Problems.

PROBLEM I.

To find the Latitude of any place.

RULE.—Bring the given place to the brass meridian, and the degree above the place is the latitude.

What is the latitude of Philadelphia?   A. 40° N.   Of Boston?   A 42½° N.   Cape Horn?   London?   Pekin?   Cape of Good Hope?   Paris?   Calcutta?

What places have no latitude?

PROBLEM II.

To find the Longitude of any place.

RULE.—Bring the place to the brass meridian, and the degree on the equator under the meridian is the longitude.

What is the longitude of Philadelphia? 75° W.   Boston?   New York?   Pekin?   Lima?

What places have the same longitude as New York?   Stockholm?   London?

When it is 12 o'clock at Stockholm, what inhabitants of the earth have the same hour?

PROBLEM III.

To find any place whose Latitude and Longitude are given.

RULE.—Find the longitude on the equator, and bring it to the brass meridian; then find the latitude on the meridian, and under it is the place sought.

What place has 77½° W. longitude and 39° N. latitude?   A. Washington.

What places have the following latitudes and longitudes?

Latitude.	Longitude.
52½° north,	13½° east.
32° north,	81½° west.
23° south,	42½° west.
22½° north,	88½° east.

PROBLEM IV.

To find the distance between any two places.

RULE.—Lay the quadrant of altitude over both places, and the degrees between them multiplied by 69¼ will give the English miles.

What is the distance between the Island of Bermuda and St. Helena?

A. $73\frac{1}{4} \times 69\frac{1}{2} = 5109\frac{1}{4}$ miles.

PROBLEM V.

To rectify the Globe for the latitude of a place.

RULE.—Elevate the pole till the horizon cuts the meridian in the latitude of the place.   Rectify the Globe for the latitude of London.

PROBLEM VI.

The hour at one place being given, to find what hour it is at any other place.

RULE.—Bring the place where the hour is given to the meridian, and set the index of the hour circle to that hour; then turn the Globe till the place where the hour is required comes under the meridian, and the index will point to the hour at that place.

When it is 10 o'clock in the morning at London, what hour is it at St. Petersburg?   A. The difference of time is two hours—12.

When it is noon at Hartford, what hour is it in London?   Constantinople?

PROBLEM VII.

To find the Sun's declination.

RULE.—Find the sun's place in the ecliptic, and bring it to the brass meridian and the degree over it is the sun's declination.