

## XXXVII. THE WHIRLING FIRE-MIST.

## NEBULAR THEORY OF WORLD ORIGIN.

BEHOLD the matter of a solar system in the form of a nebula. Poised in the midst of space, it tends to a globular form; but the attraction of its own center is so distant as to be feebly felt at the remote periphery of so tenuous a mass. The late accessions of nebulous stuff have left superficial irregularities—like those in the clouds which float in our atmosphere. They subside with comparative slowness; but yet they tend to disappear. This vast empire of world-stuff rotates, but a million of years may flee away before one revolution is completed. With eternity at command all finite intervals of time are zero. I can not answer the question whether a gaseous constitution pervaded all parts of this nebula. I think it probable that portions of the included space were filled with gas. I think such portions may have been bounded by the sphere on which the elasticity of the gas was equalized by opposing attractions. There was already fire-mist—fine liquid particles suspended in gases or poised between counter attractions. There were probably stones and concretions of iron hanging suspended through the mass. It is not at all supposable that the entire space within the periphery of the nebula was occupied. There may have been spaces hundreds or thousands of miles wide, not filled with any thing but the all-pervasive ether—if that exists. I do not conceive a continuous medium so unimaginably thin as would result from the expansion of the matter of the solar system uniformly through a sphere bounded by the orbit of Neptune.

If this mass is heated, it radiates heat into surrounding space, and the heated parts contract. If the parts are still gathering themselves nearer to the distant center of gravity, the whole mass contracts. If the time ever arrives when the parts gathering toward the center of gravity are balanced by mutual resistances, or by reaction of heat, then further loss of heat will result in contraction of the whole mass. In either event, the mass contracts. If a rotating body contracts,