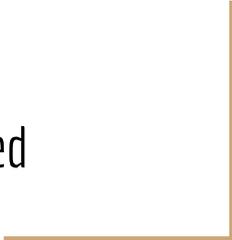




Mesopotamian Astronomy and Mathematics

L.Page
Second Period Gifted



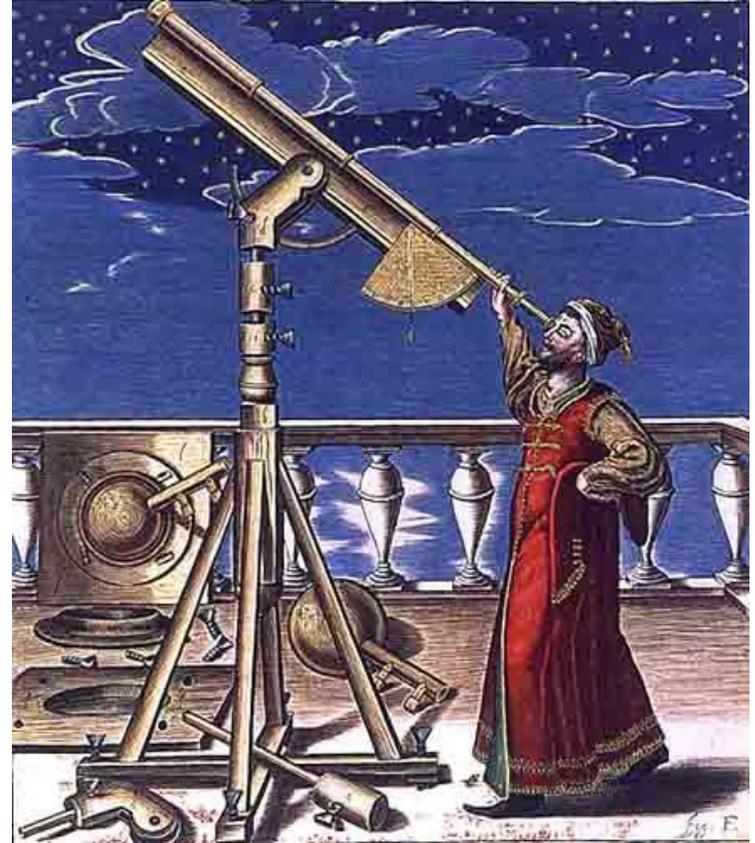
Why study astronomy?

- Why would ancient people study astronomy? If they weren't advanced enough to have luxury in their lives, make sure everyone is educated, and so many other advancements we take for granted, why would they take time to study astronomy, when it might not even help them?
- Since the beginning of time, men have been asking the question, "Are we alone?" "Why are we here?" "What's in the sky?" "What is our planet really like?" Ancient people lacked the ability to answer these questions through space travel, rovers, and satellites like we can now. Their only way to answer these questions was by studying the stars and thinking conceptually.
- Astronomy helped them study science, their world, and made links with their religion.



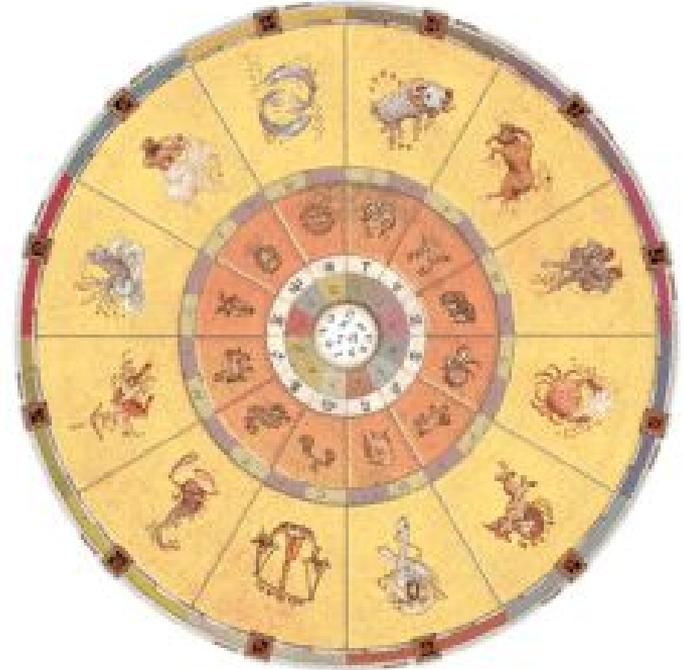
How did they study astronomy?

- Ancient astronomy, since they lacked technological advancements, was studied mainly through astrology.
- The Babylonians were the first to develop astrology, the study of finding meaning through patterns in birth charts, moons, constellations, and how they rotate through the years.
- Scholars would study how the motion of the celestial beings travelled in patterns monthly and annually.
- The Babylonians were the first to create birth charts to show how the stars guided our own lives.



Ancient Astronomy's Links with Astrology

- Astronomical events, whether occurring everyday or even once every few years, were interpreted as religious events for most Mesopotamians. They believed everything that happened had a purpose, affecting all groups and social statuses of people.
- The royal classes had priest-astronomers analyze their dreams and omens to give them advice on their lives and running the state.
- These priest-astronomers learned to understand how the world worked through patterns and know what was coming next and when.



The Babylonian Calendar

The Babylonian Calendar has twelve lunar months. This only makes 354 days, which is short for the whole solar year. Rather than making the lunar phases different than months like we do now, the Babylonians added in leap months. Each month was designated to be a certain harvest time.

I Nisannu - onions

II Ajaru - sesame

III Simanu - flax, lentils

Etc. etc.

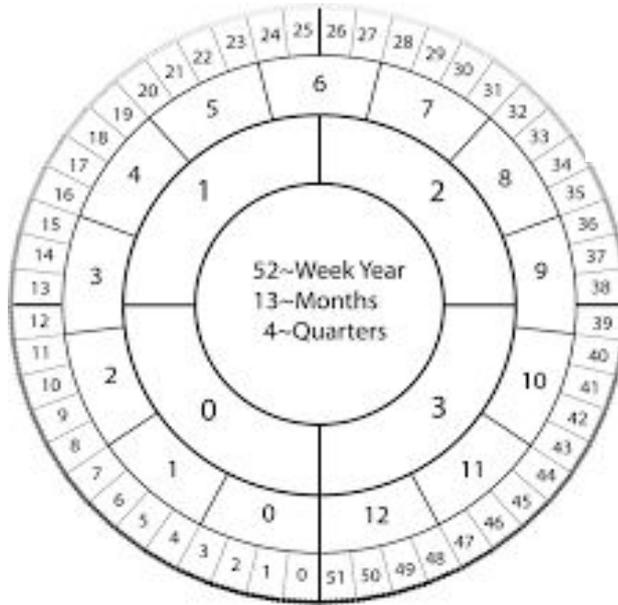


Fig. 94

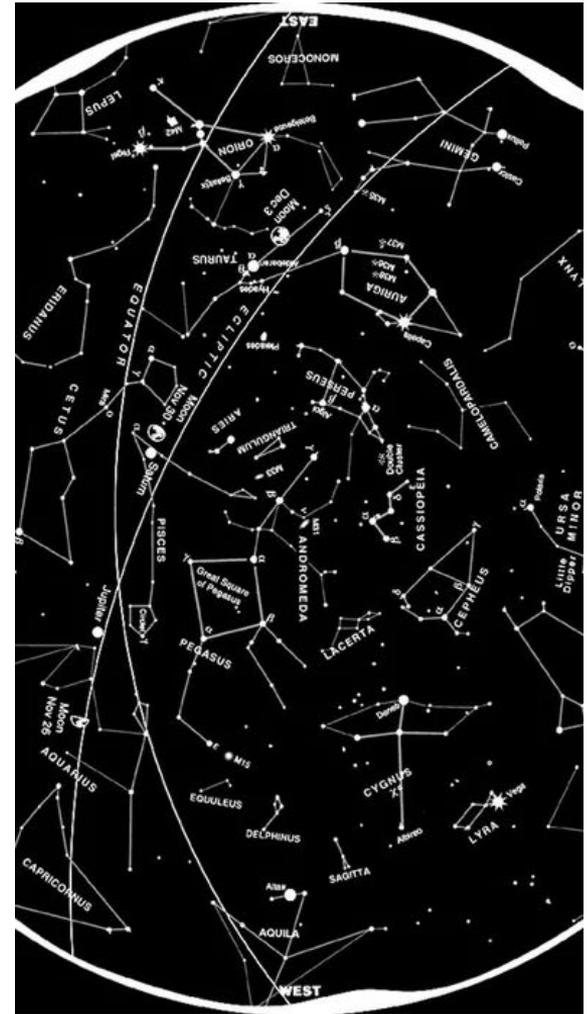


Fig. 24

The Purpose of Constellations

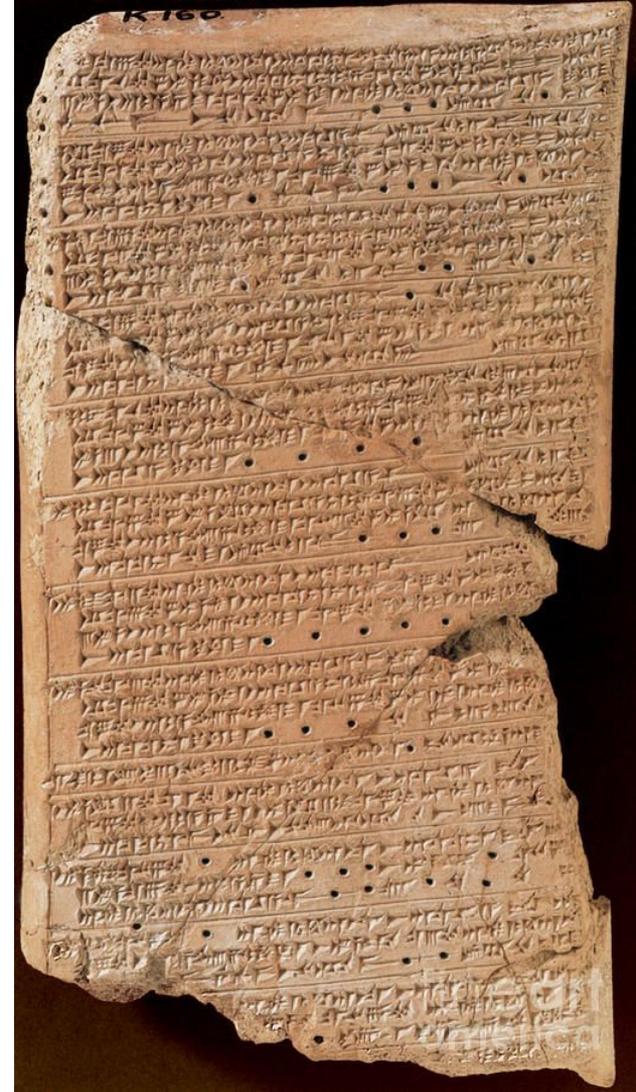
Most astronomical mythology was specifically from the Sumerians. Many constellations we still use and look at today (Leo, Taurus, Gemini, Scorpius, Auriga ((Aquarius)), and Capricorn) were invented by the Sumerians and Babylonians. They had mythical origins that were followed by the creation of the zodiac. This marked the twelve constellations the sun, moon, and planets travel between them in their cycles in the sky.

However, besides being the home of hundreds of legends, the constellations had a real use for the people of ancient cultures. Like in other societies, the constellations were used to understand different seasons to harvest or sow crops. Certain constellations were noted for their yearly rising or setting times, and provided an accurate clock by which time could be measured. The Babylonians kept written records of calendars used for planting through Cuneiform.



The Venus Tablet of King Ammizaduga

Babylonians kept records on clay tablets using cuneiform, their type of writing. In the beginning this was generally for business purposes, in order to keep track of finances and inventories. Several cuneiform tablets have been found that are about more scientific topics. One famous example is the Venus Tablet of King Ammizaduga that shows the science used by Babylonian astronomers. The main topic of this tablet is the appearance and disappearance of the planet Venus as it goes from being an evening star to a morning star. Today's scientists were able to use computers to determine that the Venus tablet was probably written in the year 1581 B.C. Another astronomical cuneiform tablet was found in the tomb of King Ashurbanipal of Ninevah, and shows the times of Venus' appearance and disappearance from the horizon.



Key Breakthroughs in Mesopotamia

The Babylonians understood how many astronomical things worked. For example, they studied Venus and knew it was the same object on a cycle. They eventually created a way to know how long the cycle was. Through this research, one cycle was 587 days. Although it actually is 584 days, the difference is because they tried to time it with the moon's phases.

Babylonians and Assyrians discovered how to predict lunar eclipses. This allowed them to look at last eclipses and understand when the next one would be. Cuneiform (their form of writing) allowed them to keep track of the amount of time between each eclipse.

One of the Babylonians' most influential discoveries was the degree system. This allowed them to distinguish positions in the sky, leading to the discoveries of latitude, longitude, constellation maps, and much more.

How Did This Influence Future Cultures' Knowledge?

Mesopotamia was the birthplace of writing, the zodiac, the twelve-month year, the sixty-minute hour, the 360-degree circle, potters' wheel, sailboats, wheels, kilns, maps, and irrigation.

They developed modern mathematics and astronomy while lacking calculators and computers. They understood interest, logarithms, and exponents. However, they lacked the ability to comprehend algebra and geometry yet.

Despite all of their incredible knowledge and advancements, Mesopotamians never found chemistry, biology, or physics. Everything was caused by spirits and religion. Although they learned many things and accomplished many incredible feats like agriculture, metallurgy, poems, and so much more, the sciences we regard as essential today never existed in Mesopotamia.

These inventions paved the way for modern discoveries and technology we use today, whether created in modern times or in other societies like Ancient Egypt, Rome, and Greece.

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