The Parable of Copernicus and Ptolemy

A long time ago two physicists, Copernicus and Ptolemy, were hotly debating the nature of the solar system. Ptolemy maintained vigorously that the planets and the sun moved about a stationary earth. Copernicus argued equally vehemently that the earth and the planets moved about the sun. They decided to settle the dispute by theoretical calculation of the planets apparent motion in the sky.

Copernicus's calculations were very simple and his result was obtained rapidly whereas Ptolemy found his calculations long and tedious. Finally when appeal was made to experiment it was found that Ptolemy was closest to the "truth". Furthermore, by adding more and more epicycles, Ptolemy was able to improve his calculations, though it did take a long time. Copernicus could only protest that his methods, as opposed to Ptolemy's were both elegant and simple.

But wait, who should be coming but their old friends Michelson and Morley with their new interferometric toy. Copernicus sees now his chance to triumph and proudly suggests that Michelson and Morely measure the velocity of light both in the direction of the earth's motion and also at right angles. Now comes the moment of truth when the indisputable experimental test of the two conflicting theories will settle the argument once and for all time.

Copernicus disappeared from the pages of history after that and his work was relegated to the place of an odd curiosity. Meanwhile Ptolemy and his followers found that with the design of faster and larger computers they were able to produce better and better calculations and of course they never did discover relativity.

B. G. Wybourne, *Compact Groups in Atomic Physics, pp63-121 in New Directions in Atomic Physics,* (Yale Univ. Press, New Haven 1970).