INSTITUTE OF MEDIEVAL AND POST-MEDIEVAL STUDIES

NEWSLETTER September 30, 2011

IMPMS Board Meetings and Decisions Since March 2011

Meetings of the board were held on April 3, April 24, May 29, July 24 and September 18, 2011. A topic that was discussed at all those meetings was the **Essay Contest for High School Juniors and Seniors**. At the April 3rd meeting members voted in favor of proceeding with the project, which requires contestants to write an essay about a great scholar, writer or artist of the Islamic world. At subsequent meetings, letters to go to Superintendents of Independent School Districts and others to high school principals were approved, as well as information sheets and entry forms for interested students. Many of those letters have already been sent, and we are beginning now to send principals the information sheets and entry forms to be made available to students. The board has set first prize at $1,000 and second and third prizes at $500 and $300, respectively. **If any readers of this Newsletter are high school juniors or seniors in Dallas or Tarrant County, or parents, family members or friends of such students,** we will be glad to email you full information about the contest as well as an entry form. Send your request to edwardthomas@prodigy.net, and tell us your name, the name and location of your school, whether you are a junior or a senior, and the email address to which we should send the material.

Another subject discussed at several meetings was scheduling a dinner event with Professor Gul Russell of Texas A&M as keynote speaker. She is a busy person, and so far we have not been able to fix on a convenient date, but we still hope to do so, if not this year then early in 2012.

In April, board member Reem Elghonimi informed us that she was moving to Austin because the History Department of UT Austin had offered her a place in an outstanding doctoral program. We miss her.

On April 21 several board members had a chance to attend a presentation by Professor Hussein Rashid, at SMU and then at UT Arlington, on "Everyday Art: Islamic Contribution to American Art." The talk was very interesting, and the pictures he projected were great.

At the May 29th meeting, it was decided not to publish a Newsletter in June. Thus the one now being written covers the second and third quarters of 2011.

On September 30, four IMPMS board members will be the panelists of a session at the 21st annual conference of the Texas Medieval Association (TEMA), being held at Baylor University in Waco. More details are given on page 4 of this Newsletter.

Ibn al-Haytham (Alhazen) (c. 965-1040)
Proponent of the Empirical Scientific Method

Edward Thomas

Ibn al-Haytham was born in Basra, Iraq. He pursued his education there, first at a mosque and then with private teachers. According to an autobiographical sketch that he wrote many years later, when he was 63, his strongest interest initially was in theological study. But he became frustrated and abandoned that effort. "I studied in considerable detail the beliefs of various sects, thoughts and theological systems," he wrote in his autobiography, "but I failed to gain anything which would point the way to Reality." [1]

Some time later, Ibn al-Haytham became interested in the works of Aristotle that he found in Arabic translation. Ibn al-Haytham began writing summaries of Aristotle's books, and later commentaries on them. He also began studying higher mathematics and physical sciences. Eventually he came to Ptolemy's well-known astronomical work, the *Almagest* (*Al-Majisti* in Arabic). He wrote a summary of it, but was troubled by some of Ptolemy's explanations.

This long period of study was interrupted when Ibn al-Haytham was appointed to a rather high position in the government of Basra. But this job left him little time to continue his personal study of philosophy, mathematics and physics and to begin writing treatises of his own in these fields. He was glad to leave that job and return to intellectual activities. One subject in which he became interested was the ebb and flow of the Nile River. According to one historian, he wrote a treatise on the possibility of offsetting the shortage of water in the Nile, and he claimed, "Had I been in Egypt, I could have done something to regulate the Nile so that the people could derive benefit (out of its water) at its ebb and flow." [2]

Around 1010 or 1011 Ibn al-Haytham set off for Egypt, apparently at the invitation of the Al-Hakim, ruler then of the Fatimid Empire. The leaders of that state were Shi'ites of the Isma'ili branch, which holds that the rightful successors of the Prophet Muhammad were his first cousin 'Ali, followed by the descendants of 'Ali and his wife, Fatima, who was the Prophet's daughter. The Isma'ilis maintain that the chain of descent still continues. There have been some differences among them, but the largest and best-known body of Isma'ilis today accepts the Aga Khan as its leader or king. He is considered number 49 in the chain of descent.

Al-Hakim was number 16 in that chain. The Fatimid Empire was then a serious rival of the Abbasid Caliphate, and its capital, Cairo, was perhaps a larger and more impressive city than Baghdad. Al-Hakim had already established a reputation of unpredictable swings of mood and erratic behavior. He supported Ibn al-Haytham's project of trying to regulate the flow of the Nile and provided equipment and a team to assist him. The group proceeded up the Nile (i.e., southward). They eventually reached Aswan and set about making measurements. Ibn al-Haytham soon realized that any sort of dam or other structure that could possibly be effective would be impossible to construct. The team returned to Cairo. Al-Hakim had the scientist placed in a dwelling where he was kept in virtual house arrest. Nevertheless, it was there that he developed an approach to scientific inquiry that came to be known in the West as the Scientific Method. In brief, it involved study of what others had written, plus observation and careful measurements, arriving eventually at a hypothesis, and then testing that by means of specially designed experiments. When the result was not what the hypothesis expected, the hypothesis would have to be changed and new experiments designed and carried out.

Over a period of some ten years, Ibn al-Haytham developed the science that filled his most famous book, *Kitab al-Manazir* (The *Book of Optics*). This work completely overturned the previously accepted explanations of Greek writers including Ptolemy (2nd century CE), as well as those of scholars in Islamic civili-

[1] Bradley Steffens, *Ibn al-Haytham: First Scientist* (Greensboro NC: Morgan Reynolds Publishing, 2007), p.32.
[2] Ibid, p.43.

zation who preceded Ibn al-Haytham. Previously, in trying to explain sight, those earlier scholars wrote of rays emanating from the eye to the object of sight. With simple experiments, Ibn al-Haytham demonstrated that the eye does not send but rather receives rays of light from a bright object like the sun or the moon or a candle, for example, or from an object that is lit by light radiating from such sources. He devised many experiments that allowed light to enter from holes in the walls or ceilings of some closed space. The pin-hole camera came into being much later, but it is an example such a technique. Ibn al-Haytham's *Book of Optics* was a major source for the later work of such European scientists as Roger Bacon and Johannes Kepler.

In 1021 Fatimid Caliph Al-Hakim went for an evening walk and never returned. For Ibn al-Haytham it meant release from some ten years of house arrest, but also the loss of his living place. In the troubled succession period that followed Al-Hakim's vanishing, the scholar had no royal support. He stayed on in Cairo, probably making his living by teaching and by copying and selling manuscripts. What is certain is that he never stopped his scientific research and producing treatises and books. After Optics, the field of his greatest renown is Astronomy. His book entitled *On the Configuration of the World* is another ground breaker. In it he takes on Ptolemy and his book, the *Almagest*. Ibn al-Haytham also wrote a separate work called *Doubts Concerning Ptolemy*. Here is an example of his criticism: "The contradiction in the configuration of the upper planets was due to the fact that he [Ptolemy] assumed the motions to take place in imaginary lines and circles and not in existent bodies. Once those (motions) were assumed in existent bodies contradiction followed." [3]

George Saliba, Professor of Arabic and Islamic Studies at Columbia University, asserts that Ibn al-Haytham's book mentioned just above was not merely a criticism of Ptolemy. "Rather, it was an extremely well-articulated condemnation of the very foundation of Ptolemaic astronomy and an open call for its toppling in favor of an alternative astronomy that did not suffer from such contradictions. It did not only expose the fatal mistakes and contradictions in Ptolemaic astronomy, but rose to the occasion of articulating a new set of principles upon which an alternative new astronomy had to be based….Over and over again, Ibn al-Haytham returned to the vision of the new astronomy he would like to see – an astronomy based on the new principles of consistency between the physical reality of the universe we live in and the mathematics one uses to represent that reality." [4]

It is estimated that Ibn al-Haytham may have written close to 200 works. Most of them we probably would not call books, but rather treatises. There were no periodicals in his era to carry articles. Of 96 scientific works of his that are known (though not all have survived), about half are in the field of mathematics. He made contributions especially in number theory and in analytic geometry. 23 of his scientific works are in astronomy, 14 in optics and the remainder in various other fields. 62 of his works are known to have survived.

Between Caliph al-Hakim's disappearance in 1021 and Ibn al-Haytham's death in 1040 or 1041, he is thought to have lived mainly in Cairo. Probably he made one or more trips back to Basra in that period and he may have stayed there for some length of time.

In 1965, the year of the millennium of Ibn al-Haytham's birth, Pakistan issued a commemorative stamp honoring him as the "Father of Optics." Various educational and other institutions in the predominantly Muslim world carry or have carried his name. His name and portrait have been on several denominations of Iraqi currency over the years. In 2003, after the deposition of Saddam Hussein, new banknotes were issued, and the 10,000 dinar note has his portrait.

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[3] George Saliba, *Islamic Science and the Making of the European Renaissance* (Cambridge, MA; The MIT Press, 2007), p. 101 [English translated by Saliba from Arabic text of *Doubts Concerning Ptolemy*, p. 38.]

[4] Ibid, pp. 100-101

Institute of Medieval and Post- Medieval Studies
Presents at 21st Annual Conference
TEXAS MEDIEVAL ASSOCIATION
TEMA XXI "Coming of Age" at Baylor University
One Bear Place, Waco TX 76798
September 30th 2011

TEMA XXI Conference Schedule

Session 9: Eminent Scholars in Far-Flung Centers of Islamic Civilization
Friday September 30th 2011, 11:15 A.M.-12:45 P.M.
Room: Moody Study Commons

The panelists in this session, all IMPMS members, will present papers highlighting the achievements of seven important scholars who lived between the 9th and 17th centuries in places as scattered as Bukhara, Baghdad, Sicily, Spain, North Africa and Timbuktu, Bornu and Kano in West Africa. Placing the scholars in chronological order beginning with the earliest, the presentations may be briefly described as follows:

Muslim Physicians' Contributions to the Medical Sciences during the Medieval Period
M. Basheer Ahmed, M.D.
The main scholars on whom he will concentrate are **Al-Razi** (c.864-930), **Al-Zahrawi** (c.936-1013), and **Ibn Sina** (c.980-1037).

Interfaith Cooperation in the 12th Century CE:
A Muslim Scholar for a Christian King, a Christian Scholar for a Caliph
Mr. Edward Thomas
The Scholars he will talk about are the Geographer and Botanist **Al-Idrisi** (c.1099-1166) and the Physician and Pharmacologist **Ibn al-Tilmid** (c. 1073-1165).

Shaykh Muhammad Abdul Karim al-Maghili: A Pioneer in Islamic Law (d.1505/6)
Dr. Yushau Sodiq
Although originally from Tlemcen, Algeria, this scholar spent most of his life and career in West Africa

Ahmed Baba Es Sudane: The Jurist and Scholar of Ancient Timbuktu (1556-1627).
Mr.Muhsin Shaheed