but we should be far from having any exact idea of the processes actually taking place within the solar globe, even if we were absolutely certain that that or some other general theory were the true one.

Assuming that our earth, when in the sunlike stage, was a gaseous mass within a liquid non-permanent shell, we can see that as the process of cooling went on the showers forming the shell would attain a greater and greater depth, the shell thus becoming thicker, the space within the shell becoming less, the whole earth contracting until it became entirely liquid; or rather these changes would progress until no considerable portion of the carth would be gaseous, for doubtless long before this stage was reached large portions of the earth would have become solid. As to the position which the solid part of the earth's globe would assume when the first processes of solidification took place, we must not fall into the mistake of judging from the formation of a crust of ice on freezing water that these solid parts would form a crust upon the earth. Water presents an exception to other substances, in being denser in the liquid form than as a solid. Some metals and alloys are like water in this respect ; but with most earthy substances, "and notably," says Dr. Sterry Hunt, "the various minerals and earthy compounds like those which may be supposed to have made up the mass of the molten globe, th. . case is entirely different. The numerous and detailed experiments of St. Clair Deville, and those of Delesse, besides the earlier ones of Bischof, unite in showing that the density of fused rocks is much less than that of the crystalline products resulting from their slow cooling, these being, according to Deville, from one-seventh to one-sixteenth heavier than the fused mass, so that if formed at the surface they would, in obedience to the laws of gravity, tend to sink as soon as formed."*

sheet would continually increase at some slow rate, and its whole diameter diminish. In other words, the sun, according to this view, is a gigantic bubble, whose walls are gradually thickening and its diameter diminishing at a rate determined by its loss of heat. It differs, however from ordinary bubbles in the fact that its skin is constantly penetrated by blasts and jets from within."

* It is as yet doubtful, how far the recent experiments of Mallet affect this reasoning.

Nevertheless, inasmuch as solidification would occur at the surface, where the radiation of heat would take place most rapidly, and as the descending solid matter would be gradually liquified, it seems certain that for a long time the solid portions of the earth, though not forming a solid crust, would occupy the exterior parts of the earth's globe. After a time, the whole globe would have so far cooled that a process of aggregation of solid matter around the centre of the earth would take place. The matter so aggregated consisted probably of metallic and metalloidal compounds denser than the material forming the crust of the earth. Between the solid centre and the solidifying crust, there would be a shell of uncongealed matter, gradually diminishing in amount, but a portion probably retaining its liquid condition even to the present time, whether existing in isolated reservoirs or whether, as Scrope opines, it forms still a continuous sheet surrounding the solid nucleus. One strange fact of terrestrial magnetism may be mentioned in partial confirmation of the theory that the interior of the earth is of this nature,—a great solid mass, separated from the solid crust by a viscous plastic ocean: the magnetic poles of the earth are changing in position in a manner which seems only explicable on the supposition that there is an interior solid globe rotating under the outer shell, but at a slightly different rate, gaining or losing one complete rotation in the course of about 650 years.

Be this as it may, we find in this theory an explanation of the irregularities of the earth's surface. The solid crust, contracting at first more rapidly than the partially liquid mass within, portions of this liquid mass within, would force their way through and form glowing oceans outside the crust. Geology tells us of regions which, unless so formed, must have been produced in the much more startling manner conceived by Meyer, who attributed them to great meteoric downfalls.*

* There is very little new under the sun. In dealing with the multitudinous lunar craters, which were certainly formed in ages when unattached meteors were enormously greater in number and size than at present, I mentioned as a consideration not to be overlooked the probability that some of the meteoric matter falling on the moon when she was plastic with intensity of heat might be expected to leave traces which we could discern ; and although none of the larger lunar craters could be so