

its rate of rotation is accelerated. This is one of the necessary laws of matter. A rotating sphere of tenuous matter undergoes some flattening at the poles; as the velocity of rotation increases, the polar flattening increases; the equatorial protuberance increases. The earth is equatorially protuberant because it rotates.

When a body rotates on its axis, the parts around the equator experience a tendency to fly off, which is greater than such tendency on other parts of the surface. A rapidly rotating grindstone throws off the water. An emery wheel rotating too rapidly for its strength flies asunder, in consequence of excess of the flying-off or centrifugal tendency. The centrifugal tendency is stronger than the cohesion of the parts. If the earth were to rotate seventeen times as rapidly as it does, bodies at the equator would have no weight. In the rotating nebula which we are considering, the centrifugal tendency of the equatorial parts diminishes their weight, and the undiminished weight of the polar parts presses the equatorial out in a bulge.

Meantime the nebula contracts and the rate of rotation continues to be accelerated. What must result under this tendency of things? Evidently the time will arrive when parts on the equator will have acquired a tendency to fly off just equal to the attraction by which they had been held in their places. If contraction still continues, as it must in a cooling mass, the peripheral parts, balanced between equal centrifugal and centripetal forces, will not move either toward the center or from the center. What should make them? Those parts will remain where they are, and the parts within will withdraw from the equatorial parts. That is, a ring will be disengaged—not thrown off. The ring will retain the rotation which it had, and the residual mass will continue to cool and accelerate its rotation within the ring.

What will happen to the ring? Perhaps you have seen the ring of white smoke resulting from the explosion of a soap bubble inflated with phosphureted hydrogen; what happened to that? It floated as a ring till external disturbances caused