

Traktat Teofrasta z Erezos o ogniu

Theophrastus' treatise On Fire

SUMMARY

Theophrastus of Eresos was head of Lyceum in Athens from year 322 to 287 B.C. He was mainly occupied with the philosophy of nature based on observation and on scientific empiricism. The problems connected with the combustion processes and with the activity of the fire aroused a great interest at Lyceum at that time, and Theophrastus devoted himself to these problems. His views upon this problem he expressed in the treatise entitled – *On Fire*. In the present article his work is evaluated from the point of view of contemporary physics and chemistry. Theophrastus was against the traditional science about elements, dating back to Empedocles. He believed that from among all elements fire has the most specific features and he described a few possibilities of making fire. It is an absurdity to look upon it as a primitive element, because fire can't exist without combustible material. In one place of the treatise he remarked that fire could not exist without air, but later he devaluated this opinion. Confirming the opinion represented by Aristotle, he stated that air was the body which was able "to suffocate" and extinguish fire. He also expressed the opinion that fire burnt best not in the air but in the vacuum. In his work there is a fantastic mention about ventilating shafts in mines, thanks to which the miners working there could breath. An interesting opinion is that the blowing of the wind, if is not too rapid and strong, can feed and increase fire. The author was about to discover illuminating gas, and was occupied with calorific value. He also wrote about bellows used at smithies, but he drew no conclusions out of it. He left a very detailed description of the flame, and remarked that at the bottom "it is spoiled by the air". In the treatise he also speaks about freshly burnt calcareous blocks, which get warmer after being splashed with water. He also described the decomposition of water in high temperatures, and he wrote about objects being burst into flames by the sun rays refracted in an appropriately polished smooth objects such as: glass, copper and silver (concave mirror).

From the arguments given by Theophrastus it is evident that, being occupied with various matters of natural science connected with fire, he a certain degree understood the necessity of application of experiment in scientific research, but he wasn't able to appreciate its methodological significance.