

**OUTLINES OF
MATHEMATICAL AND
PHYSICAL GEOGRAPHY**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649419838

Outlines of Mathematical and Physical Geography by William Lawson

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WILLIAM LAWSON

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OF
MATHEMATICAL AND PHYSICAL
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BY
WILLIAM LAWSON,
TRAINING COLLEGE, DURHAM.

EDINBURGH:
OLIVER AND BOYD, TWEEDDALE COURT.
LONDON: SIMPKIN, MARSHALL, AND CO.

1864.

Price One Shilling and Threepence.

Now ready, Revised Edition, 348 pages, 12mo, 5s.

GEOGRAPHY OF THE BRITISH EMPIRE.

By WILLIAM LAWSON, Training College, Durham.

Part I. Mathematical and Physical Geography.—Part II. Physical, Political, and Commercial Geography of the British Islands.—Part III. Physical, Political, and Commercial Geography of the Colonies.

For Schools and Private Students.

Edinburgh: OLIVER AND BOYD. LONDON: SIMPSON, MARSHALL, AND Co.

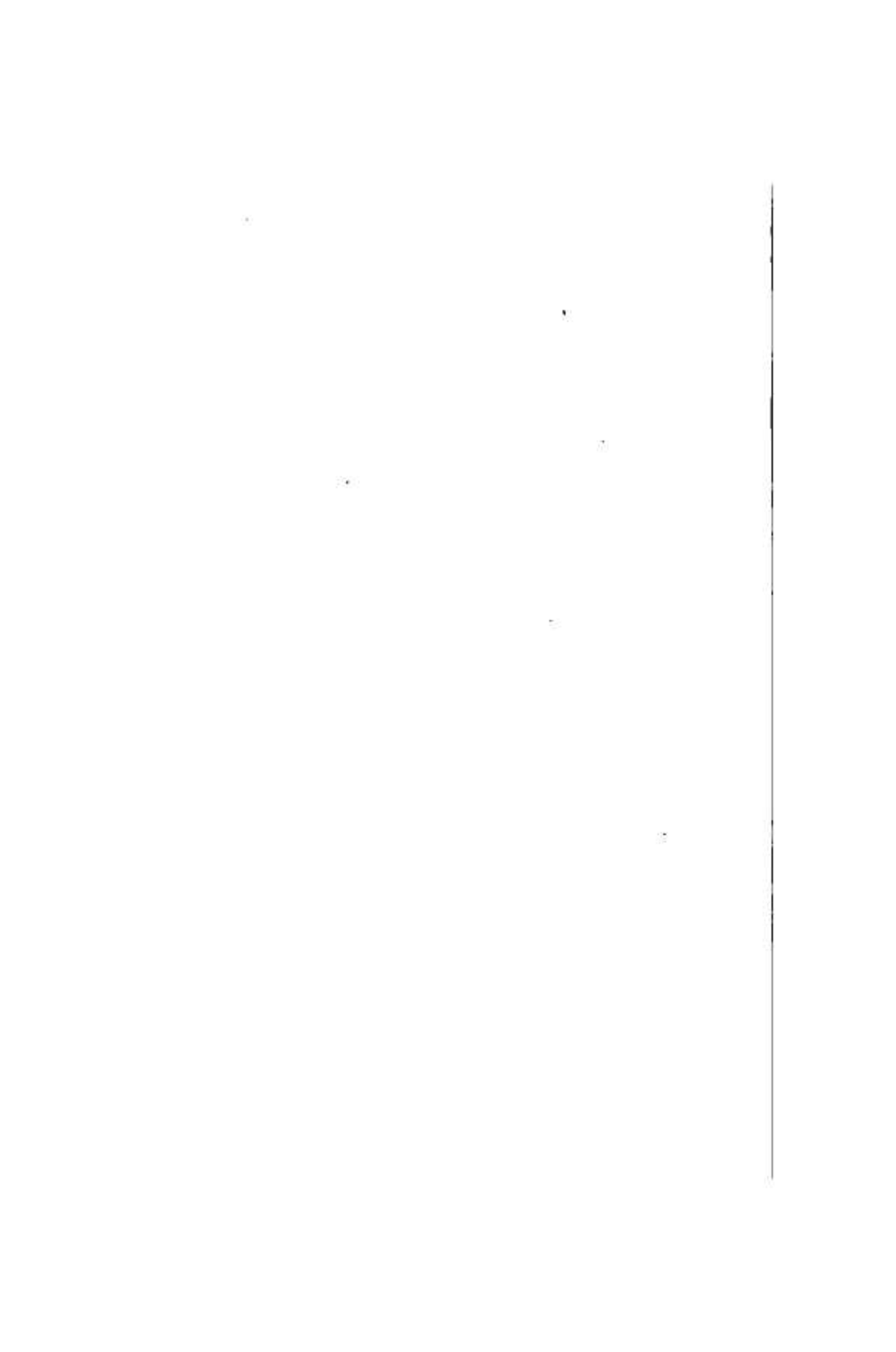


PRINTED BY OLIVER AND BOYD, EDINBURGH.

PREFACE.

THIS little text-book contains the First Part of the author's *Geography of the British Empire*, and is published in a separate form to meet the wishes of those teachers who, while not requiring the *Geography of Great Britain and her Colonies*, would be glad to have a cheap text-book of *Mathematical and Physical Geography*. The first four chapters give a brief outline of those parts of popular *Astronomy* which are more immediately connected with *Geography*, and form a fitting introduction to the subjects discussed in the succeeding chapters. The brief sketch of *Geology* contained in Chapter V. will be found useful as setting forth some of those general principles on which *Physical Geography* is based; while at the same time, if thoroughly learnt, it will enable the pupil to prosecute successfully the study of one of the most interesting of natural sciences. It is not necessary that anything should be said on the importance of *Physical Geography*. Every practical teacher knows that without it no thorough knowledge of other branches of the science can be attained; while an acquaintance with a few of its general principles will enable the student to grasp a multiplicity of details, which would otherwise be a heavy burden to the memory.

DURHAM, April 1864.



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OUTLINES OF MATHEMATICAL AND PHYSICAL GEOGRAPHY.

CHAPTER I.

FORM AND MAGNITUDE OF THE EARTH.—METHODS OF FINDING LATITUDE AND LONGITUDE.

THE earth is an immense ball, isolated in space.—We know that the earth is isolated in space, because travellers have gone round it. Ships have set out from different parts, and, continuing in the same general direction, have at length returned to the place from which they started. We know also that the shape of the world is round. The common argument drawn from the appearance presented by a ship, when leaving or approaching the shore, is as true as it is familiar. The shadow of the earth as seen in an eclipse shows, also, that the earth is a globe; and if additional proof be needed, it may be remarked that the visible horizon, or boundary of our vision, is always a circle, and this could not be the case if the earth were not a sphere. Nor do the various elevations and depressions upon the earth's surface interfere with the spherical shape of it considered as a whole. This will be evident when the magnitude of the earth is considered. It will be shown afterwards that the diameter of the earth, that is, the measure *through* it, is about 8000 miles; now, as the highest mountain does not rise six miles above the sea level, such an elevation bears no greater