The Atomic Theory as Applied To Gases, with Some Experiments on the Viscosity of Air

by

Silas W. Holman

Submitted to the Department of Nuclear Science and Engineering and
the Center for Computational Science and Engineering
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN COMPUTATIONAL NUCLEAR MATERIALS

at the

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Authored by: Silas W. Holman
Department of Nuclear Science and Engineering
May 18, 1876

Certified by: Edward C. Pickering
Professor of Nuclear Science and Engineering, Thesis Supervisor

Accepted by: Primus Castor
Professor and Graduate Officer
Department of Nuclear Science and Engineering

Accepted by: Tertius Castor
Professor and Graduate Officer
Center for Computational Science and Engineering

THESIS COMMITTEE

Thesis Supervisor

Edward C. Pickering
Professor of Nuclear Science and Engineering
Department of Nuclear Science and Engineering

Thesis Readers

Marcus Gavius Apicius
Professor of Cooking Arts
Department of Food Science

Marie-Antoine Carême
Professor of Haute Cuisine
Department of Food Science

Miles Gloriosus
Professor of Personal Pronouns
Department of Rhetoric

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ABSTRACT

The developments of the "kinetic theory" of gases made within the last ten years have enabled it to account satisfactorily for many of the laws of gases. The mathematical deductions of Clausius, Maxwell and others, based upon the hypothesis of a gas composed of molecules acting upon each other at impact like perfectly elastic spheres, have furnished expressions for the laws of its elasticity, viscosity, conductivity for heat, diffusive power and other properties. For some of these laws we have experimental data of value in testing the validity of these deductions and assumptions. Next to the elasticity, perhaps the phenomena of the viscosity of gases are best adapted to investigation.[1]

Thesis supervisor: Edward C. Pickering
Title: Professor of Nuclear Science and Engineering

[1] Text from Holman (1876): doi:10.2307/25138434.