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An interdisciplinary Congress on Ottoman Astronomy at Istanbul University

İstanbul Üniversitesi'nde Osmanlı Astronomisi Hakkında Disiplinlerarası Bir Kongre

Jan P. Hogendijk[1]

[1]Prof. Dr. (Emeritus) of the Department of Mathematics, University of Utrecht, Netherlands

ORCID: J.P.H. 0000-0002-6758-8481

Corresponding author/Sorumlu yazar:
Jan P. Hogendijk, (Emeritus) of the Department of Mathematics, University of Utrecht, Netherlands.

E-mail/E-posta: hogendijk@uu.nl

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On November 21-24, Istanbul University hosted a congress on the interdisciplinary theme of Ottoman astronomy. The title of the congress was "Channels of Transmission of Astronomical Knowledge in the Ottoman World (14th-18th centuries)." The congress was organized by Dr. Gaye Danışan and Dr. Florence Somer under the auspices of the Department of the History of Science of Istanbul University and in cooperation with the Institut Francais d'Etudes Anatoliennes.

The preparation of the congress took more than a year. The organizers established an international scientific committee of 14 members. The congress website ottomanastronomy.

org was created, and a call for papers was published in different international fora. This resulted in many submissions, which were refereed according to strict academic standards and relevance to the congress theme. During the congress, volunteer students of the Department of History of Science of Istanbul University played an important role.

Congress Poster

The congress brought together 16 speakers residing in Türkiye, in addition to speakers from Iran (7), Netherlands (3), India (3 in a combined paper), France (2), Russia (2), Germany (2 in a combined paper), Thailand (2 in a combined paper), and one speaker each from Algeria, Egypt, Italy, Qatar, Spain, UK, US, Poland and Uzbekistan. The program, in four busy days,

included 38 presentations (usually 20 minutes) divided over 14 sessions; two presentations were online, and 35 were in person. During the breaks between the sessions, the organizers had arranged friendly caterers serving coffee, tea, and juices while plenty of cookies and sweets were waiting at the tables. This created a welcoming context for exchanges and discussions. The final session of every day was a "round table", consisting of 30-45 minutes of evaluations and general questions. On the fourth day of the congress, a poster session was held in which three students (2 in a combined poster) explained their posters in presentations of ten minutes each (For more detail, see the programme in the appendix.)[1].

The first two days of the congress were held in the historic Rector Building Doctorate Hall of Istanbul University, and the third and fourth days in the General Assembly Room of the Faculty of Letters of Istanbul University.

The first round table was in the Rectorate Building Doctorate Hall. From right to left: Prof. Dr. Jan P Hogendijk (Moderator), Dr. Gaye Danışan, Dr. Florence Somer, Dr. Saltuk Duran, Dr. Taha Yasin Arslan

Delightful lunchtime memory on the second day in front of the Rectorate Building Doctorate Hall.

1 For all abstracts, see: *Channels of Transmission of Astronomical Knowledge in the Ottoman World (14th-18th Centuries)*, Book of Abstracts, 21-24 November 2023, Istanbul, Türkiye, 78 pp.

After concluding the congress in the General Assembly Room of the Faculty of Letters at Istanbul University

The congress program was further enhanced by lunchtime excursions to the Department of Astronomy and Space Sciences and the Rıdvan Çeliker Archaeological Museum of Istanbul University, a late afternoon excursion to the Archeological Museum near Topkapi Palace, and two evenings of cocktails at the Institut Français d'Etudes Anatoliennes. The organisers realised the importance of good connections with libraries and museums, and the first day started with talks by representatives of the French National Archives, the Istanbul Archeological Museum, and the Turkish Historical Society Library in Ankara.

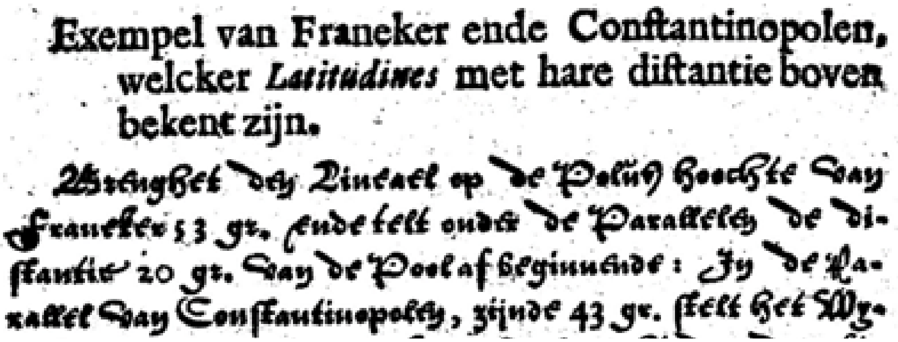
Istanbul Archeology Museum

The theme of the congress was interdisciplinary, and the speakers had diverse backgrounds: specialists in Arabic, Persian and Ottoman languages and cultures; historians of astronomy, astronomical instruments, astrology, navigation, medicine, art historians; experts in Islamic history, general historians specializing in Ottoman politics and warfare, mathematicians, and so on. All participants learned something new and broadened their horizons.

The theme of the congress even transcended the congress title "Channels of Transmission of Astronomical Knowledge in the Ottoman World (14th-18th centuries)." Sophisticated wooden Ottoman quadrants were mainly made in the 19th century. Ottoman astronomy was intensively studied in the outskirts of the Ottoman world, such as Algeria, and even outside the Ottoman world, for example, in Thailand. An important aspect of Ottoman astronomy, which

is not exactly easy for most researchers, is that it is essentially based on three languages: Arabic, Persian and Ottoman Turkish.

In the scientific tradition of Islamic civilization, Ottoman astronomy comes at a late moment, and therefore, the transmission is crucial. The astronomical traditions of Samarkand, Mamluk Egypt, Syria and Iran seem to have had the most influence. One can distinguish the key figure of Ali Kuscu (Qushji), who emigrated from Samarkand to Istanbul around 1470. However, Ottoman astronomy is not only transmission: Original contributions were made by Taqi al-Din ibn Ma`ruf (1525-1586) and by others as well. Contacts between the Ottoman world and Western Europe are important, and until 1640, the transmission went both ways. In some cases, we don't even know: there are fascinating and, for me personally, shocking parallels between the Ottoman world and Western Europe (see the figure), which may result from transmission, although transmission cannot yet be proved at present.


Exempel van Franeker ende Conſtantinopolen, welcker *Latitudines* met hare diſtantie boven bekent zijn.

Brenghet den Zirckel op de Polus hooghte van Franeker 53 gr. ende telt onder de Parallel de diſtantie 20 gr. van de Pool af beginnende: In de Parallel van Conſtantinopolen, zijnde 43 gr. ſtelt het Wy-

Figure. A shocking parallel between European and Ottoman astronomy. In 1627, the Dutch mathematics professor Adrianus Metius computed the distance between Franeker (a small city in the Northern Netherlands, which happens to be my hometown) to Constantinople (Istanbul) and also the directions from each city of the shortest route between the two cities. Metius made his computations on the Zarqali plate, which had also been constructed by the Ottoman astronomer Taqi al-Din (died 1585), using a similar methodology and similar shortcuts. The figure shows the beginning of the computation in the Dutch language

The essential interdisciplinarity of the congress theme can be illustrated by the example of the humoristic calendars by Kufri Hasan Celebi (1646-1660). These calendars, one for every year, include predictions of lunar and solar eclipses, which contain the result of Kufri's complex calculations and can be analyzed by modern astronomy. Kufri used these predictions to give astrological and medical recommendations and precautions, as well as socio-political predictions. The calendars themselves are beautifully executed with anthropomorphic miniatures of the planets in which each element has its astrological meaning. The miniatures can be analyzed using methods of art history, and the analysis gives information about historical sources and influences. To understand the humor in the calendars, a thorough knowledge of

Ottoman culture, politics and history is necessary. Kufri's production of humoristic calendars stopped when he became chief astronomer at the Ottoman court. However, he continued his satiric elements in his calendars.

The interdisciplinary nature and abundant source material of Ottoman astronomy provide challenges to modern researchers. These challenges were discussed over coffee and also at the round tables. How can we best learn from one another? How do you focus the research and choose research topics? How can the results be communicated to the general history of astronomy and to a general educated audience? Clearly, cooperation between researchers of different backgrounds is essential. Such cooperation can, of course, be facilitated by the Internet, but to me, the congress showed how important it is to make personal connections and to meet colleagues from all over the world in real life.

I think that the organizers can be very happy with the outcome of the congress. The congress showed that the subject of Ottoman astronomy is in a healthy and vibrant state, and many participants felt that the congress created a worldwide network and was the first stage in a multitude of collaboration projects which will hopefully continue for many years to come.

I want to finish this report by thanking the organizers of the congress and also the supporters of the congress: Republic of Turkiye Ministry of Culture and Tourism, Ataturk Supreme Council for Culture, Language and History, Turkish Historical Society, Istanbul University, French Embassy in Turkiye, Institut Francais in Turkiye, the project Osmanlı Takvimleri, and the Istanbul University History of Science Club.

Appendix: The programme of the congress

Tuesday, 21 November

08.30 - 09.30	Registration starts at the Symposium Venue (Istanbul University Rectorate Building)
09.30 - 10.30	Opening ceremony - Welcome and Introduction
10.30 - 12.00	**Session 1 : Tracing the Astronomical Heritage Through Libraries, Archives and Museums** **Chair: Saltuk Duran** **Martin Godon,** *Sources of Astronomical Research in French Archives: National and Diplomatic Institutions* **Hülya Ataşcıoğlu Aykul,** *Presentation of the Astronomical and Cosmos Material in the Archeology Museum of Istanbul* **Ebru Onay,** *An Astronomical Collection of the Turkish Historical Society Library*
12.00 - 13.30	Lunch
13.30 - 14.45	**Session 2 : Sundials, Astrolabes and Quadrants** **Chair: Taha Yasin Arslan** **David King - François Charette,** *A Scientific Instrument Dedicated to Fatih Mehmet in 881 Hijra* **Sergei Maslikov,** *Sultan Bayezid II's Astrolabe Discovered in St. Petersburg* **Eslem Günaydın,** *Islamic Arts Through Ottoman Quadrants*
14.45 - 15.00	Coffee Break
15.00 - 16.15	**Session 3 : Transmission of Astronomical Knowledge** **Chair: Tuncay Zorlu** **Abdelwahab Shaker,** *Ibn Zunbul al-Rammal and His Astronomical Knowledge Between Cairo and Istanbul* **Şeyma Ceren Sanlı,** *Tracking the Heritage and the Impact of the 16th Century Ottoman Astronomy Through the First Artificial Language Balaibalan* **Nargis T.Nurulla-Khoja,** *Distant Intellectual Neighborhood: Ulugbek and Copernicus Via Ottoman's Legacy*
16.15 - 16.30	Coffee Break
16.30 - 17.30	**Round Table Discussions** **Moderator: Jan P. Hogendijk**
19.00 - 21.30	**Opening Cocktail at IFEA**

Wednesday, 22 November

09.30 - 10.45 **Session 4: Channels of Transmission of Astrological and Magical Iconography**

Chair: Feray Coşkun

Jeffrey Kotyk, *Islamicate and East Asian Depictions of the Planets*

Florence Somer, *Astrological Iconographic Transfer to Persian, Arabic and Ottoman Manuscripts*

Aida Alavi, *Persian-influenced Magical Objects in Ottoman Manuscripts*

10.45 - 11.00 Coffee Break

11.00 - 12.15 **Session 5: Politics, Religion and Power in Relation to Astrology**

Chair: Sinem Eryılmaz

Anna Alexia Markouizos, *Les Anneaux de Saturne: Tracking the Transmission of Astrological Knowledge Between the Perso-Arab and Byzantine Worlds*

Vladimir Rozov, *In Search of Abū Maʿshar: The Attribution of Early Modern Age Treatises Titled Kitāb al-Mawālīd*

Josefina Rodriguez-Arribas, *Sephardic Jews in the Ottoman Realm – The Scientific Diaspora*

12.15 - 13.45 Lunch

13.45 - 15.00 **Session 6: Ottoman Astrological Heritage**

Chair: Godefroid de Callataÿ

Hüseyin Cahit Sarıkaya, *Some Thoughts on Divination, Mysticism, and Astrology in the Early Modern Ottoman Empire*

Seyyed Hadi Tabatabaie, *Turkish Translation and Description of Kushyar Ibn Labban al-Jilī's (Gilani) Mujmal al-'Usul from Arabic or Persian, an Important Sample for Astrological Treatises Transfer to Ottoman World*

Abdüssamet Yılmaz, *Ragıp Pasha's 15 Sacs of Gold: Remarks on the Occult Network Around an Ottoman Bureaucrat*

15.00 - 15.15 Coffee Break

15.15 - 16.15 **Round Table Discussions**

Moderator: Florence Somer

16.45 - 18.20 **Visit the Istanbul Archeological Museums, Gülhane**
(meet at the Rectorate building at 16.20)

Thursday, 23 November

09.30 - 10.45 **Session 7: Astronomical Heritage from Samarkand**

Chair: Hasan Umut

Sara Yarmahdavi - Habib Alah. Saeeidinia, *Investigating the Fusion of Mongol and Timurid Astronomy in Samarkand School and Observatory and Transferring Its Legacy to the Ottoman Empire*

Kaveh Niazi, *Risālah Dar Hay'at and Its Predecessors*

Orhan Güneş, *Tracing the Samarqand School in the Ottoman Empire: Ġulām Sinān's Fatḥ al-Fathiyya*

10.45 - 11.00 Coffee Break

11.00 - 12.15 **Session 8: Theories, Calculations and Predictions**

Chair: Jan P. Hogendijk

Mostafa Yavari, *Effort Astronomical Calculations Without the Need for a New Theory, Ulugh Beg - Qushjī's Geometric Solution for Calculating Planetary Latitude*

Sena Aydın, *Astronomers Who Utilized the Science of Optics: The Examples of Quṭb al-Dīn al-Shīrāzī and Fathallāh al-Shīrvānī*

Amir Mohammad Gamini, *A Survey of Seydi Ali Reis's Arguments for the Immobility and Centricity of the Earth in His Khulāsat al-Hay'a and Their Roots in Quṭb al-Dīn Shīrāzī's Works*

12.15 - 14.00 Lunch & Optional short lunch-time visit to the Department of Astronomy and Space at Istanbul University

14.00 - 15.15 **Session 9: Astronomical Instruments**

Chair: Feza Günergun

Jan P. Hogendijk, *Tradition and Innovation in the Astrolabe Treatise of Taqi al-Din Ibn Ma`ruf (1526-1585 AD)*

Hüseyin Şen, *Taqī al-Din and His Main Astronomical Work Sidrat al-Muntaha*

Mireia Martínez i Sellarès, *On Some Parallels Between the Ottoman and Western European Astronomical Traditions in the 16th and 17th Centuries*

15.15 - 15.30 Coffee Break

15.30 - 16.45 **Session 10: Navigation and Nautical Astronomy**

Chair: Emrah Safa Gürkan

L R Krishna - Abhishek Shandilya - T.V. Bharat, *'Jyahorda' – A Precursor to Modern Navigational Instruments*

Harald Gropp, *The Map of di Virga from Venezia to Heidelberg and Where is It Now?--- What Can We Learn for the Evolution of Nautical Charts?*

Gaye Danışan, *From Invisible to Visible: Tracing Ottoman Astronomy in the Nautical Tradition Through the Manuscripts, Portolans and Calendars (16th-18th centuries)*

16.45 - 17.00 Coffee Break

17.00 - 18.00 **Round Table Discussions**

Moderator: Ahmed Grigahcène

Friday, 24 November

09.30 - 10.45 — **Session 11: Calendars in Circulation**

Chair: Aida Alavi

Solmaz Ceren Özdemir, *A Case Study on Natural Phenomena: How Eclipses Were Placed in the Ottoman Munejjim Küfri Hasan Çelebi's Almanacs (1646-1660)?*

Taha Yasin Arslan, *An Englishman in the Ottoman Lands and His Pursuit of a New Calendar*

Gaye Danışan - Kutsi Aybars Çetinalp, *The Reception of an Ottoman Perpetual Calendar in 17th-Century Europe: Georg Hieronymus Welsch's "Commentarius in Ruzname Naurus"*

10.45 - 11.00 — Coffee Break

11.00 - 12.15 — **Session 12: Astronomical Heritage Through Ages-I**

Chair: Florence Somer

Atefeh Sarhadi - Mohammed Reza Esna Ashari, *The Indigenization of the Middle Persian Lunar Mansions in the Islamic and Ottoman Astronomical Literature*

Nareemas Chehlaeh - Nusreen Masae, *The Influence of Ottoman Astronomy in Malay Sources Discovered in the Deep South of Thailand*

Solmaz Ceren Özdemir - Mar Rivera Colomer, *A Comparative Analysis of Astro-Medical Context: Maṭāli' al-Sa'āda and Ottoman Calendars (1580-1660)*

12.15 - 14.00 — Lunch & Optional short lunch-time visit to the Istanbul University Rıdvan Çelikel Archeology Museum

14.00 - 14.20 — **Session 13: Posters**

Chair: Mar Rivera Colomer

Reza Namazi - Fereshteh Derakhshesh, *Political Prophecies of Astrologers During the Safavid Dynasty*

Cevat Mert Çetin - E.Sena Darbaz, *The Perception of Astrological Elements from the Subconscious of the Ottoman People*

İbrahim Köksal, *Between Heritage and Innovation: The Astronomical Instruments of the Istanbul Observatory (1577-1580) Through Âlât-ı Rasâdiye Li Zîc-i Şehinşâhiye (Supp. Turc 1126, BNF)*

14.20 - 15.35 — **Session 14: Astronomical Heritage Through Ages-II**

Chair: Gaye Danışan

Madhvendra Narayan, *Astronomical Works of Sawai Jai Singh in the Context of Greek, Hindu, Arab, and European Astronomy*

Wilfred de Graaf, *A Drawing of a Universal Rectilinear Dial by the 18th Century Ottoman Scholar Mustafa Sıdkı*

Ahmed Grigahcène, *Outstanding Features on Astronomical Practice in Ottoman Algeria*

15.35 - 15.50 — Coffee Break

15.50 - 16.50 — **Round Table Discussions**

Moderator: Saltuk Duran

16.50 - 17.35 — **Closing Session**

Gaye Danışan and Florence Somer

19.00 - 21.00 — **Closing Cocktail at IFEA**

Saturday, 25 November

09.45 Meeting in front of the Koç museum. Visit of the museum with a special focus on astronomical instruments and nautical instruments

12.00 - 14.00 Bosphore tour with lunch.

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Saltuk Duran, Dr.,
Department of Sociology, Istanbul Technical University,
Türkiye

Sinem Eryılmaz, Dr.,
Autonomous University of Barcelona,
Spain

Feza Günergun, Prof. Dr.,
Department of the History of Science, Istanbul University (Emeritus),
Türkiye

Emrah Safa Gürkan, Prof. Dr.,
Department of Political Science and International Relations, Istanbul 29 Mayıs University,
Türkiye

Tuncay Zorlu, Prof. Dr.,
Department of Sociology, Istanbul Technical Univesity,
Türkiye

**All biographical notes about other participants are in the book of abstracts.*