John Mayow

Badania nad saletrą i saletrowym duchem powietrza. Spalanie i oddychanie.
Z łaciny przełożył oraz wstępem i komentarzami opatrzył Roman Bugaj

A study on saltpetre and saltpetre's air spirit. Combustion and breathing.
Translation from the Latin, introduction and commentaries by Roman Bugaj

SUMMARY

John Mayow was born at Morval, Cornwall on 21st December 1641. In 1665 he took his doctor's degree at the Royal Society for his dissertation: "*Tractatus Duo. Quorum prior agit de Respiratione, alter de Rachitide*". Oxon 1668; on combustion and breathing, later, he extended the theory that he presented there and published under a collective title: "*Tractatus Quinque Medico-Physici*". Socii Oxonii 1674, Hague 1681. In 1678 due to Robert Hooke's motion he was affiliated into the Royal Society as its full member. He died in London at the age of 38, on 18th October 1679.

According to Mayow, in a very light, imponderable atmospheric air there is a substance that is comparable to some element hidden in nitre. He named that substance: *spiritus nitro-aëreus* and *spiritus igne-aëreus*. When the substance bonds to earth, nitre is formed. From that earth's saltpetre, a certain "air" quantity can be obtained, the "air" being necessary for breathing and sustaining combustion of bodies. In Mayow's opinion the *spiritus igne-aëreus* is not identical as air but it forms "the best and most active" part of air.

Mayow argued that the earth-saltpetre spirit, if absorbed by human lungs, causes the venous blood to be bright red. It is also the main factor of combustion and without its participation the combustion is impossible. The air-saltpetre spirit or air-flame spirit can be present both in air and in nitre as well as it causes that gunpowder including the saltpetre can burn in vacuum. Such the Mayow's conclusion was after he had carried out a number of experiments with the use of vacuum pump. Today, we can say with the full responsibility that Mayow's *spiritus igne-aëreus* and oxygen are identical. There have been published a number of works on the theory and experimental achievements of Mayow (e.g. T. S. Patterson, J. R. Partington, W. Böhm) but the authors had Mayow's main precursor and the right inventor of the air-saltpetre theory. In 1953 Henry Guerlac revealed, however that the air-saltpetre theory in its pure form had originated from Michał Sędzivoy's works, the most famous Polish alchemist (1566-1636), namely from: *Novum Lumen Chymicum* (1604) and *Tractatus de Sulphure* (1616). Guerlac's studies were continued by W. Hubicki, R. Bugaj and Z. Szydło. Moyow's work: *Tractatus Quinque* strongly influenced the theory and experiments of Stephen Hales, also the British school of pneumatics and through that also the important works of Lawrence Lavoisier.

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