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## Ben Solomon: Judah ben Solomon ha-Kohen

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**Born Toledo, (Spain), circa 1215**

**Died probably (Italy), after 1274**

Judah ben Solomon was born and educated in Toledo, where the Jewish community, despite a century and a half of Christian rule, maintained a tradition of Arabic learning in science and philosophy. At the age of 18, he entered into correspondence with some savants at the court of Frederick II. Apparently as a result of these exchanges, Judah immigrated to Italy. There he translated into Hebrew his major work, an encyclopedia called *Midrash ha-ḥokhmah* (The study of wisdom), which he had earlier compiled in Arabic.

The astronomical section of *Midrash ha-ḥokhmah* is a combination of the theories of **Ptolemy** and **Biṭrūjī**. For matters of timekeeping, mathematical geography, and solar and lunar theory, Judah relies upon Ptolemy. However, when moving on to planetary theory, he abandons Ptolemy in favor of Biṭrūjī. Judah preferred Biṭrūjī for theological reasons. In the latter's system, in which the motions of the planetary orbs were all powered by a mechanical link to the swiftly moving outermost orb, the connection between God and the Universe was patently clear: God set in motion the outermost orb, with the daily revolution, and this energized the entire cosmos.

Biṭrūjī was not the only Andalusian astronomer whose work influenced *Midrash ha-ḥokhmah*. **Jābir ibn Aflah**, **Ṣā'id al-Andalusī**, and an otherwise unknown Jewish astronomer by the name of David ben Naḥmias are also cited. Judah knew as well the discussion of the "moon illusion" in **Ibn al-Haytham**'s commentary to the *Almagest*.

To the extent that there are original investigations in *Midrash ha-ḥokhmah*, they are motivated by theology or mysticism. Thus, for example, Judah noticed that Ptolemy's value for the ratio in volume between the Sun and the Moon, 6644.5, is an approximation (*Almagest* V.16; cf. *ibid.*, V.14). The exact value, which Judah asserts to be 6,300, is obtained not by observation, but by an operation upon the alphanumerical values of the two letters of the Hebrew alphabet that are said to stand for the Sun and the Moon.

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### Selected References

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