Words spoken in Memory of Amedeo Avogadro
and for the Opening of the Congresses.

R. T. Birge

University of California - Berkeley, Cal.

In a world full of aspirations and national jealousies, a scientific international conference is a very desirable event. I believe that among all examples of intellectual activity, including the arts, music and literature, there is no example that shows a higher degree of international cooperation than that of the sciences, and especially those of the physical sciences.

The phenomena of nature have a universal value, and whoever studies and verifies experiments in this manner, without regard to race or nationality: for this reason there cannot be fundamental differences of opinion regarding this type of knowledge. Scientists are, however, human beings, and for the progress of scientific research it is of enormous importance, for those involved in this common task, to get to know each other personally.

For this reason I believe that a conference of this type is of the highest value not only for increasing personal knowledge but also for fostering interest and cooperation between nations. Only through a real interest and a reciprocal confidence can we hope to arrive at a world peace.

In the name of all the scientists who have convened, I wish to express our profound and sincere gratitude to the city of Turin for all its preparations and efforts in organizing this International Congress on the fundamental constants of physics. I wish to thank all the organizers, in particular Prof. Polvani and Deaglio, who have contributed with such success to this Congress, results worthy of the illustrious Italian physicist, Amedeo Avogadro, in whose name and in honor of whom we have gathered here.
The correctness of the foregoing Italian words I owe to my dear colleague, Professor Emilio Segre. The doubtless bad pronunciation I owe entirely to myself. It is my first attempt to speak in Italian, a language I have never studied. In fact, I presume that the greatest factor in continuing the misunderstandings between nations is just this condition of diversity of language.

For that reason a truly universal language is something greatly to be desired, although all attempts thus far to introduce an artificial universal language have gained little support. Apparently the nearest approach we now have to a universal language is just the English language itself. This fact is recognized in the present gathering, where nearly all of the papers will be delivered in English.

An editorial in Nature, of November 19, 1955, states that at present 50 percent of all scientific papers are written in English, 15 percent in French, 15 percent in German, and 10 percent in Russian, leaving only 10 percent for all other languages, including Italian and Spanish. But if the Nuovo Cimento continues its present near monopoly of papers on meson physics, I think that the Italian percentage is certain to rise.

Amadeo Avogadro was born in Torino on August 9, 1776 and died here on July 9, 1856. He was a member of a distinguished Italian family, and in accordance with the vocation of the family, he became a bachelor of law and later doctor of ecclesiastical law. After practising for a time he became interested in mathematics and physics, and in 1809 he was appointed professor of physics in the Royal College of Vercelli. In 1820 he was appointed to the newly created chair of mathematical physics, in Torino, and continued in that position until his retirement in 1850, except for a decade during which the chair was abolished for political reasons. The 4-volume, Trattato, printed for private distribution by the Torino Academy of Sciences in 1911, contains more than 50 of his publications, of which only his famous paper of 1811 is generally known.

The history of the Atomic-Molecular Theory, to which Avogadro made such a major contribution, is discussed in detail in one of the excellent Harvard Case Histories, with that title (1). During the period 1800-1803 John Dalton gave the first clear formulation of an atomic theory, although the first printed account of his work appeared in a book by Thomas Thomson, published in 1807. The work of Gay-Lussac, on the law of combining volumes, first announced in 1808, formed the experimental basis for Avogadro's hypothesis,