in space, revolves in a cone round the pole of the ecliptic. Our globe, it is calculated, will accomplish its revolution in about 25,000 years. In about this period it will return to its original position. This balancing, which has been compared to that of a top when about to cease spinning, produces the movement known as the *precession of the equinoxes*. It is due to the attraction which the sun and moon exercise upon the swelling equatorial of the globe. This attraction would act very differently upon a globe entirely solid, and upon one with a liquid interior, covered by a comparatively thin crust. Mr. Hopkins subjected this curious problem to mathematical analysis, and he calculated that the precession of the equinoxes, observed by astronomers, could only be explained by admitting that the solid shell of the earth could not be less than from about 800 to 1,000 miles in thickness.

In his researches on the *rigidity of the earth*, Sir William Thomson finds that the phenomena of precession and nutation require that the earth, if not solid to the core, must be nearly so; and that no continuous liquid vesicle at all approaching 6,000 miles in diameter can possibly exist in the earth's interior, without rendering the phenomena in question very sensibly different from what they are.

The calculations of Mr. Hennessey are in direct opposition to those of Sir William Thomson, and show that the earth's crust cannot be less than eighteen miles, or more than 600 miles in thickness.

Admitting, for the present, that the terrestrial crust is only thirty miles in thickness, we can express in a familiar, but very intelligible fashion, the actual relation between the dimensions of the liquid nucleus and the solid crust of the earth. If we imagine the earth to be an orange, a tolerably thick sheet of paper applied to its surface will then represent, approximately, the thickness of the solid crust which now envelopes the globe. Fig. 13 will enable us to appreciate this fact still more correctly. The terrestrial sphere having a mean diameter of 7,912 miles, or a mean radius of 3,956 miles, and a solid crust about thirty miles thick, which is $\frac{1}{260}$ of the diameter, or $\frac{1}{130}$ of the radius, the engraving may be presumed to represent these proportions with sufficient accuracy.

To determine, even approximately, the time such a vast body would take in cooling, so as to permit of the formation of a solid crust, or to fix the duration of the transformations which we are describing, would be an impossible task.

The first terrestrial crust formed, as indicated, would be incapable of resisting the waves of the ocean of internal fire, which would be depressed and raised up at its daily flux and reflux in obe-