

The text below can be found at

<https://web.archive.org/web/20030522033549/http://www.weizmann.ac.il/sci-tea/physics/sciam.html#q8>. That archived copy has a timestamp of 22 May 2003. The source website can still be found online at <http://www.weizmann.ac.il/sci-tea/physics/sciam.html#q8>.

Areas highlighted in yellow overlap exactly with McCrory P “Definitions for the Purist”, Br J Sports Med 2005;39:786.

The origins of the meter go back to the 18th century. At that time, there were two competing proposals for how to define a standard unit of measure, or meter. The astronomer Christian Huygens suggested that the meter be defined by the length of a pendulum having a period of one second; others favored a meter defined as one ten-millionth the length of the earth's meridian along a quadrant (one fourth the circumference of the earth). In 1791, soon after the French Revolution, the French Academy of Sciences endorsed the meridian definition because the force of gravity varies slightly over the surface of the earth, affecting the period of a pendulum.

"Researchers measured the arc from Dunkirk, France to Barcelona, Spain; on June 22, 1799, the French Academy Archives adopted its standard meter, recorded on a platinum bar. (The French government made the meter the compulsory standard of measure in 1840.) The French, however, miscalculated the flattening of the earth due to its rotation. As a result, the meter in the Archives is 0.2 millimeters shorter than one ten-millionth of the quadrant of the earth.

"Despite its flaws, the French definition of the meter stuck. The Treaty of the Meter was signed in 1875, and in 1889 a platinum-iridium bar was established as the International Prototype Meter. (It was selected from several candidate meters because it was the closest to the called the Meter of the Archives, the platinum bar held in the French Academy.) So in fact at that time, a meter was really defined as the length of a metal bar.

"The meter bar lasted a good long time; but it became cumbersome and error-prone to refer to a specific, physical meter bar. Finally, after 71 years, a new standard emerged. In 1960 the General Conference on Weights and Measures redefined the meter in terms of the number of waves of a very precise color (wavelength) of light emitted by krypton 86 atoms. That revision did not last so long. In 1983 the Conference discarded the krypton standard and redefined the meter in terms of the speed of light--what might be called a theoretical definition. The meter is now officially 1/299,792,458 the distance traveled by light in a vacuum in one second.