

42.  
Mach on the  
limitation  
of mechan-  
ical physics.

stance, cause, life, &c., which lend themselves only with difficulty to any rigid definition at all. The same is also the case with the terms of the more recent vocabulary introduced by the theory of descent, such as: selection, the survival of the fittest, the struggle for existence, and lastly, evolution. No thinker has done more to show how all these notions, with their various expressions in scientific and popular language, are ultimately derived from subjective states, than Professor Ernst Mach of Vienna. His views are independently represented in this country by Prof. Karl Pearson. The matter cannot be more clearly put than was done by the former thinker in the following passage taken from his 'Science of Mechanics.'<sup>1</sup>

"The division of labour, the restriction of individual inquirers to limited provinces, the investigation of those provinces as a life-work, are the fundamental conditions of a fruitful development of science. Only by such specialisation and restriction of work can the economical instruments of thought, requisite for the mastery of a special field, be perfected. But just here lies a danger—the danger of our overestimating the instruments with which we are so constantly employed, or even of regarding them as the objective aim of science. Now, such a state of affairs has, in our opinion, actually been produced by the disproportionate formal development of physics. The majority of natural inquirers ascribe to the intellectual implements of physics, to the concepts, mass, force, atom, and so forth, whose sole office is to revive economically arranged experiences, a reality beyond and independent of thought. Not only so, but it

<sup>1</sup> 'Die Principien der Mechanik,' 1st. ed., 1883, p. 476 *sqq.*