

**THE INTERNATIONAL SCIENTIFIC  
SERIES, VOL. VI: THE  
CONSERVATION OF ENERGY,  
BEING AN ELEMENTARY TREATISE  
ON ENERGY AND ITS LAWS**

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BY

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MANCHESTER

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*WITH FOURTEEN ILLUSTRATIONS*

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## PREFACE.

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WE may regard the Universe in the light of a vast physical machine, and our knowledge of it may be conveniently divided into two branches.

The one of these embraces what we know regarding the structure of the machine itself, and the other what we know regarding its method of working.

It has appeared to the author that, in a treatise like this, these two branches of knowledge ought as much as possible to be studied together, and he has therefore endeavoured to adopt this course in the following pages. He has regarded a universe composed of atoms with some sort of medium between them as the machine, and the laws of energy as the laws of working of this machine.

The first chapter embraces what we know regarding atoms, and gives also a definition of Energy. The various forces and energies of nature are thereafter enumerated, and the law of Conservation is stated. Then follow the various transmutations of Energy, according to a list, for which the author is indebted to Prof. Tait. The fifth chapter gives a short historical sketch of the subject, ending with the law of Dissipation; while the sixth and last chapter gives some account of the position of living beings in this universe of Energy.

*The Owens College, Manchester,*

*August, 1873.*

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