



Summary :

In the years of the Empire of the Grand Komnenoi (1204-1461), in Trebizond, the capital of the state, the interest in mathematical science was particularly increased. For nearly two and a half centuries Trebizond, situated along the route connecting Persia with Byzantium, imported new ideas from the East and helped their promotion to the West.

Date

13th-15th century

Geographical Location

Trebizond

1. Historical – Political Conditions

After the [Fall of Constantinople to the Latins in 1204](#), a number of states asserting the continuity of the empire were formed in the land of the former Byzantine Empire. One of them was the [state of Trebizond](#) under the brothers [Alexios](#) and [David Grand Komnenos](#). The state was in the region of the Pontos, while it also claimed the land finally occupied by another newly established state, the [Empire of Nicaea](#).

[Trebizond](#) remained one of the most thriving commercial centres of the East during this period. This means that, although it only had 4000 permanent inhabitants, the population always increased due to the presence of traders and caravans.¹ Its position along the commercial route connecting the West with the empire of the Mongols, Tabriz and the Far East was one of the decisive factors in establishing relations with the Mongols and having contact with their scientific pursuits.

The [Mongols](#) showed a great interest in Islamic science, and particularly in astronomy, in the 13th century. A series of institutions had made Tabriz a centre for astronomical studies. Hulagu Ilkhan, the Mongol sovereign, settled in Maraga (Marāgheh-Marāghah), where he founded one of the greatest observatories of the Islamic world. The astronomer Naṣīr al-Dīn al-Tūsī, who had also designed the observatory, worked there along with his scientific team. Gazan Khan, the subsequent ruler of Persia, founded a second observatory in Tabriz, thus making the city a very important scientific centre. To that contributed the foundation, in the same period, of an observatory in China by Kublai Khan, the grandson of Genghis Khan. Tabriz became a city where one could be acquainted with several scientific traditions, ranging from the Islamic one, as shaped by the Arabs of Baghdad and the Chinese, to the respective Byzantine one, which was based on the ancient greek tradition.

It was easy for Trebizond to get in touch with those scientific developments, due to its proximity to Tabriz. Besides, the diplomatic relations between the Empire of Trebizond and the Il-Khanid dynasty were very good, while the [metropolis of Trebizond](#) was permitted to send bishops to Persia as head of the Christian communities there.

2. Persian Astronomy in Trebizond

The scientific relations between the two states must have improved particularly in the period of the emperors [Alexios II Grand Komnenos](#) (1297-1330) and [Alexios III Grand Komnenos](#) (1349-1390). The Persian scientific tradition was introduced into Trebizond and Constantinople by [Gregory Chioniades](#). Chioniades, a physician from Constantinople who was interested in the scientific developments in the court of the Il-Khanids, went to Trebizond and, supported by the emperor Alexios II, made a passage to Persia. He attended the classes of the famous astronomer of the time, Shams al-Dīn Bukhārī, in Tabriz, and took notes. He also acquired some manuscripts, including astronomical works of the Persian tradition, which he took to Trebizond and then to Constantinople.

The works Chioniades collected during his journeys,² in his capacity as the bishop of Tabriz, came into the hands of Manuel, a monk in Trebizond. Apparently Manuel studied and then began to teach astronomy based on those scientific works.

3. The Scientific Tradition of Trebizond

Manuel was praised for his teachings by the imperial authority, which showed a particular interest in letters and in science in the years of Alexios II. The city must have been very famous as a scientific centre, while the school of astronomy was taking its first steps. It should be



noted that the translation of works from Persian to Greek was easier in Trebizond, due to both the proximity to Persia and the commercial relations with that country.³

Also significant was the contribution, apart from that of Manuel, of some people who lived or stayed for a while in Constantinople in that period, such as [Constantine Loukites](#), who was a **protonotarios** and **protovestiaros**, and, as a senior member of the court of the Grand Komnenoi, stimulated the imperial interest in sciences. He was also deeply concerned with astronomy and corresponded with Gregory Chioniades and [Nikephoros Gregoras](#),⁴ who was in Constantinople. Some researchers believe that Loukites taught astronomy. In the first half of the 14th century, the scholar [Andrew Libadenos](#) was also in the same city and was a member of the same circle of scholars sharing a scientific interest.

The classes of Manuel, who must have also written an astronomical treatise known as the *Almanac of Trebizond*, were attended by [George Chrysokokkes](#), who probably came from Constantinople for this reason. This reveals the prestige of Trebizond as a centre for sciences and their promotion. The [work](#) of Chrysokokkes, which was based on the knowledge he had acquired in Trebizond, established a Byzantine tradition inside the Persian school, which was further developed in Constantinople in the 14th and 15th century.⁵

On the other hand it should be noted that, apart from mathematical science, rhetoric also developed, which was necessary for a capital that required a group of scholars in order to meet at least the administrative needs of the state. Constantine Loukites made an essential contribution to the development of rhetoric.⁶

4. Evaluation

The development of science in Trebizond had a wider impact. The school established after the combination of the Persian-Muslim and the Ptolemaic tradition promoted research beyond the limits of the small state, thus influencing the scientific study in both the wider Byzantine world, centred around Constantinople, and the West.⁷ What is more, it was incorporated into the works of later scholars from Trebizond, such as the cardinal [Bessarion](#), which were widely spread, mainly to the Italian cities, after the mid-15th century.

1. Rosenqvist, J.O., 'Byzantine Trebizond: a Provincial Literary Landscape', *Byzantino-Nordica 2004. Papers presented at the international symposium of Byzantine studies held on 7-11 May 2004 in Tartu, Estonia* (Acta Societatis Morgensternianae 2, Tartu 2005), p. 31.

2. The complete works of Chioniades have been published by David Pingree: Pingree, D., *The Astronomical works of Gregory Choniades I, The Zij al-Ala' i*, Part I, Text, translation, commentary, Gieben (Amsterdam 1985), Part 2, Tables, Gieben (Corpus des Astronomes Byzantins II, Amsterdam 1986).

3. Hunger, H., *Βυζαντινή λογοτεχνία. Η λόγια κοσμική γραμματεία των Βυζαντινών 3* (Athens 1994), p. 58.

4. Guiland, R., *Correspondance de Nicéphore Grégoras* (Paris 1927), p. 92, let. 43, pp. 101-102, let. 66, p. 347.

5. Kunitzsch, P., 'Das Fixsternverzeichnis in der Persischen Syntaxis des Georgios Chrysokokkes', *Byzantinische Zeitschrift* 57 (1964), pp. 382-411.

6. Rosenqvist, J.O., 'Byzantine Trebizond: a Provincial Literary Landscape', *Byzantino-Nordica 2004. Papers presented at the international symposium of Byzantine studies held on 7-11 May 2004 in Tartu, Estonia* (Acta Societatis Morgensternianae 2, Tartu 2005), p. 39.

7. Νικολαΐδης, Θ., 'Η έκδοση της "Συντάξεως περσικής Αστρονομίας" του Γεωργίου Χρυσοκόκη', in ΚΝΕ/ΕΙΕ, *Οι επιστήμες στον ελληνικό χώρο* (Athens 1997), pp. 135-141.

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Glossary :

	protonotarios High byzantine official. The chief of the notarioi (secretarial officials). The office of protonotarios was probably created with the system of the logothesia and was in use from the 9th to the 12th C. AD. In the Late Byzantine Period protonotarioi was the emperor's personal secretary and was mentioned as imperial grammateus.
	protovestiaros (and protovestiarites) Honorific title given to high-ranking officials and future emperors during this period. The protovestiaros was originally responsible for the imperial wardrobe, but in the 9th-11th centuries the holders of the title could command an army or conduct negotiations with foreign states.