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**A treatise describing the construction, and explaining the use of new  
celestial and terrestrial globes**

**Adams, George**

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[Introduction.]

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THE

# DESCRIPTION and USE

OF THE NEW

## CELESTIAL and TERRESTRIAL

# G L O B E S.


 F the periphery of a semi-circle be turned round its diameter as an axis, it will generate the surface of a globe or sphere, and the center of the semi-circle will be the center of the globe: it therefore follows, that as all the points in the circumference of the semi-circle, are at an equal distance from its center, so all the points of a globe, thus generated, must be the same.

82. Any straight line passing through the center of a globe, being terminated by its surface, is called a diameter; and that diameter about which the globe turns, is called its axis; the extremities of which are called the poles of the globe.

83. There are two artificial globes. That on which the surface of the earth is represented, is called the terrestrial globe.

84. The other on which the face of the starry sphere is delineated, is called the celestial globe.

85. In the use of the terrestrial globe, we are to consider ourselves standing upon some part of its surface, and that its motion represents the real diurnal motion of the earth, which is from west to east.

86. In the use of the celestial globe, we are to suppose ourselves at the center, and that its motion represents the apparent diurnal motion of the heavens, which is from east to west.

87. Note, The stars being delineated upon the convex surface of the celestial globe, we must suppose ourselves at the center; because under such a supposition they would appear,

appear, as they naturally do, in the concave surface of the heavens.

88. Several circles are described upon the surface of each globe. Those whose planes pass through the center of the globe, are called great circles; some of which are graduated into 360 degrees, 90 of which make a quadrant.

89. Those circles whose planes do not pass through the center of the globe, are called lesser circles.

90. Our new terrestrial and celestial globes, fig. 1, and fig. 25. are each of them suspended at their poles in a strong brass circle NZÆSN, and turn therein upon two iron pins, which are the axis of the globe. They have each a thin brass semi-circle NHS moveable about the poles, with a small thin sliding circle thereon.

91. On the terrestrial globe, fig. 1. this semi-circle NHS is a moveable meridian, and its small sliding circle H, the visible horizon of any particular place to which it is set. But,

92. On the celestial globe, fig. 25. this semi-circle NHS is a moveable circle of  
E decli-

declination, and its small circle H, an artificial sun or planet.

93. Each globe hath a brass wire circle, T W Y, placed at the limits of the crepusculum, or twilight, which, together with the globe, is set in a wooden frame: the upper part BC is covered with a broad paper circle, whose plane divides the globe into two hemispheres, and the whole is supported by a neat pillar and claw, with a magnetic needle in a compass box at M.

94. On our new terrestrial globe, the division of the face of the earth into land and water, is accurately laid down from the latest and best astronomical, geographical, and nautical discoveries. There are also many additional circles, as well as the rhomb-lines, for the greater ease and convenience in solving all the necessary geographical and nautical problems.

95. On the surface of our new celestial globe, all the southern constellations, lately observed at the Cape of Good-Hope by M. de la Caille, and all the stars in Mr. Flamsted's British catalogue, are accurately laid down, and marked with Greek and Roman letters of reference, in imitation of Bayer. Upon each

each side of the ecliptic are drawn eight parallel circles at the distance of one degree from each other, including a space of sixteen degrees, called the zodiac; these are crossed at right angles with segments of great circles at every fifth degree of the ecliptic, for the reader noting the place of the moon or any planet upon the globe.

96. We have also inserted from Ulugh Beigh, printed at Oxford, A. D. 1665, the manazil al kamer, i. e. the mansions of the moon of the Arabian astronomers; which are so called, because they observed the moon to be in or near one of these every night, during her monthly course round the earth, to each of which the Arabian characters are affixed. They may be of very great use to beginners to teach them the names of the stars, as well as to mariners for the same purpose; who may have occasion to observe the distance of the moon from a fixed star, in the new method of discovering the longitude at sea. They will likewise serve to shew, how the moon passes from star to star in the course of one or several nights, which is a very curious and useful amusement; and as they are a divi-

tion of the heavens different from any thing the Greeks were acquainted with, and therefore not borrowed from them, and as we do not know they were ever inserted on any globe before, we hope we have with propriety placed them on our new celestial globe. See Costard's *Hist. of Astronomy*, p. 40.

The broad paper circle BC on the surface of the wooden frame which supports the brass meridian

97. Contains four concentric circular spaces. The innermost of which is divided into 360 degrees, and numbered into four quadrants, beginning at the east and west points, and proceeding each way to 90 degrees at the north and south points; these are the four cardinal points of the horizon. The second circular space contains, at equal distances, the thirty-two points of the mariner's compass. Another circular space is divided into twelve equal parts, representing the twelve signs of the zodiac; these are again subdivided into 30 degrees each, between which are engraved their names and characters. This space

space is connected with a fourth, which contains the kalendar of months and days; each day, on the new eighteen-inch globes, being divided into four parts, expressing the four cardinal points of the day, according to the Julian reckoning; by which means the sun's place is very nearly obtained for the three common years after biffextile, and the intercalary day inserted without confusion. Whence we derive the following

PROBLEM I.

To find the sun's place any day in the year on the broad paper-circle.

98. Consider whether the year in which you seek the sun's place is biffextile, or the first, second, or third year after.

99. If it be the first year after biffextile, those divisions, to which the numbers for the days of the month are affixed, are the respective days for each month of that year at noon; opposite to which, in the circle of twelve signs, is the sun's place.

100. If it be the second year after biffextile, the first quarter of a day backwards, or towards the left hand, is the day of the