ditions, able to produce these rotations. It was therefore of interest to study the nature of rotational or whirling motion, if such could exist in a perfect liquid, and to see what would be likely to happen to these whirls. Though it might be difficult to understand how in a perfect liquid rotation of any portion could be produced, calculation might determine what would be the nature and fate of such whirls, if they did exist. The problem was a purely mathematical one. Can a rotational motion, a whirl, exist in a perfect fluid, as defined by the mathematical conception? If it can, what are the properties of such whirls, and what becomes of them? Helmholtz solved these questions in his now celebrated treatise, showing that whirls (called by English writers vortices) can exist, but only under certain conditions, such as can be experimentally represented by smoke-rings issuing from an orifice; that, if they existed in a perfect liquid, they would be indestructible and would possess a motion of their own, giving them a special individual character as to permanence and movement. The treatise, like the problem, was a purely mathematical one,[1] and in the mind of the celebrated author was probably connected more with the problem of the formation of drops, and with that of the friction or viscosity of fluids, which he attacked subsequently, than with the nature of matter. In this country vortex motion had already been studied by natural philosophers with very different ends in view.

It was known that solid bodies which are in a rapid

[1] It revealed incidentally the analogy of hydrodynamical and electrical phenomena.