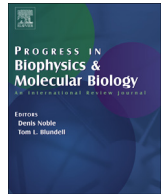




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Mysticism in the history of mathematics

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ABSTRACT

We examine the relationship between mysticism and mathematical creativity through case studies from the history of mathematics.

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1. Introduction

Taking a broad definite of mysticism — including for example divination, Pythagoreanism, Platonism, and requiring only some connection with higher realms — we consider cases studies from the history of mathematics in which mystical influences seem to have been at work. In some cases the mathematician had overt mystical practices. In others, the mystical influence had diffused from the ambient culture.

2. Ancient, from 4000 BCE

Of the ancient world we must consider the complex system of Egypt, Mesopotamia, and Greece.

2.1. Egypt

Meditating on the history of mathematics and mysticism in the ancient world, the first idea that came to my mind is the Great Pyramid of Khufu, the oldest and largest of the pyramids in the Giza Necropolis south of Cairo. Built around 2644 BCE, it was originally about 480 feet tall, the tallest man-made structure in the world until recently. Its design reflects an advanced knowledge of sacred geometry. But most of the mystical connections of its geometry have been denied by the best experts.

In *Mathematics in the Time of the Pharaohs* of 1972, historian Richard J. Gillings devoted a three-page appendix to debunking popular beliefs in Great Pyramid mysticism.

Many writers have ... made extravagant prophecies about the Great Pyramid. ... It may therefore come as a surprise ... that most of the miraculous stories written by these writers have no foundation in scientific fact at all; that the remarkable mathematical properties attributed to the Great Pyramid measurements are nowhere attested by scholarly Egyptological studies.¹

Although I still think there is mystical mathematics in this pyramid, I will not dispute the experts. So, on to the second idea that comes to mind, astrology. There is splendid evidence for astrology in Ancient Egypt, for example, the Dendera zodiac of around 50 BCE. But it is generally understood that astrology came late to Dynastic Egypt from Greece. And it came to Greece from Mesopotamia.

2.2. Mesopotamia

Prior to the arrival of the Sumerians, a pre-Sumerian culture had developed sophisticated painted pottery with aesthetic friezes, which disappeared before 3500 BCE. Mesopotamian cultures, all polytheistic with sky gods, followed this sequence.²

- Sumer, 3500 BCE
- Akkad, 2300
- Babylonia, 1800
- Assyria, 1300

The early astrology, or proto-astrology, began in the Babylonian period, around 1800 BCE, while accurate observations began around 700 BCE, toward the end of the Assyrian kingdom. On the early development of astronomy = astrology in antiquity, we have the following opinion of Jim Tester.

While many and fantastic claims have been made ever since antiquity for the vast age of Babylonian astronomy, it seems safe to say that some sort of mathematical theoretical astronomy was only developed late in Mesopotamian history, from the fifth century BCE. on, and that the real development of the science was the achievement of the Greeks.

Early Mesopotamian astronomy was purely descriptive, and the 'prehistoric' period lasted from about 1800 BCE. until the fifth century. ...

So it seems that horoscopic astrology cannot be older than the fourth century BCE, ... The earliest truly astrological texts that we possess are from Hellenistic Egypt, in Greek, from the late third and second centuries; ...

... the earliest of the few known Babylonian horoscopes is dated 41- BCE ...

... and two streams may be said to have mingled in the Greek schools, the Babylonian and the Egyptian. ...

From the second millennium BCE there was developed in Mesopotamia a vast bulk of omen-literature, which was collected and organized in a work known as the *Enuma Anu Elish*, about 1000 BCE ... A typical such omen reads: 'When the Moon occults Jupiter (*Sagmigar*), that year a king will die (or) an eclipse of the Moon and Sun will take place. A great king will die.

¹ (Gillings, 1972, p. 237).

² See the [Mesopotamian timeline](#) website.

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