

ASTRONOMICAL  
GEOGRAPHY.

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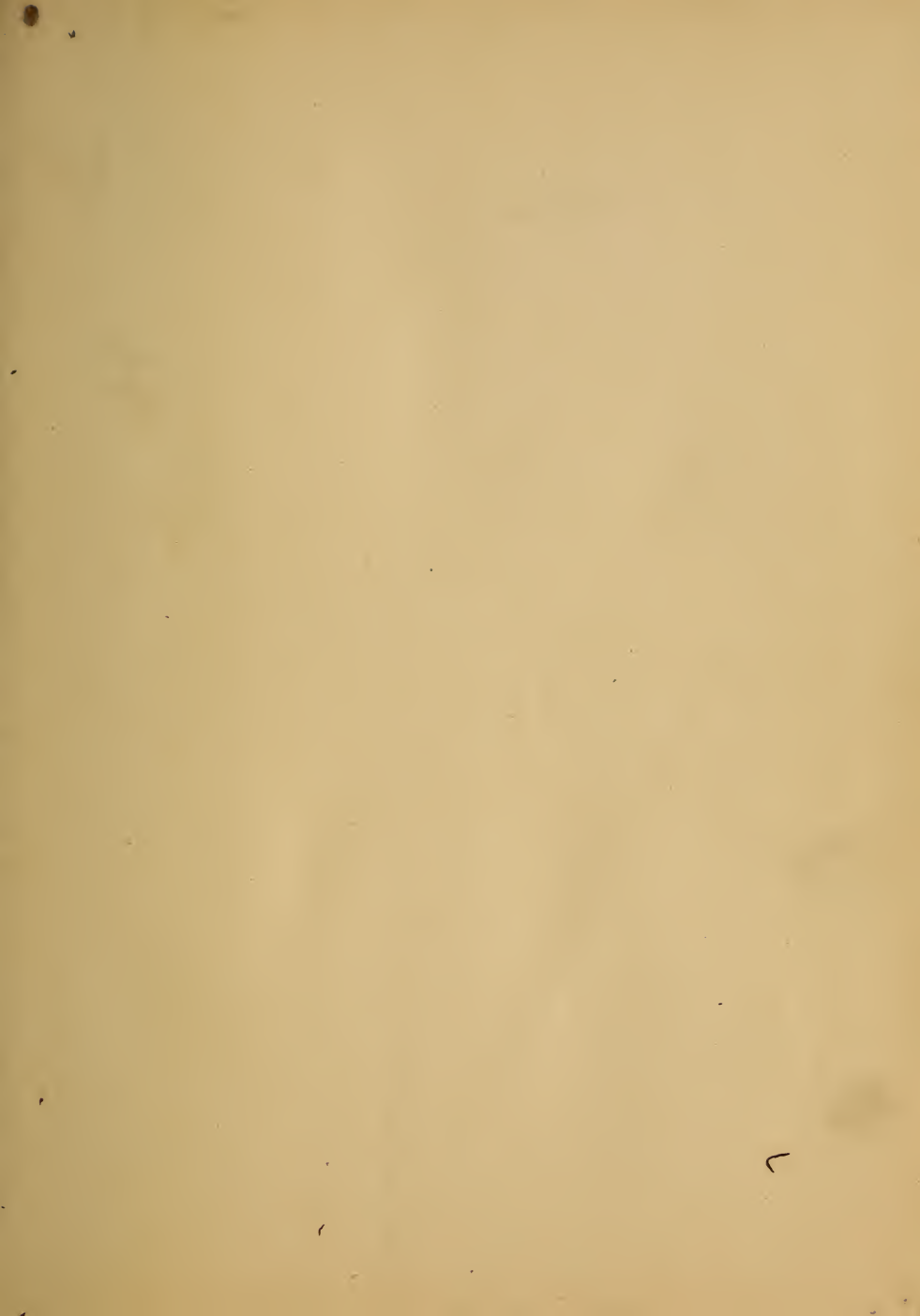
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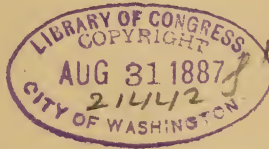


# ASTRONOMICAL GEOGRAPHY.

BY

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## PREFACE.

**A** TEXT BOOK on PHYSICAL GEOGRAPHY has long been needed, specially adapted to advanced classes in our common schools.

It is the intention of the author to write such a text book on Physical Geography, but owing to the lack of means the first section, Astronomical Geography, now goes before the public asking my co-workers in the field of education to support me in carrying out the grand scheme of lifting our common schools to a higher plane of usefulness. In an experience of five years the author has found that our present system of Physical Geographies, written for high schools and colleges, are not adapted to the wants of our common schools. To meet these requirements and to encourage deeper investigation into the broad field of science, I place this little volume before the teachers of our country.

The author holds himself responsible for any errors that may have crept into the work ; but if any such there be, he

*PREFACE.*

will feel under lasting obligations to those who will communicate the same to him. The work is the result of experience and patient toil, but if it supplies the demands for which it was written, the author will feel greatly rewarded for his work.

SAMUEL M. SARK.

Circleville O., August 22, 1887.

# ELEMENTS OF ASTRONOMICAL GEOGRAPHY.

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## INTRODUCTION.

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### LESSON I.

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1. DERIVATION.—The word, geography, is derived from the Greek *ge*, the earth, and *graphein*, to write. Its literal signification is, therefore, a description of the earth.

2. SPHERE OF GEOGRAPHY.—Strictly speaking, geography includes both an account of those changes which have been wrought by man, and those which have been produced by Nature. It treats not only of the earth, but of all things related to the earth. In its broadest sense it includes Astronomy, Geology, Mineralogy, Zoology, Meteorology, Phys\_

ics, Botany, and various other sciences. Hence we see, that instead of geography being a distinct science, it is a collection of various sciences.

3. **CLASSIFICATION.**—There are two-logical divisions of geography, political and physical.

**POLITICAL GEOGRAPHY** treats of the earth as the dwelling place of man ; of the society he has organized to promote his own welfare ; of the government he has originated to suppress his crimes ; of the religion he has invented to reverence a Supreme Being ; of his manner of living etc.

**PHYSICAL GEOGRAPHY** describes the extent and explains the cause of the various natural phenomena of the earth.

4. **PHYSICAL GEOGRAPHY** is subdivided into astronomical, physiographical, meteorological, zoological and botanical geography.

5. **ASTRONOMICAL GEOGRAPHY** is the science which considers the earth in its relation to the Universe, and in its relation to the Solar System.

6. **PHYSIOGRAPHICAL GEOGRAPHY** treats of the land and water belonging to the earth.

7. **METEOROLOGICAL GEOGRAPHY** is the science of the atmosphere and its phenomena.

8. **ZOOLOGICAL GEOGRAPHY** treats of animals and their distribution over the earth.

9. **BOTANICAL GEOGRAPHY** treats of the plants and their distribution.

10. MATHEMATICAL DEFINITIONS—(a) A point has position but no dimensions.

(b) A line is a magnitude which has length, but no volume.

(c) A straight line is one that does not change its direction throughout.

(d) A curve line is one that changes its direction at every point.

(e) Parallel lines are those, which, lying in the same plane, would never meet; no matter how far they be produced.

(f) An angle is the parting of two lines which meet.

(g) The point where the lines meet is called the vertex.

(h) An angle is named from a letter placed at its vertex as in fig. 1, which reads, the angle E or the angle F E G.

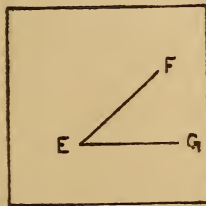


FIG. 1.

(i) The size of an angle depends entirely upon the difference in direction of its sides and not at all upon the length of those sides.

(j) A right angle is one formed by a straight line meet-

ing another straight line making the adjacent angles equal. The first line is then said to be perpendicular to the second.

- (k) An obtuse angle is greater than a right angle.
- (l) An acute angle is less than a right angle.

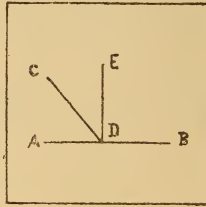


FIG. 2.

(m) In fig. 2, A D E and E D B are right angles. A D C is an acute angle. C D B is an obtuse angle.

(n) A convex surface is one that bulges out in a spherical form, like the outside of an egg shell.

(o) A concave surface curves in, like the inside of an egg shell.

(p) A plane has length and breadth without thickness.

(q) A circle is a plane bounded by a curve line, every point of which is equally distant from a point within called the center.

(r) The circumference of a circle is the line which bounds it.

(s) A straight line drawn from one side of the circle to the other, passing through the center is called the diameter.

(t) A straight line drawn from center to circumference is called the radius.

(u) The circumference of a circle is divided into 360 equal parts called degrees°.

(v) An angle is measured by the number of degrees in the arc that subtends it.

(w) AN ELLIPSE is a plane figure, bounded by a curve line, every point of which is at such distances from two points within, called its foci, that the sum of these distances is in each case the same.

(x) The center of an ellipse is the point midway between the foci.

(y) The Major Axis is the longest diameter.

(aa) The Minor Axis is the shortest diameter.

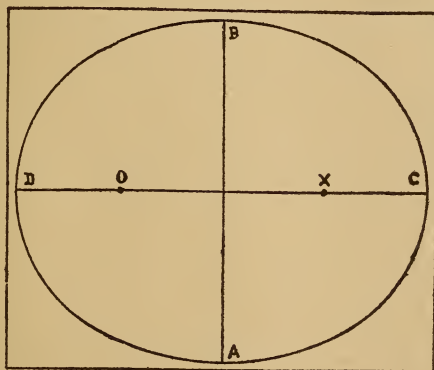


FIG. 3.

(bb) Fig. 3 represents an ellipse.

O and X are the foci.

D C is the major axis.

A B is the minor axis.

(cc) A solid has length, breadth, and thickness.

(dd) A SPHERE is a volume bounded by a curved surface, every point of which is equally distant from a point within called the center.

The diameter of a sphere is a straight line passing from one side, through the center, to the other side.

(ee) THE AXIS of a revolving sphere is the diameter around which it turns.

The ends of the axis are called the poles.

(ff) An Oblate Spheroid is a sphere flattened at the poles like an orange.

(gg) A Prolate Spheroid is a sphere elongated at the poles like a lemon.



# SECTION I.

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## LESSON II.

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I. THE UNIVERSE is the name applied to the entire material world.

There are truths before which man becomes humiliated and perplexed, although, he knows from the very nature of things, the absolute necessity of their existence. Among such are the eternal duration of time and the infinity of space. We live, therefore, in an expanse without limits, in whose bosom the universe is floating.

2. CONSTITUENTS OF THE UNIVERSE.—The first persons who studied the heavenly bodies fancied the Earth standing in the center of a hollow sphere ; that the stars were golden nails, which, seen on the concave surface, the great Architect of the universe had used in its construction.

Modern science teaches us that the universe is composed of Nebulae, Stars, Planets, Satellites, Comets and Meteors.

These bodies are divided into luminous and non-luminous bodies. Luminous bodies shine by their own light. Non luminous bodies shine by reflecting light of the luminous bodies.

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