

by analogy, the universe. It assumes that the SUN was originally a mass of incandescent matter, that vast body being brought into a state of evolution by the action of laws to which the Creator, in His divine wisdom, has subjected all matter. In consequence of its immense expansion and attenuation, the exterior zone of vapour, expanding beyond the sphere of attraction, is supposed to have been thrown off by centrifugal force. This zone of vapour, which may be supposed at one time to have resembled the rings of Saturn, would in time break up into several masses, and these masses coalescing into globes, would (by the greater power of attraction which they would assume as consolidated bodies) revolve round the sun, and, from mechanical considerations, would also revolve with a rotary motion on their own axes.

This doctrine is applied to all the planets, and assumes each to have been in a state of incandescent vapour, with a central incandescent nucleus. As the cooling went on, each of these bodies may be supposed to have thrown off similar masses of vapour, which, by the operation of the same laws, would assume the rotary state, and, as satellites, revolve round the parent planet. Such, in brief, was the grand conception of Laplace ; and surely it detracts nothing from our notions of the omnipotence of the Creator that it initiates the creation step by step, and under the laws to which matter is subjected, rather than by the direct fiat of the Almighty. The hypothesis assumes that as the vaporous mass cooled by the radiation of heat into space, the particles of matter would approximate and solidify.

That the figure of the earth is such as a very large mass of matter in a state of fluidity would assume from a state of rotation, seems to be admitted, thus corroborating the speculations of Leibnitz, that the earth is to be looked on as a heated fluid globe, cooled, and still cooling at the surface, by radiation of its superfluous heat into space. Mr. W. Hopkins\* has put forth some strong but simple reasons in support of a different theory ; although he does not attempt to solve the problem, but leaves the reader to form his own conclusions. As far as we have been able to follow his reasoning we gather from it that :—

If the earth were a fluid mass cooled by radiation, the cooled parts would, by the laws of circulating fluids, descend towards the centre, and be replaced on the surface by matter at a higher temperature.

\* See *Phil. Transactions*, 1839-40-42 ; also, *Quarterly Journal of the Geological Society*, vol. viii., p. 56.