

Pacific Ocean, where there is little land, so that few people except sailors are troubled by this change in date. There are a few groups of islands, however, like the Aleutian Islands, which are on both sides of the 180th meridian. As it would be inconvenient for some of these islands to use a different date from the others, it has been agreed that the day shall not change everywhere at the 180th meridian, but along an irregular line shown on the map and known as the *International Date Line*. This line has been drawn so that no two neighbouring regions belonging to the same country shall have different dates at the same time. See page 51.

If you were on a steamer going from Vancouver to Japan, it would be necessary, when the steamer crossed this line, for you to change your reckoning exactly one day; for instance, if you reached the line on Monday noon, after crossing the line, you would have to call it Tuesday noon. If you were going in the opposite direction, you would have to call it Sunday noon.

IV. THE MOTIONS OF THE EARTH

(Continued)

Revolution. The other great motion of the earth, that about the sun in the course of a year, is known as its *revolution*. The earth, rotating all the time, circles around

the sun much as a spinning top sometimes moves about on the floor. The earth does not spin, as the top usually does, with its axis straight up and down, but with it inclined to the plane in which it moves at the angle shown in the accompanying figure. This angle of inclination from the perpendicular is $23\frac{1}{2}$ degrees, or a little more than one fourth of a right angle. As the earth moves about the sun in a nearly circular path, the north pole leans toward the sun. When

the earth has reached the opposite position in its course, the north pole leans away from the sun. Accordingly each pole is for six months in the sunlight, and then for the next six months in the shadow of the earth. In order to make this motion clear, thrust a knitting-needle or a long hat pin through an apple from bloom end to stem end.

Then tilt the

needle to the proper angle, and move it and the apple about some central object representing the sun. It will then be readily seen that, though the needle always points in the same direction as does the earth's axis, one end leans toward the central object when in one position, and away from it when in the opposite position, just as a pole of the earth does.

The distribution of sunlight over the earth therefore changes constantly, and as a result we have different seasons. The best method



Position of the earth in its orbit each month. Notice that the axis always points in the same direction.