

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

by

Silas W. Holman

Submitted to the Department of Physics and the Department of Mechanical Engineering in partial fulfillment of the requirements for the degrees of

BACHELOR OF SCIENCE IN PHYSICS

and

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

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Authored by: Silas W. Holman
Department of Physics
May 18, 1876

Certified by: Edward C. Pickering
Professor of Physics, Thesis Supervisor

Certified by: Secunda Castor
Department of Mechanical Engineering, Thesis Supervisor

Accepted by: Primus Castor
Professor of Wetlands Engineering
Graduate Officer, First Degree Department

Accepted by: Tertius Castor
Professor of Log Dams
Graduate Officer, Second Degree Department

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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 investigation¹.

Thesis supervisor: Edward C. Pickering

Title: Professor of Physics

Thesis supervisor: Secunda Castor

Title: Department of Mechanical Engineering

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