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### **Greek Arithmology: Pythagoras or Plato?**

In order to answer the question, we need to draw a distinction between number symbolism that is universally widespread and goes back to preliterate culture, and arithmology that appears in Ancient Greece in a specific time and milieu. Traditional number symbolism concentrates on *individual* significant numbers, for example, three, seven or nine, without including them into the system of the first ten numbers and treating their purely mathematical properties, which is what arithmology does. In the framework of number symbolism three or seven are not related to the decad, they possess their independent meaning and significance, whereas in arithmology every number is a *member of the numerical progression from one to ten*. Two is the first even number, three is the first odd number, four is the first square number, etc.

If we apply these criteria to the authentic fragments of the ancient Pythagoreans and the reliable evidence on them, we will find a few traces of number symbolism. Thus, the Pythagoreans connected *καίρῳ* with the seven, justice with the four and believed that the world is ‘determined’ by the number three, for beginning and middle and end give this number. What we do not find in this material, however, are specific features of arithmology, as described above. There are ample grounds to believe that the Pythagoreans did not attach particular significance to the number ten. The doctrine at the basis of Greek arithmology – that decad embraces the entire nature of numbers – was not Pythagorean, but Platonic. It is the famous unwritten doctrine of Plato, which comprises a theory of ten ideal numbers, or Forms-Numbers. The first arithmological work was the treatise of Plato’s successor Speusippus *On Pythagorean Numbers*, half of which was devoted to the marvellous properties of the decad (fr. 28).

#### Biography:

Leonid Zhmud was born in 1956. Having graduated from Leningrad University, he obtained his Ph.D. in history (1988) and his D.Sc. degree in philosophy (1995) at the same university. Currently he is a leading academic researcher at the Institute for the History of Science and Technology in St. Petersburg.