

CHAPTER OVERVIEW

2: Units, Dimensional Analysis, Problem Solving, and Estimation

But we must not forget that all things in the world are connected with one another and depend on one another, and that we ourselves and all our thoughts are also a part of nature. It is utterly beyond our power to measure the changes of things by time. Quite the contrary, time is an abstraction, at which we arrive by means of the change of things; made because we are not restricted to any one definite measure, all being interconnected. A motion is termed uniform in which equal increments of space described correspond to equal increments of space described by some motion with which we form a comparison, as the rotation of the earth. A motion may, with respect to another motion, be uniform. But the question whether a motion is in itself uniform, is senseless. With just as little justice, also, may we speak of an “absolute time” --- of a time independent of change. This absolute time can be measured by comparison with no motion; it has therefore neither a practical nor a scientific value; and no one is justified in saying that he knows aught about it. It is an idle metaphysical conception ^[1]- Ernst Mach

[2.1: The Speed of light](#)

[2.2: International System of Units](#)

[2.3: Dimensions of Commonly Encountered Quantities](#)

[2.4: Order of Magnitude Estimates - Fermi Problems](#)

[1] E. Mach, The Science of Mechanics, translated by Thomas J. McCormack, Open Court Publishing Company, La Salle, Illinois, 1960, p. 273.

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