* Describe Michelson Morley experiment and discuss its consequences. Discuss the significance of negative or null results.

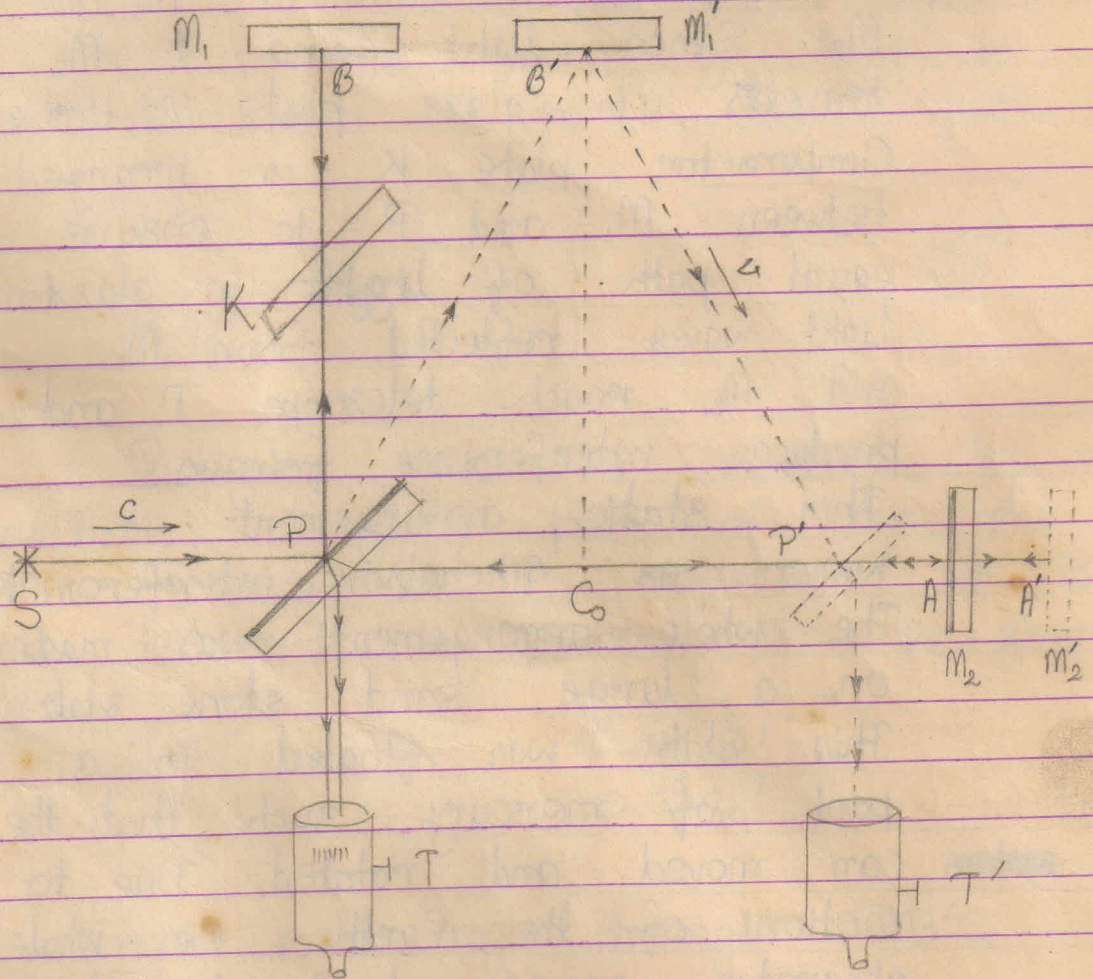

Figure-1 Schematic Michelson Morley Experiment

The schematic arrangement of instrument in the famous Michelson-Morley experiment is shown in figure 1. Glass plates P and K are plane and parallel. These are two halves of the same plate. P has it's upper face fifty persent silvered while K is unsilvered. Mirrors M_1 and M_2 are front silvered. Their reflecting faces

are equidistant from silvered face of P such that light from source S incident at P travels equal distance in reflecting from mirror M_1 and M_2. Since light going to M_2 travels in glass plate P thrice, Cumpunsetor plate K is arranged between M_1 and P to ensure equal path of ~~light~~ in glass. Light waves reflected from M_1 and M_2 reach telescope T and produce interference fringes.

This static arrangement is known as Michelson interferometer. The whole arrangement was made on a large sand stone slab. This slab was floated in a pool of mercury, such that the system can moved and rotated. Due to motion of the Earth, the whole apparatus moves. Light travelling from P to M_1 and back to T will have different time than that travelling from P to M_2 and back to T.

If v = velocity of the Earth, then we can have a time difference. Symultaneously the system is moved moving with the Earth in static aether. Mirror M_1 goes to M_1', plate P goes to P', M_2 goes to M_2'. Similar reflection conditions are obeyed.