impossible to tell by any experiment whether one is at rest or in uniform motion of translation with respect to the ether; one cannot say that two events are simultaneous in an absolute sense; moreover, all bodies will undergo a shortening in the direction of their motion. It is with this fascinating subject, more especially with the modified mechanics that it implies, that Poincaré deals.

It is only in bodies that possess a very great velocity that one can hope to discern a deviation from the laws of the Newtonian mechanics. Now Mercury moves at the greatest velocity of any of the planets and it is precisely Mercury that possesses a small anomaly not yet explained. The new mechanics accounts for a part of this, as Lorentz has shown, and nowhere else produces a sensible modification in the motion of the planets.* After these facts have been presented, Poincaré concludes by observing that the Newtonian mechanics will remain forever the mechanics at velocities which are small with respect to the velocity of light, and thus will continue to preserve its fundamental importance.

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THE THEORY OF ELECTRONS.

The Theory of Electrons and its Applications to the Phenomena of Light and Radiant Heat. By H. A. LORENTZ. Leipzig, B. G. Teubner, 1909. 332 pp.

Ueber Elektronen. Von W. WIEN. Zweite Auflage. Leipzig, B. G. Teubner, 1909. 39 pp.

THE physical hypotheses which are adopted for the formulation and discussion of the correlation of a certain restricted group of physical phenomena, and in particular for the development of their mathematical theory, depend to a large degree upon those phenomena themselves and are in no small measure independent of other groups of related phenomena and of the point of view adopted relative to physics as a whole. Thus in dealing with most problems in heat, the old idea of heat as a sort of massless substance, caloric, still serves as the simplest

* Newcomb and Seeliger have shown that the anomaly in the motion of Mercury and of the other inner planets can be explained, for the most part, by the attraction of matter, diffusely distributed about the sun, of plausible mass, and of such distribution as to give rise to the known phenomenon of the zodiacal light.