

made of such vague conceptions as the "persistence of force."

26.
Kirchhoff.

In Germany the introductory lines of Kirchhoff's Lectures on "Mechanics" mark an era in scientific thought: "Mechanics is the science of motion: we define her task: to describe completely and in the simplest manner the motions which take place in nature." This definition implies a great deal more than it actually states. In confining itself to description it discards explanation — *i.e.*, the search after the causes, and, still more, after the ends of motion. And as to the simplest manner of the description Kirchhoff adds significantly: "It is quite imaginable that doubts can exist whether one or the other description of certain phenomena is the simpler; it is also thinkable that a description which to-day is the simplest that can be given may in the further development of science be replaced by one still more simple." Since Kirchhoff wrote these words, they have been endlessly repeated by men of science and philosophers alike, to all of whom they have given much occasion for reflection.

27.
Wundt and
Mach.

Kirchhoff's work appeared in 1876. Before that time two thinkers of eminence had been led, through purely scientific interests, to an analysis and discussion of the axioms of physics and dynamics. They were: Wilhelm Wundt, who published in 1866 a tract "On the physical axioms and their relation to the principle of causality," and Ernst Mach, who published in 1872 a tract "On the history and origin of the principle of the conservation of energy." To these two writers we owe, in their further publications, the most successful