

THE PHILOSOPHICAL REVIEW.

THE METAPHYSICAL IMPLICATIONS OF THE PRINCIPLE OF RELATIVITY.

THE Principle of Relativity is a mathematical principle by which spatial and temporal measurements are coördinated for observers in systems of reference which are in movement relatively to one another, and by which the equations are transformed when the observer passes from one system to another. Before we can understand the principle it is essential to understand the problem.

Let us suppose that while we are seated in a room some genie, like the genie of the lamp in the story of Aladdin, were to transport the room at a high velocity to some other part of the world, are there any means by which, limited to inside observation, we could know that the room was moving and could calculate the velocity and direction of the movement? Or, let us suppose that it is not the room by itself, but the whole solar system which has suddenly started a movement through space at an enormous velocity, impelled, we may imagine, by the kick of some Micro-megas at play in the universe. Were there no astronomers or other folk observing the stars, is there any purely terrestrial phenomenon, anything which would necessarily undergo alteration on the earth itself, by observing which we could know that we were being translated in a definite direction at a definite speed? Until a few years ago when the important experiment which I am going to speak of was made, it was thought that optical phenomena observed under laboratory conditions would reveal such a movement of a system, could even reveal its