

**THE ART OF PROJECTING. A  
MANUAL OF EXPERIMENTATION IN  
PHYSICS, CHEMISTRY, AND  
NATURAL HISTORY, WITH THE PORTE  
LUMIERE AND MAGIC LANTERN**

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The Art of Projecting. A Manual of Experimentation in Physics, Chemistry, and Natural History, with the Porte Lumiere and Magic Lantern by A. E. Dolbear

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**A. E. DOLBEAR**

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# THE ART OF PROJECTING.

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**A Manual of Experimentation**

IN

PHYSICS,

CHEMISTRY, AND NATURAL HISTORY

WITH THE

PORTE LUMIERE AND MAGIC LANTERN.

BY PROF. A. E. DOLBEAR,

YUPT'S COLLEGE.

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## P R E F A C E .

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THE object of this treatise is to point out to teachers of physical science, and to others who may be interested in experimentation, the usefulness of the Magic Lantern, and especially of the Porte Lumière, and a few other pieces of apparatus which can mostly be extemporized. With these a surprisingly large number of experiments in every department of physics may be performed, and every department of science and art may be illustrated; and the illustrations may be upon a scale of magnitude which will surprise one who has never witnessed them. The manipulation of the apparatus is not at all difficult, and no one need fear he will not succeed in doing anything described in the book, provided that at first he masters the simple conditions of projection with a single lens and with a condenser.

The simplest fixtures have been described, and a cut has been inserted wherever it could make more intelligible either the forms of the apparatus or the necessary conditions. No attempt has been made to explain phenomena, — other books do that; but it is hoped that a sufficient number and variety of experiments are plainly described to make any one thoroughly familiar with the art of projecting.

1877



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