

The role of water in two crucial classical experiments that investigated the question of the existence of a medium necessary for the propagation of electromagnetic waves.

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Two experiments by a) H. Fizeau (1860)¹ and, b) A. A. Michelson and E. W. Morley (1886)² have dealt with the question of the existence or not of a medium substratum that is capable of transferring electromagnetic waves.

Although modern Physics after the wide acceptance of the Special Relativity Theory (SRT) accredited to Albert Einstein, declares that no such medium is necessary, this declaration was basically a theoretical one.

Before, as well as after the proposal of this theory, many scientists tried to demonstrate the existence or not of a medium responsible for the propagation of electromagnetic waves like light itself.

The two above mentioned, needed an assistant medium of propagation of light, save for air, which could possibly make the difference being anticipated. This assistant medium were water.

These experiments used solely the classical theory of wave interference which is still absolutely valid. Interferometers were used and measures were taken with no reference to any other theory save for wave interference theory.

Even if not always directly stated, both of them showed that the interposing of water in the path of light propagation necessitated the acceptance of the existence of a special physical medium such as the Aether.

References:

1. 'On the Effect of the Motion of a Body upon the velocity with which it is traversed by Light', by M. H. Fizeau, Phil. Mag., Ser. IV, Vol/ 19, No 127, pg. 245-260, 1860.
2. 'Influence of Motion of the Medium on the Velocity of Light', by A.A. Michelson and E.W. Morley, Am. J. of Sc., Ser. 3, Vol. 31, No. 185: 377-386, 1886.