

ISLAMIC CIVILIZATION

ITS FOUNDATIONS AND CONTRIBUTION TO HUMANITY

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An Outline

- I. Introduction
- II. Conceptual foundations: beliefs about:
 - ❖ 1. Allah [God]
 - ❖ 2. Human nature
 - ❖ 3. The world & human trusteeship on earth
- III. Qur'anic motivation to explore
- IV. Some examples of contribution
 - ❖ 1. An historical perspective
 - ❖ 2. Specific examples of contribution
- V. Conclusions

I. Introduction

- Islam & the European Renaissance
- New spirit of research, experimentation, observation & measurement
- New spirit sparked by Islamic worldview
 - ❖ Allah
 - ❖ The human
 - ❖ The world

II. Conceptual Foundations

1. Faith in Allah

- *Tawheed* > Monotheism
 - ❖ Creation, Worship, Entity & Attributes
- Implications
 - ❖ Unity of the core divine message
 - ❖ Unity of the human race
 - ❖ Unity of all aspects of human life
 - ❖ Unity of present & future lives

II. Conceptual Foundations

2. Human Nature

- Human nature
 - ❖ Physical
 - ❖ Intellectual
 - ❖ Spiritual
- Purpose of creation
 - ❖ Broader concept of “worship”
 - ❖ No compartmentalization of life

II. Conceptual Foundations

3. The World

- Resources & trusteeship
- Conditions of trust
 - ❖ Legitimate acquisition & use
 - ❖ Respecting the rights of others
 - ❖ Pay what is due on property [*Zakah*]
- Work = a form of worship
 - ❖ Infinite time scale

III. Qur'anic Motivation to Explore

- Agricultural resources [13:4, 6:141]
- Water resources [39:21, 45:12]
- Fisheries & seafaring [16:14]
- Animal resources [16:5-9]
- Laws in nature [3:190-191]
- Role of learning [96:1, 58:11, 35:28]
- Experimental method [16:69, 57:25, 53:28]

IV. Examples of Contributions An Historical Perspective

- Contribution began in the late 7th Century
- Golden Age
 - ❖ 750-1258 Abbasid era
 - ❖ 755-1492 Muslim Spain
- Schools, libraries, endowments, bursaries, research centers
- Contrast with Europe
- Insufficient credit acknowledged

Specific Examples of Contributions

1. ASTRONOMY

- Catalogue maps of visible stars
- Correcting sun & moon table
- 1st to use pendulum/build observatories
- Invention of the sun dial [11th Cent.]
- Predicted sun spots, eclipses, comets
- Names incl..Ibn Yunus, Abul-Wafa, Al-Batani, Al-Bayrouni, Ulug Beg, Ibn Rushd

Specific Examples of Contributions

2. CHEMISTRY

- Discovery of Nitric Acid & description of distillation, sublimation, filtration, coagulation & crystallization [Jabir: 8th Century]
- Description of the properties of Sulphuric Acid [Abu-Musa Al-Kufi 8th Century]
- Distillation of water, plasters, ointments, tempering of steel
- Arabic origin of terms such as Camphor, Alcohol, Elixir, Al-Kali and Syrup

Specific Examples of Contributions

3. MATHEMATICS

- Popularization of the Arabic Numerals
- Algebra [from al-Jabr; uniting broken parts]
- Algorithm [from Al-Khawarizmi, 9th Cent.]
- Non-Euclidean geometry [13th Cent.]
- Dev. of trigonometry & first to use “sine” and “co-sine”
- Spherical trigonometry & trig. of tangents

Specific Examples of Contributions

4. PHYSICS

- Optics [Ibn Al-Haytham, 11th Cent.]
- Invention of the Compass
- Investigation of Hydrostatics [9th Cent.]
- Improving the use of the water wheel
- Tables of specific gravities of liquids and solids.

Specific Examples of Contributions

5. GEOGRAPHY

- Columbus's debt to Ibn- Rushd [12th Cent.]
- Caliph Al-Ma'moon estimates the earth's circumference to be 24000 miles
- Al-Idrisi's description of earth as spherical
- Al-Masoodi's encyclopedic work [10th C]
- Al-Yaqoobi's Mu'jam Al-Bildan [12th C]
- Al-Marakishi's Math'l Geography [13th C]

Specific Examples of Contributions

6. AGRICULTURE

- Al-Awwam's description of 585 plants & cultivation of several fruits [12th Cent.]
- Improving irrigation
- Use of organic fertilizers
- Improving breeds of cattle
- Introduction of peaches, apricots, cotton, rice, bananas and sugar to the West

Specific Examples of Contributions

7. INDUSTRY

- Advances in fabric manufacturing
 - Silk, cotton, wool
- Leather industry
- Manufacturing of glass and steel, drugs perfumes and paper [798 in Baghdad]
- Term “ream” : from Arabic “Rezma” which means a bundle

Specific Examples of Contributions

8. COMMERCE

- 850 Saracen ships docked @ Canton, China
- System of cheques [Arabic Sakk]
- Some form of “letters of credit”
- Saracen coins found in Scandinavia
- Anglo-Saxon coin with the Shahadah [Muslim testimony of faith] on one side

Specific Examples of Contributions

9. HISTORY

- Al-Tababari's universal chronicle [9th Cen.]
- Al-Masoodi's "Muruj al-Dhahab" or Golden Pastures and lost 20 volume History
- Ibn Al-Atheer's chronicle [13th Cen.]
- Most focused on collection & presentation of information, some used critical judgment adopted later in the West

Specific Examples of Contributions

10. ART & ARCHITECTURE

- Unity in diversity; accommodating cultures
- A lot destroyed by Mongols and during the Crusades and inquisition
- Reminders in Al-Hambra & Cordova
- Cathedral door with "Masha'Allah" on it
- A 9th Century Irish cross decorated in the middle with "Bismillah"

Specific Examples of Contributions

11. Political Science/Sociology

➤ Political science

- ❖ Al-Farabi's Model City [10th Cent.]
- ❖ Al-Mawardi's [The Rules of Power]

➤ Sociology

- Ibn Khaldoon: Greatest sociologist
- ❖ First comprehensive writing on the philosophy of history [14th Cent.]

IV. Examples of Contributions-Medicine

A. 9th century: Al-Razi of Baghdad

- Of the greatest physicians in his time
- His **AL-Hawi**: an immense medical encyclopaedia
- Main medical reference for six centuries
- Contributions to gynaecology, obstetrics, ophthalmic surgery ..etc
- Some works [measles & smallpox] were translated several times until the 18th cent.

IV. Examples of Contributions-Medicine B. 10th Century: Ibn Sa`d & Al-Mardini

- Areeb Ibn Sa`d
 - ❖ Early systematic writings on paediatrics
 - ❖ Translated into Latin & Hebrew
- Al-Mardini [Pharmacology]
 - ❖ Writings became standard work in Middle Ages
- Others : Treated cataracts & haemorrhage and used cauterization

IV. Examples of Contributions-Medicine C. 11th Century

- Ibn Sina [Avicenna]
 - ❖ Cannon in Medicine [5 volumes]
 - ❖ Topics include physiology, hygiene, pathology
 - ❖ Remained superior authority in Medieval Europe as late as the 18th Century
 - ❖ Some translated into Latin & Hebrew
- Abul-Qasim
 - ❖ Works on surgery, influence until 15th Cen.

IV. Examples of Contributions-Medicine D. 12th/13th Centuries

- Ibn Rushd [Averroes]
 - ❖ Illustrations of sections of the brains, eye nerves and surgical instruments
- Bin Zuhar
 - ❖ Pioneer on dislocations and fractures
 - ❖ Outstanding in treating skin diseases
- Ibn Al-Nafees: Described blood circulation

IV. Examples of Contributions-Medicine E. Hospitals

- Began in the 8th century in Baghdad
- 2 wings [M/F], outside reporting hall
- Decision on medication or admission
- If admitted: bathing and clean clothing
- In-patient treatment, food on covered trays, psych'l strategies, entertainment
- Air and water circulation in hospitals
- Convalescent: [loaf of bread & a chicken]

IV. Examples of Contribution -Medicine E. Hospital - Cont.

- No hospital bills!
- forget about Medicare
- Discharge, clothes & interim financial help
- Mobile hospitals to rural areas
 - ❖ Physicians, equipments, medications
 - ❖ Some required 40 camels to carry

V. Conclusions

- Impact of Islam's world view
- Contributions includes preservation of old classics as well as original contributions
- Rich, voluminous works lost during destructive assaults on the Muslim world
- Impact on renaissance is "put of sight"
- Boasting of past glories is insufficient
- Joint responsibility for an ideal civilization