.

Architecture : The Dome of the Rock:

The Umayyad Caliphs were the great patrons of architecture. They paid their attention towards is development. The minaret was introduced by the Umayyad Caliph, Mu'awiyah. According to maqrizi, Mu'wiyah ordered Maslama to build minaret (saumaa) for the call to prayer and the latter constructed it. The maqsurah was established by Mu'awiyah as a result of the attempt of the Kharijites who had struck him with a sword.

Architecture is said to have reached a high watermark during the reigns of Abdul Malik and his son, al-Walid. The Dome of the Rock (Qubbah al-Sakhra) at Jerusalem built by Abdul Malik in 691 A.D. is one of the most beautiful specimens of the early Muslim architecture. It was the earliest Muslim mosque covered with a dome. "The Dome was made of timber, but covered outside with lead and painted inside with plaster. The walls were built with semi-circular stones." The Dome of the Rock Mosque is held sacred by the Muslims because of its association with the "Night Journey" of the Prophet Muhammad (Sm.). It is from this Rock that the Prophet Muhammad (Sm.) is reported to have started accession on the occasion of his Night Journey. "To the Muslims the Dome of the Rock is more than a place of archaeological interest and artistic value-it is a living symbol of their faith."

The materials of the Dome of the Rock were taken from the Christian buildings. In the beginning, materials for mosque were taken from old buildings and even old places of worship, such as, Christian churches, Jewish synagogues, heathen temples.

There were traces of Byzantine style in the Dome of the Rock. In Muslim countries, there were different styles of architecture. In Syria it was influenced by the Christian Syro-Byzantine style, In Mesopotarnia and Persia by the Nestorian and Sasanid style and in Egypt it was influenced by Coptic arts.

The Aqsa Mosque:

Abdul Malik built another mosque, named the Aqsa mosque, near the Dome of the Rock. The Abbasid Caliph, al-Mansur rebuilt the Aqsa Mosque which was destroyed by an earthquake in 769 A.D.

The Umayyad Mosque:

The Mosque of Damascus is the next important building in Syria. Walid bin Abdul Malik,

beginning of the 8th century A.D. In this mosque there is the niche for prayer. The arches of the mosque are of the horse-shoe pattern and the interior decorated with marbles and mosaics. This mosque shows traces of ideas borrowed from Syro-Byzantine architecture. The famous geographer, al-Maqdisi who visited

the mosque in the later part of the tenth century, speaks eloquently of its architectural beauty. In spite if the vicissitudes of time which befell it in 1069, 1400 and 1893, "the Umayyad Mosque has always held its place in Moslem imagination as the fourth wonder of the world. "Walid I rebuilt the Mosque of Madinah, and "erected in Syria a number of schools and places of worship and endowed institutions for the lepers, the lame and the blind. He was first ruler to have introduced the Mihrab and the Minar for call to prayer in the Prophet's mosque.

Though non-Muslim craftsmen and masons were employed in the construction work for the buildings, the architecture remains essentially a Muslim, 'because it was developed according to Muslim religious and social needs, and taste . and general directions.' "The peculiarity of Muslim architecture; so far as the mosque and sacred places are concerned, is in the absence of pictorial representation in them, such as the carving for the statues and images and the substitution of various shapes and domes of different sizes."

Qusayr Amrah:

In the architectural field, the Umayyads left a few monuments of which Qusayr Amrah (the lithe castle of Amrah) was the foremost. The castle was built up by Walid I. It was built of hard reddish limestone from the neighboring hills and was composed of two principal elements, (1) a rectangular audience hall and (2) a bath, consisting of three little rooms. Qusayr Amrah was discovered by Musil in 1898 AD

Estimate of Al-Mamun : Al-Mamun, the most distinguished figure of the Abbasids, Civilization and culture, State Council of Mamun:

Al-Mamun was unquestionably the most distinguished figure of the House of Abbas, nay of the whole Islamic World. He was not only a brave soldier but also a good administrator. He is will to work, his prudence, his clemency and judgment, his sagacity and liberalit3T the chief features of his character. His reign forms the most glorious epoch in the history of Islam. - The twenty years of his reign have left enduring monuments of the intellectual development of the Muslims in all directions of thought." The intellectual advancement was not restrictions to a particular branches but it pervaded the whole culture domain. Mathematics, astronomy, medicine and philosophy made and extraordinary progress during this period. He fully realized the truth that the actual happiness of his people lay in education and culture and he translated his realization into practice by opening schools and colleges in all directions. He made no distinction of creed or race and threw public offices open to all. Liberty of conscience and religion was given to all. He lessened the religious autocracy by establishing a Council of State of advice the Caliph. It was composed of representatives from all the communities under his rule, including Muslims, Jews, Christians and others.

The Mu'tazlites:

Mamun interested himself in question of religious dogma. He had embraced the Mu'tazlite doctrines about free will and predestination and was in particular shocked at the opinion which had spread among the Muslim doctors that the Quran was the uncreated word of God. In the year 212 A.H./827 A.D., he published an edict by which the Mu'tazlite doctrine was declared to be the religion of the state and the orthodox faith was condemned as heretical. At the same time he ordered all his subjects to honour Ali as the best creature of God after the Prophet and forbade the praise of MuawiJn 218 A.H/833 A.D. a new edict appeared by which all judges and doctors were summoned to renounce the error of the uncreated word God. Most of them expressed their agreement with the views of the Caliph, but a few stood firm in there conviction among whom was Abmad bin Hanbal(founder of the Hanbali School), who was ordered to be put into prison. Two of Mamun's successor's maintained the edict and Ahmad bin Banbal was flogged ultimately at their hands.

Science and literature, Assembly of learned men, Works of translation, Observatory established:

Mamun's reign was the most glorious and brilliant of all in the intellectual history of Islam. His reign was the revival of learning both in the East and in the West. At this Court were munificently entertained men of science and letters, poets, physicians and philosophers. Besides being an age of the philologist and a collectors of traditions, such as the great Bukhari and of historian as al-Waqidi". Moreover, the]7the Christians were welcomed at the court not only for their learning but for being well versed both in Arabic and the language and literature of Greece. He completed the works of translation started

U.M. students strictly

by his grandfather Mansur. Under his guidance Sanskrit books, Greek Mathematics and philosophy, science of Euclid and Ptolemy were translated into Arabic. Costa, son of Luke, was appointed for the translation of Greek and Syrian; Yahya bin Harun, of Persian; and Duban the Brahman, of Sanskrit works into Arabic. "It was through the labours of these learned men", says W. Muir, "that the nations of Europe, then shrouded in the darkness of the Middle Ages, became again acquainted with their own proper but forgotten patrimony of Grecian science and philosophy", the Persian language received a great impetus in his hand. An observation was established in the plain of Tadmor for the study of Astronomy and geometry. Astronomical observations made great stride during this reign. Abul Hasan invented the telescope from a tube. Poet Abbas, founder of the modern Persian poetry, and al-Kindi, employed at the famous 'Bayt al-Hikmah established by Mamun in Baghdad, and translator of Greek works, flourished during this period.

Philosophical re-union:

Mamun was so interested in philosophical discussions that he sat apart Tuesday fully for the same purpose. The servants and scholars used to attend his chamber regularly and the Caliph satisfied them with his philosophical conversation. Thus taking all these points into consideration, the historians are of opinion that the reign of Mamun constitutes the most glorious epoch of Saracenic history and has been called the 'Augustan Age of Islam.'

Intellectual awakening of the Muslims:

With the expansion of Islamic territories, the Muslims were brought to the cultural heritage of the foreign countries. It was the influence of the Persio-Hellenic culture that helped the Muslims to play an important role in the intellectual firmament of the world. In this connection P.K. Hitti says, "the awakening was due in large measure to foreign influence, partly Indo-Persian and Syrian, but mainly Hellenic and was marked by translation into Arabic from Persian, Sanskrit, Syriac and Greek".

Era of translation: Age of translation followed by original contributions:

The Muslims had translated every branch of knowledge either from Greek or from Sanskrit or from Pahlavi (Middle Persian) before they had assimilated it, before the establishment of the famous Bayt al Hikmah as became the main centre of translation work as most of the translators were Aramaic speaking, many of the works during this period were translated into Aramaic (Syriac). But it was not continued for a long time. The Greek work soon began to be translated into Arabic. Harun ar-Rashid appointed learned translators of all nationalities and creeds-Hindus, Parsis, Christians, Jews and Muslims. Books and extant materials were collected by Mamun from all countries. He is said to have asked the Byzantine Emperor to send the savant Leo to Baghdad in exchange for five tons of Gold. The Muslims became acquainted with the philosophical lore and the medical literature of Greece and the scientific works of Persia and India. They translated many foreign works into Arabic and thereby preserved the culture of the ancient world. "The researches of Aristotle, Galen and Ptolemy would have been lost to the world, if the

Muslims had not kept them preserved by translation". The age of translation was soon succeeded by a period of original thinking and research. The Muslims sent their translation together with their own contributions to Europe. Modern Europe owes much to them in Chemistry, medicine and mathematics.

Architecture:

With the fall of the Umayyad dynasty, the seat of the Caliphate was transferred from Damascus to Baghdad and the Persian. Influence began to have a marked effect on the manners and habits of the Muslim World. The Arabs lost their pre-eminence not only in the Army and at court, but also in the society. Their cultural life was also affected. The Hellenistic influences of Syria were replaced by the influences of Sasanian Persia and Iraq which profoundly modified the art and architecture.

Variation of Design:

The Abbasid Caliphs, like the Umayyad patronized art and architecture. During the reign of more than five hundred years many buildings and places were built in different parts of the Empire. The second Abbasid Caliph, al-Mansur, founded the city of Baghdad in the year, 762 A.D. The city was noted for a good number of places, mosque and other building built by successive Caliphs and other reigning princes of Iran. It was round-shape city enclosed by a double wall of four gates, namely the Kufa Gate (S.W) the Basrah gate (S.E), the Khurasan Gate (N.E) and the Damascus Gate (N.W.). The Caliph shifted his residence to Baghdad when it was made the capital of the Abbasid empire. The main features of the newly founded city were the palaces of the Caliph, called the Golden Gates, crowned by a great dome of green colour. The palace was a square of 400 cubits and side and lay in the middle of the city. A second place was called the Khuld, was constructed after a few years and this became a favourite residence of Harun ar Rashid. Al—Mansur built the royal mosque. It was built of sun fired bricks and clay. Harun-ar-Rashid rebuilt it and Mutazid enlarged it. The mosque of Cordova (787 A.D.) The great mosque of 'Amr in Egypt (827 A.D.) The mosque of Cairowan. (836 A.D.), the great mosque of Susa (850A.D.) The great mosque of Samara and mosque of Tums speak much of the architectural taste of the Abbasids.

None of the architectural monuments left to day:

Azad-ud-Dawlah, the greatest Buwayhid Ameer, built a fine hospital on the bank of the Tigris. It was more a palace than a hospital. A new palace called the Taj was constructed by the Caliph Mutazid. It was completed by his successors. There were many other magnificent palaces and buildings and many wealthy people, princes and even Emperors of Iran had their own palaces in Baghdad. But unfortunately no trace of the architectural monument which once adorned the city of Baghdad, is left to the present day. In this connection Prof. Hitti says, "The Caliphal palace called the Golden Gate or Green Dome created by the founder of Baghdad, as well as his palace of Eternity (al-Khuld) and the Rusafah palace, built for the crown prince alMahdi, the palace of the Plediades on Samara, spent 40,00,000 dinars. his adjoining palace styled the Crown (al-Taj), completed by his son al-Muqtadir, designated the Hall of Tree on account of the gold

and silver tree that stood in its pond; the Buwayhid Mansion known by the name al-Muizziyah after Muizz ud-Dawlah which cost 10,00,000 dinars all these and others like them left no remains to give us an inkling of the splendour that was theirs, "The destruction was brought about by the civil war between Amin and Mamun, by the invasion of Halagu and by other natural causes.

Scientific and literary activities during the Abbasid period:

The Abbasid Caliphs were great patrons of learning and the learned. They nourished and nurtured a galaxy of brilliant scientist and scholars who made their most valuable contributions to the culture of the world. the following subjects will speak of their contributions to different branches of science.

Science and Medicine:

The Umayyad Caliphs encouraged the study of medicine but real progress in Arabian medicine began with the coming of the Abbasids. The early Abbasids Caliphs established hospitals called "bimaristan". The first was opened by Harun arRashid in Baghdad. In course of time "thirty four hospitals were established in various parts of the Muslim world", other branches of medicine, such as surgery, pharmacy, ophthalmology, etc. were greatly developed during the Abbasid period. The notable medical authors of this period were Persian in nationality but Arab in language. Au al-Tabari, al-Razi, Ali ibn Abbas and Ibn Sina occupy unique places in the history of the world.

Al- Razi, great physician of the Islamic world:

The next outstanding figure in the medical field was Abu Bakr Muhammad ibn- Zakaria al-Razi (European called Rhazes) who was born at Rayy near Tehran. AlRazi was unquestionably the greatest physician during the Middle Ages and one of the greatest physicians of all time. He was a student of Hunayn ibn Ishaq who was well acquainted with Greek, Persian and Indian medicine. Early in life, he learnt music and could play well on the lute. in his youth he practiced as an alchemist but in his later years when his reputation attracted pupils and patients from all parts of western Asia, he devoted himself exclusively to medicine. He wrote as many works as two hundred, half of which are on medicine. One of the most celebrated works of al- Razi is his treatise, 'on Smallpox Measles' (al-Judari al-Hadhab) which was early translated into Latin and later into various languages including English. It was printed not less than forty times between 1498 and 1866. This treatise was considered an ornament to the medical literature of the Arabs. It served to establish al-Razi's reputation as one of the keenest original thinkers and greatest clinicians not only of Islam but of the Middle Ages. But greatest of his medical works is al-Hawi (the Comprehensive Book) which was written in twenty volumes. For each disease, he first cites all the Greek, Syrian, Arabic, Persian and Indian authors and at the end he gives his own opinion and experiences. This work was translated into Latin under the auspices of Charles I of Anjou by the Sicilian Jewish physician Faraj Ibn Salim in 1279 A.D. under the title of Contineus. It was printed several times from 1484 onwards. Its influence of European medicine was very considerable.

Al-Razi, was also mathematician:

Al-Razi was the chief physician at Bagdad hospital. He is also considered the inventor of the section in surgery. Besides medicine, al-Razi left writings on theology, mathematics, natural science and astronomy. The last but one deals with matter, space, time, motion, nutrition, growth, putrefaction, meteorology, optics and alchemy. One of the principal works on alchemy was the *kitab al-Asrar* (The Book of Secrets) which was translated into Latin by the distinguished translator, Gerard of Cremona. Al Razi had a prominent contemporary known to the west as Isaac Judaeus who became the Fatimid Caliph of Qalrawan in Tunisia.

All ibn al-Abbas:

'Ali ibn Abbas (Haiy Abbas) was a Persian Muslim of Zoroastrian descent. He wrote an encyclopedia named "the whole medical Art", known to the Latin's as *Liber Regius* (*Al-kitab al-Malik*.) The book deals with both the theory and practice of medicine. It begins with a criticism of previous Greek and Arabic medical treatises. This book was dedicated to the reigning Buwayhid ruler, Azad-up-Dawlah. It was twice translated into Latin but at last superseded by the *Qanun* of Ibn Sina.

Ibn Sina's reputation as a physician, Ibn Sina's Canon of Medicine was a Medical Bible:

Abu Ali Husayn ibn Sina, more commonly known to the West as Avicenna, was the greatest intellectual giant of his age whose immortal works on Medicine and Philosophy have always remained a never-failing source of guidance and inspiration not to the students of those subjects only, but to the wider reading public as well. He achieved his greatest fame in the West as a renowned physician. While still in his teens, the young medical student earned such a higher reputation that he was summoned to treat the Samanid sultan of Bukhara, Nuh-ibn-Mansur. The latter being pleased with his treatment, he was given charge of the royal library. The young scholar rapidly absorbed the immense contents of the royal library and embarked upon a career of writing the age of twenty-one. He wrote a good number of books on medicine, philology, philosophy, theology, geometry, astronomy and arts. Nearly all his works are written in Arabic except a few verses. He has composed one or two treatises in Persian. His famous work on medicine known as *Canon of Medicine* was the most influential medical compendium to reach Europe from the Arab World. The canon was a mammoth undertaking, a careful classification and systematization of all the medical knowledge known to the Arabs in the eleventh century. This medical encyclopedia deals with general medicine, diseases affecting all parts of the body, special pathology and pharmacopoeia. As regards the importance of Ibn Sina's *Canon*, Prof Hitti says, "The Arabic text of the *Canon* was published in Rome in 1593 and was therefore, one of the earliest books to see print. Translated into Latin by the Gerard of Cremona in the 12th century, this *Canon*, with its encyclopedic contents, its systematic arrangement and philosophic plan, soon worked its way into a position of preeminence in the medical literature of the age displacing the works of Galen, al Razi and al-Majusi and becoming the text book of the medical education in the schools of Europe. In the last thirty years of the century, it passed through fifteen Latin editions and one Hebrew. In recent

years, a partial translation into English was made. The book distinguishes mediastinitis from pleurisy and recognizes the contagious nature and the spreading of diseases by water and soil. It gives a materia medica considers some seven hundred and sixty drugs. From the 12th to the 17th centuries, this work served as the chief guide to medical science in the west and it is still in occasional use in the Muslim East. In the words of Dr. Osler, "it has remained a medical Bible for a longer period than any other work."

Advancement of medical science:

High tribute has been paid to Ibn Sina by the Italian poet, Dante who placed him in the illustrious company of Hippocrates, Galen and Sacilger. As a psychologist, Ibn Sina foreshadowed twentieth century theory on brain localization. He taught that the external senses-sight, hearing, tongue, taste and smell were centred in the brain. The Arabs emphasized upon the brain and not the heart, as the seat of reason and sense, represented an immense step forward in medical science. With Ibn Sina, Islamic medicine reached its zenith in the East.

Astronomy, Observatory erected by Mamun, Astrolabe:

The next contribution of the Arabs was in astronomy and this astronomical study was begun under the influence of an Indian work, called Siddhanta. This work was translated by Muhammad ibn Ibrahim al-Fazari at the order of Mamun. During the first half of the 9th century, the first regular observations were made at Jundhi Shapur (S.W.Persia) Mamun erected at Baghdad an astronomical observatory under the direction of a converted Jew. Sind ibn 'Ali, al-Abbas Fer-Ghani, three sons of Musa ibn Shakir's Sons made special study of astronomy. They "ascertained the size of the earth, the obliquity of the ecliptic, the variations in the lunar latitudes, the precession of equinoxes, etc. "Among the astronomer-mathematicians was the famous al-Khwarizmi whose Kitab Surat al-Ard' was written in explanation of maps in the first of the ninth century. Ibrahim al-Fazari constructed astrolabe.

Mathematics:

They made original contribution in the realm of mathematics. The science of Algebra, invention of decimal Arithmetic, discovery of plane and spherical geometry, the Arabic numerals and the use of zero are some of their inventions and discoveries.

A1-Khwarzimi was a great mathematician:

There were good number of mathematicians among the Muslims who shone like radiant stars in the horizon of intellectual firmament of Islam during the Middle Ages. Of the mathematicians, Muhammad ibn Musa khwarizmi occupies an outstanding place in the history of great thinkers, who had enriched the diverse branches of knowledge during the era of early Islam. Being one of the greatest scientist of all time and the greatest of his age, Khwarizmi has made lasting contribution to the domain of mathematics, astronomy and geography. As a mathematician, he has left in effaceable marks on the pages of mathematical history of the world. He was undoubtedly one of the greatest and most original mathematicians the world has ever produced. About his celebrated works on algebra in Latin by Gerard of Cremona, the work of al-Khwarizmi was used until the 16

century as the principal mathematical text-book of European Universities and served to introduce into Europe the science of algebra. Al Khwarizmi's mathematical works were the principal source of knowledge on the subject to world for a considerable time, George Sarton pays him a high tribute when he considers him as "one of the greatest scientist of his race and the greatest of his time." He systemized the Greek and Hindu mathematical knowledge. The oldest Arithmetic composed in Arabic was known as Kitab al-Jama al-Tariq which is not available now. Al4hwarizmi was the first exponent of the use of numerals, including zero, in preference to letters. It Ws through him that Europe learnt the use of zero or cipher, His work on the Indian method of calculations was translated Into Latin by Adelard of Birth in the 12th century. Al Khwarizmi has the distinction of being one of the founders of algebra and developed this branch of science to an exceptionally high degree. His greatest book, Hisab al-Jabr al-Muqabalah contains calculation of integration and equations presented through over 800 examples. He also introduced negative sign which were unknown to the Arabs. The translation of Khwarizmi's algebra by Chester marks an epochl of the. introduction and advancement of this branch of science into Europe. "The importance of Rebert's Latin translation of Khwarizmi's algebra, "says a modern Orientalist" can hardly exaggerate, because it marked the beginning of European algebra".

Al Mahani and others

(850A.D) was the first writer on trigonometry, Ytikub ibn Ishaq alKindi (874 A.D.) was the distinguished scholar of mathematics, astronomy and natural philosophy. He is said to have written more than two hundred books on astronomy, optics, Euclid and meteorology. Muhammad bin Isa al Mahani (884A.D.) is credited with the invention of modem algebra. He wrote on trigonometry, astronomy, solid geometry and cubic equations. He demonstrated methods of using algebra to solve a whole field of intermediate science problems. He made observations on the solar and lunar eclipse and planetary conjunctions.

Al-Beruni:

Abu Rajhan Muhammad al- Beruni (973-1049 A.D) was one of the greatest scientist of all times. He was the most original and profound thinker that Islam has ever produced in the domain of the physical and mathematical sciences. He was not only a scientist but also a historian, philosopher, naturalist, geologist, astronomer and mathematician. He had a keen geographical sense and his conclusion in that connection deserves high merit. He has written on various subjects after close investigation. Of his 15ks (1) Chronology of ancient nations, (2) History of India (Kitab al-Hind), (3) An Astronomical Encyclopedia entitled, 'Masudi Canon' and (4) A Summary of Mathematics. Astronomy and Astrology. Born in one of the suburbs of Khwarizm (Khiva), he was captured by Sultan Mahmud of Ghazni on the fall of Khiva. His Kitab al-Hind may be regarded as one of the most significant productions in the field of regional geography. He wrote his monument work, Qanun al Masudi under the patronage of Sultan Masud. On the Mathematical and astronomical roundity of the, earth ,the determination of its movement and gives the latitudes and longitudes of numerous places.

Umar al Khayyam, Nasiruddin Tusi:

Among the later mathematicians who were influenced by al Khwarizmi was Umar ibn Ibrahim al-Khayyam (1123 A.D.) the greatest mathematician in the 11th century. He was not only a distinguished mathematician and astronomer but also a famous poet. He had written several treatises on arithmetic, algebra and astronomy. His solution of the eulogy and quadratic equations with the help of conic section is the most advanced work of Arabic mathematics. Abul Waheed Ibn Rushd (1198 A.D.), the greatest Arab Philosopher of Spain, wrote on eternity of universe, planets and eclipses. He is said to have worked on spherical trigonometry and on the theory of aeronautics also Muhammad Nasiruddin Tusi (1247. A.D.) an all round scholar with a synthetic brain, was another famous astronomer and mathematician. He worked on arithmetic, geometry, plane and spherical trigonometry and on astronomy. He gave proof of Pythagoras theorem, made observation at Maraghah in which he set up huge rings for elliptical solstical, armillary purposes. He edited most of the mathematical works of antiquity to the number of sixteen which practically constituted the whole scientific knowledge of the period.

Chemistry, Modern chemistry is the invention of the Muslims:

After *materia medica*, astronomy and mathematics, the Muslims made their greatest scientific contribution in Chemistry. Chemistry grew out of alchemy which the Islamic scientist did much to improve and advance. Their greatest contribution to world's store of knowledge was the accumulation of scientific facts and the advancement of scientific theories and methodology. "Modern Chemistry," says Mr. Humboldt, "was admittedly the inventions of Muslim, whose achievements in this sphere were of unique interest." They conclusively proved the worthlessness of ancient chemistry. They out the chemical affinities of mercury, copper, silver and gold and knew the chemical process of oxidation and calculation. The Muslims were the first to teach the world distillation, filtration and crystallization. They knew how to change a liquid into vapour. It was in Muslim Spain that chemistry was first established and had the Muslims not been defeated at Poitiers, it would have reached its zenith there.

Jabir ibn Hayyan is the father of chemistry:

Jabir ibn Hayyan, known as Geber in the western world, is the father of modern chemistry. His name is the greatest in the field of medieval chemical science. He clearly recognized and stated the importance of experimentation than any other early alchemist and made a noteworthy advance in theory and practice of chemistry. He wrote some five hundred treatises on chemistry. His works after the 14th century scientifically the two principal operations of chemistry, calculation and reduction. Jabir improved on the methods for evaporation, sublimation, melting and crystallization. He discovered for the first time nitric acid, sulphuric acid, aqua regia, silver nitrate and several other compounds and new how to produce aqua regia in which gold and silver could be dissolved. He was the prophet and forerunner of positive and dynamic science, from his studies, he was able to predict the vast part which gases would be found to play to the make-up and composition of elements and more complex substances. He brought

system and order to chemical science and made it almost a sacred art. He was followed by others whose originality and industry, profoundness of knowledge and keenness of observation evoke astonishment of the readers.

Al-Razi & Ibn Sina:

Other important chemist of that era were al-Razi (Rhazes) who re-discovered sulphuric acid and aqua-vitae and Ibn Sina (Avicenna) a renowned doctor, who helped to systematize medical chemistry. Later on, al-Razi became celebrated all over Europe and was considered the foremost authority and master of chemical science by all men of learning.

In spite of overwhelming evidence to the contrary, European historians have deliberately exaggerated the so-called inferiority of Arabian science. Ignorance and superstition reigned supreme in Europe while the Arab peoples were attaining a literary and scientific renaissance. When the Arabs were making epoch-making discoveries in their world, the Europeans were placing a premium upon every conceivable kind of social and political evil. A case in point is the field of chemistry which was considered one of the most significant realms of science of the Arabs. They called it "the science of key". As the science of chemistry advanced, the other sciences progressed apace.

The Muslims savants not only kept themselves confined to the advancement of science but also they made great contributions in on other braches of knowledge.

Philosophy:

The Muslims cultivated philosophy with as much zeal as the exact sciences. Al-Ghazali, al-Kindi al-Farabi was called by the Arabs a second Aristotle. He wrote various psychological political and metaphysical, works. Ibn Sina was a philosopher, physician, philologist and poet. He systematized the philosophies of his predecessors, both Muslims and Greeks. He was the forerunner of compendium writers for the whole world" with him ended the great age Arab philosophy.

Geography:

The Arab Muslims invented the "mariners' compass" and voyaged to all parts of the world in search of knowledge or in pursuit of commerce. They even penetrated as far as America". Voyage and pilgrimage gave them inspiration to the study of geography, Ibn Khurdebeh Jaihani, a!-Masudi AlIstaqri, Ibn-Hawkal, Yakut, al-Bakri, al-Muqaddsi and Idrisi are the most famous of Arabs geographers.

Literature, Jurisprudence:

The eminent scholars who shed lustre on Arabic and Persian literatures are Ispaham, ibn Khalikan, Abu Nuwas, Al- Buhtari, Mutrannabi, Dakiki, Firdausi, Unsauri Jalaluddin, and Abul Firaj Muhammad Bin Isaq. It was as this period that the Muslims "after the Roman cultivated the science of jurisprudence and evolved there from an independent system". Their system, fiqh, was first based on the Quran and the Hadith. But when it could not solved the complicated problems, private interpretation became essential. The permission of private interpretation culminated in the establishment of four orthodox schools headed

by abu Hanifa, Malek, Shaefi and Humbal. Thus" the host of literatures and savants who flourished during the period directed their minds to every branch of human study" and revolutionized thinking, feeling and action of man by the might of their pen.

Pollution of Scriptures:

The most fatal error the ecclesiastics committed was that they incorporated with the holy Scriptures all the prevailing notions of geography and physics. Those notions were by no means the limits of human knowledge which is essentially progressive. Perhaps the ecclesiastics had done so in good faith—to raise the merit of the Scriptures is popular estimation, but it's consequences were most certainly calamitous. It started a violent conflict between Christianity and science in which Christianity that had already suffered in its purity through dogmatic corruptions was overcome and the prestige of the ecclesiastics was undermined for ever. Christianity in Europe fell into disfavour, never to rise again in public estimation, Worst of all, Europe turned atheist.

The Church, having set itself forth as the sole depository and arbiter of knowledge, was ever ready to resort to civil power to compel obedience to its decisions. It evolved, under the name of Christian Topography, a complete system of geography which had no divine sanction, and those who refused to accept it were declared heretics.

Struggle between Religion and Science and Tyranny of the Church:

Meanwhile, owing to the Islamic and Muslim scientific influences the volcano of knowledge had burst in Europe. Its thinkers and scientist had broken the chains of intellectual slavery. They boldly refuted the ecclesiastic theories, which were based on preposterous evidential proclaimed the results of their own investigations. The Papal authority reacted ruthlessly. It established the Inquisition "to discover, and bring to book, the heretics lurking in towns, houses, cellars, caves and fields." This institution performed its duty with such savage alacrity that a Christian theologian exclaimed that it was hardly possible for a man to be a Christian, and die in his bed. It is estimated that between 1481 and 1801 the Inquisition punished three hundred and forty thousand persons, nearly thirty two thousand of whom were burnt alive, including the great scientist, Bruno, whose only crime was that he taught the plurality of the worlds. Bruno was delivered to the secular authorities to be punished "as mercifully as possible, and without the shedding of blood", which, in fact, was the horrible formula for burning a prisoner at stake. Galileo, another scientist of no less worth, was remorselessly punish till he died in prison for having held, contrary to the "Scriptures", that the earth moved round the sun!

The Revolt:

At last, the patience of the genius of Europe was exhausted and it openly rose in revolt against the representatives of Christianity and its traditions. Provoked by the intellectual stagnation of the clergy, and the heinous atrocities perpetrated by the Inquisition, the enlightened sections among the Europeans developed a strong aversion to all knowledge, morality and truth associated with the Church and religion in general. They could not help thinking of thing religious without recalling to memory all the frightful misdeed of Papacy and the brutal sufferings of the secular under Christianity, the peoples of Europe began to exhibit a definite intolerance of every kind of spiritual control. Thus what had originally started as

a tussle between Christianity and secular knowledge, flared up into an all-out contest between Religion and Progress. It was concluded arbitrarily by the intelligentsia of Europe that Religion and Science were altogether incompatible with each other and consequently, for the advancement of Science it was necessary to discourage Religion. It was no doubt a mistaken notion to pitch Science against Religion in general instead of against Christianity alone, but there were attenuating circumstances for this mistake.

Materialism in Spiritualism:

Materialism has so ceaselessly absorbed the attention and the will of the Western people that even their spiritual activities are getting tinged with it. The modern movement for investigating the spiritualistic phenomena and holding communication with the dead is wholly materialistic in its conception. It is being worked out as a material science and an industrial enterprise. Unlike Islamic spiritualism or Eastern mysticism, it has nothing to do with spiritual uplift—with things like self-purification, piety and preparation for After-life.

All the endeavours in the West, thus are guided solely by considerations of power, pride and glory. The idea of divine approbation has no place in their calculations, while it is the very basis of a Muslim's thought and action. A civilization of the Western type can only be deadly poison for human values held dear by a Muslim. A thing to be proud of in the West is something to be shunned by a follower of Islam. Says the book of Islam:

"Say : 'Shall we tell you of those who lost most in respect of their deeds— those whose efforts have been wasted in this life, while they thought their works to be an achievement? They are those who deny the Signs of their Lord and the fact of their having to meet Him (in the Hereafter). Vain will be their works, nor shall We, on the Day of Judgment, give them any weight."

(Al-Quran, XVIII: 103-5)

"And we shall turn to whatever deeds they did (in this life), and we shall make such deeds as floating dust scattered about."

(Al-Qurán, XXV : 23)

Once the Prophet was asked as to who among the following three persons would be considered a fighter in God's way?-a man who fought under the impulsion of his valour, or the one who fought in defense of his honour, or the other who fought for fame. The prophet replied that a war in God's way is the one which is waged to make God's Word dominant. Those who were conscious of the real import of this pronouncement took great pains to conceal their virtuous and kindly deeds from public knowledge and even then they were haunted by a constant fear of hypocrisy. It was a favourite prayer of Hazrat 'Umar : "O God, make all my acts pure; let them be for Thy sake alone, and allow not anyone beside Thee to have a share in them."

Scientific Progress:

There has taken place a stupendous scientific and technological progress in modern times. We propose in these pages to examine this progress from a different point of view—from the point of view of man—and see how far the environment which science and technology have succeeded in creating for him is suited to his genius.

The Islamic View:

We believe that the real purpose of science is to remove hindrances in the way of true development of man's personality by harnessing the forces latent in nature in such a way as to broaden life and make it rich in all its aspects.

One who has faith in God and fears Him can never be a supporter of Wrong.
In words of Moses:

"O my Lord, for that Thou hast bestowed Thy Grace on me, never shall I be a help to those who sin."

(Al-Quran, XXVII: 17)

In short, true Faith alone teaches man not to be vainglorious or wasteful by impressing upon him the fact that he is only the trustee and not the owner of the treasures that are lying scattered everywhere in the universe, the Creator and Lord Sovereign of them all being God alone, to whom he is responsible for the way he exploits and makes use of them.

The Quran has mentioned a number of instances to emphasize the difference of attitudes adopted by godly and ungodly people in respect of worldly wealth. On the one hand, we have the Prophet Joseph bursting into these lofty words of gratitude at the zenith of his worldly glory:

"O my Lord, Thou hast indeed bestowed on me some power, and taught me something of the interpretation of dreams and events. O Thou Creator of the heavens and earth, Thou art my Protector in this world and in the Hereafter. Take Thou my soul (at death) as one submitting to Thy Will (as a Muslim), and unite me with the righteous."

(Al-Quran, XII: 101)

And when Solomon beheld his own resplendent majesty, the following thanks giving sprang spontaneously to his pious lips:

"O my Lord, So order me that I may be grateful for Thy favours, which Thou hast bestowed on me and on my father, and that I may work the righteousness that will please Thee; and admit me, by the Grace, to the ranks of Thy righteous servants."

(Al-Quran, XXVII: 19)

On the other hand, those who were devoid of Faith were so over mastered by their own power and wealth that they insolently refuse to acknowledge anyone as superior to or more powerful than themselves.

"Now the 'Ad behaved arrogantly through the land against (all) truth and reason, and said: 'Who is Superior to them in strength? But they continued to reject Our Signs!"

(Al-Quran, XLI: 15)

One of such men was Karun (supposed to be the same as Korah), who was one of the richest men of ancient times. When his people said to him,

"Exult not, for God Loveth not those who exult (in riches). But seek, with the (wealth) which God has bestowed on thee, the Home of the Hereafter, not forgetting thy portion in this world; but do thou good, as God has been good to thee, and seek not (occasions for) mischief in the land; for God loveth not those who do mischief."

(Al-Quran, XXVIII: 76-77)

He arrogantly replied that his riches were the fruits of his own labour and intelligence and he was not indebted for them to any one.

The consciousness of one's own powers and the haughty disavowal of the Eternal, Supernatural Agency as having authority over man and nature alike, breed a madness which no canons of morality and no considerations humanitarianism can control or cure. It is really and truly essential to the growth of peace and happiness, that knowledge, power and wealth should be rigidly kept under the ceaseless control of religion.

In pre-historic times man did all his traveling on foot. Then he learnt to make use of the beasts of burden; late on he invented the cart. But man has a restless soul. He is never satisfied with his situation and is always striving to make himself more and more comfortable. As his needs multiplied, his standards of comfort and speed also changed. Better and quicker modes of transport were devised till now the steamship has replaced the sailing vessel on the sea and marvels of speed and efficiency have been invented for travel by land and air. If these inventions are used as a means to good life, they are a blessing of God. The Quran has described as 'a bounty from our Lord' the advantage man enjoys over other creatures the matter of travel:

"We have honored to sons of Adam; We have provided them with transport on land and sea; and we give them for sustenance things good and pure; and we have conferred on them special favours, above a great part of our creation (Al-Quran, XVII: 70)

"And He is the one who has created pairs in all things, and has made for you ships and cattle on which ye ride, in order that ye may sit firm on their backs, and when so seated, ye may celebrate the (Kind) Favour of your Lord, and say, "Glory to Him Who has subjected these to our (use), for we could never have accomplished this (by ourselves), and to our Lord, surely, must we turn back (Al-Quran, XLIII: 12-4)

"And to Solomon (We made) the wind (obedient); its early morning (stride) was a month's (journey) and its evening (stride) was a month's (journey)." (Al-Quran, XXXIV: 12)

"Then We subjected the Wind to his power, to flow gently to his order, withers ever he willed. (Al-Quran, XXXVIII: 36)

But there is a profound difference between the approach of a Believer and that of a Non-believer to these gifts. When a Believer avails himself of them, he does it with a strong feeling of humility, because he has known in his heart of hearts that it is only the Mercy of God that has enslaved the free, high-spirited animals and the inert steel and wood to his will; otherwise, he himself was helpless.

The Believer also knows that there will come a day when he will be called upon to answer for the uses to which he put his powers and opportunities.

"And to our Lord, surely, must we turn back."

(Al-Quran, XLII: 14)

The words of Solomon are:

"This is by the Grace of my Lord to test me whether I am grateful; and if any is grateful, truly his gratitude is (again) for his own soul; but if any is ungrateful, truly my Lord is Free of all needs, Supreme in Honour."

(Al-Quran, XXVII: 40)

A Believer makes the most appropriate use of his instruments and the power of nature. He uses them in the path of Faith, Righteousness and Truth which is the true purpose of their creation:

"And we send down Iron in which is (material for) mighty war, as well as many benefits for mankind that God may also test who it is that will help Him, and His Apostles, unseen, for God is Strong, Mighty."

(Al-Quran, LVII: 25)