

**THE CAMBRIDGE COURSE OF
ELEMENTARY NATURAL
PHILOSOPHY: BEING THE
PROPOSITIONS IN MECHANICS
AND HYDROSTATICS**

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The Cambridge Course of Elementary Natural Philosophy: Being the Propositions in Mechanics and Hydrostatics by J. C. Snowball

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J. C. SNOWBALL

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THE
CAMBRIDGE COURSE
OF
ELEMENTARY NATURAL PHILOSOPHY:

BEING THE PROPOSITIONS IN

MECHANICS AND HYDROSTATICS,

In which those Persons who are not Candidates for Honours are examined
for the Degree of B.A.

ADAPTED FOR THE USE OF COLLEGES AND SCHOOLS.

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*FOURTH EDITION.*

To which are now added numerous Examples and Problems, from the University  
Examination Papers and Original, with Hints for their Solution.

BY J. C. SNOWBALL, M.A.,  
FELLOW OF ST. JOHN'S COLLEGE, CAMBRIDGE.

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MDCCL.





## P R E F A C E.

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THE following pages contain the demonstrations of the questions in the Course of Elementary Natural Philosophy in which the University of Cambridge requires the Candidates for the Ordinary Degree of B.A. to be prepared for Examination. The Enunciations adopted by the Senate have here been adhered to, and the Propositions are proved in the same order as they have been numbered by Authority.

It has been endeavoured to give such proofs and explanations as might be found intelligible and easy by Students possessing a moderate acquaintance with Arithmetic, the first principles of Algebra, and Euclid's Elements. To the present edition (the Fourth) a Collection of Examples and Problems has been added.

ST. JOHN'S COLL., CAMBRIDGE,  
*November, 1850.*

**SCHEDULE OF MATHEMATICAL SUBJECTS of Examination, for  
the Degree of B.A. in the University of Cambridge, of Per-  
sons not Candidates for Honours.**

**ARITHMETIC**

Addition, subtraction, multiplication, division, reduction, rule of three :  
the same rules in vulgar and decimal fractions ; practice, simple and  
compound interest, discount, extraction of square and cube roots,  
duodecimals.

**ALGEBRA.**

1. Definitions and explanation of algebraical signs and terms.
2. Addition, subtraction, multiplication, and division of simple algebraical quantities and simple algebraical fractions.
3. Algebraical definitions of ratio and proportion.
4.        If  $a : b :: e : d$ , then  $ad = bc$ , and the converse :  
          also  $b : a :: d : c$ ,  
          and  $a : c :: b : d$ ,  
          and  $a + b : b :: e + d : d$ .
5.        If  $a : b :: e : d$ ,  
          and  $c : d :: e : f$ ,  
          then  $a : b :: e : f$ .
6.        If  $a : b :: c : d$ ,  
          and  $b : e :: d : f$ ,  
          then  $a : e :: a : f$ .
7. Geometrical definition of proportion. (EUCLID. Book v. Def. 5.)
8. If quantities be proportional according to the algebraical definition, they are proportional according to the geometrical definition.
9. Definition of a quantity *varying as* another, *directly* or *inversely*, or as two others *jointly*.

**EUCLID.**

Books I. II. III.

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- 62.\* The pressure of a fluid on any horizontal plane placed in it, is equal to the weight of a column of the fluid whose base is the area of the plane, and whose height is the depth of the plane below the horizontal surface of the fluid.