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From Greek Astronomy to 20th Century Astrophysics – History and Cultural Background –

Observation of the sky and – partly – calculation of its movements was of big importance in all cultures because

- The sky is a - seemingly - immaterial counterpart of our daily world.
- The movement of the celestial bodies defines time measurement and chronological order.
- The celestial bodies help for orientation at travelling.

There are three “big bangs” in the history of Astronomy:

- 4th c. BC – 2nd c. AD: The discovery of the possibility of astronomy as an exact geometrical science in Greece.
- 16th/17th c.: Mankind is no more central in the cosmos: the sky is from the same material as the earth.
- 19th/20th c.: The cosmos becomes a laboratory for physics and chemistry. The conceptions of space, time, action are fundamentally changed.

It is not easy to define if the science of astronomy started in Mesopotamia or Greece. But the Greek geometrical concept was much more fruitful. There is no comparable development in other cultures (Islamic countries, India, China). But other cultures sometimes had specific interests, e.g. China preferred the observation of irregular phenomena. The “Scientific Revolution” of the 16th/17th century explained earth and sky as calculable by the principles of mechanical physics with the aid of new instruments and new mathematics. The 19th/20th century built up a new, “experimental” astrophysics with a lot of new methods (e.g. spectroscopy) and powerful big instruments. New theoretical physics became base and essential forming factor of all astronomy. Astronomy became “big science” from also high political rank and - still - big philosophical value.