

*Philosophy and the New Physics. An Essay on the Relativity Theory and the Theory of Quanta.* By L. Rougier. Authorized translation from the author's corrected text of *La matérialisation de l'énergie* by M. Masius. Philadelphia, Blakiston, 1921. 16mo. 16 + 159 pp.

The title of this translation is somewhat misleading. That of the original, *La Matérialisation de l'Energie*, gives a better idea of the scope of this work, which is an excellent presentation of the way in which the old dualistic view of matter and energy has given way to the modern merging of these two concepts into each other. The foundation for the modern view was laid when Sir J. J. Thomson showed, in 1881, that the inertia of an electrically charged sphere is increased by its motion. This led to the conception of electromagnetic momentum in the ether, and the author shows how the theory of relativity has solved the difficulties which this conception involves when it was combined with the stationary ether required for optical phenomena.

The book was apparently written before the author was familiar with the general theory of relativity, for Einstein's first value for the deflection of the light from a star by the sun's gravitational field is given. This is, however, corrected in a note later on. The author appears to be satisfied that the displacement of the solar spectral lines towards the red, demanded by the theory of relativity, has been experimentally confirmed, although this is far from being true.

Coming to the theory of quanta, it is difficult, as the author shows, to avoid the conclusion, if the consequences of the theory of relativity be accepted, that radiation is propagated by means of discrete elements or quanta. But until it is shown that the differential equations of optics, which are wholly successful in interpreting all ordinary optical phenomena, are consistent, perhaps only to a first approximation, with a quantum theory of radiation, one can hardly agree with the author in his extreme view.

There is a wrong reference to Poincaré's paper on the dynamics of the electron on page 73. The correct one is given in the bibliography on page 154.

E. P. ADAMS.

*Das Exzentrizitätsprinzip als Korrelat zur Relativitätstheorie.* By K. M. Kohler. Vienna, Franz Deuticke, 1921.

In this seventy-page pamphlet the author presents the restricted theory of relativity in a novel form by studying the geometry of the one-parameter family of spheres

$$(x - vt)^2 + y^2 + z^2 = c^2t^2, \quad t > 0.$$

His conclusions are in accord with Einstein's theory and his method is of interest. He spoils an otherwise interesting paper, however, by claiming to have found a means of distinguishing between absolute motion and rest by correlating these two states with the eccentricity and concentricity of the electro-magnetic waves emitted by the body in question. Since he shows clearly that to an observer moving with a moving body the waves emitted by it would appear to be concentric, his claim is not to be treated seriously. This claim is not, however, organically related to the remainder of the paper.

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