

tion with which we are acquainted are slate and graywacke, which contain some remains of sea weeds from the silurian or cambrian sea. On what did these so-called *most ancient* formations rest, if gneiss and mica schist must be regarded as changed sedimentary strata? Dare we hazard a conjecture on that which can not be an object of actual geognostic observation? According to an ancient Indian myth, the earth is borne up by an elephant, who in his turn is supported by a gigantic tortoise, in order that he may not fall; but it is not permitted to the credulous Brahmins to inquire on what the tortoise rests. We venture here upon a somewhat similar problem, and are prepared to meet with opposition in our endeavors to arrive at its solution. In the first formation of the planets, as we stated in the astronomical portion of this work, it is probable that nebulous rings revolving round the sun were agglomerated into spheroids, and consolidated by a gradual condensation proceeding from the exterior toward the center. What we term the ancient silurian strata are thus only the upper portions of the solid crust of the earth. The erupted rocks which have broken through and upheaved these strata have been elevated from depths that are wholly inaccessible to our research; they must, therefore, have existed under the silurian strata, and been composed of the same association of minerals which we term granite, augite, and quartzose porphyry, when they are made known to us by eruption through the surface. Basing our inquiries on analogy, we may assume that the substances which fill up deep fissures and traverse the sedimentary strata are merely the ramifications of a lower deposit. The foci of active volcanoes are situated at enormous depths, and, judging from the remarkable fragments which I have found in various parts of the earth incrusting lava currents, I should deem it more than probable that a primordial granite rock forms the substratum of the whole stratified edifice of fossil remains.* Basalt containing olivine first shows itself in the period of the chalk, trachyte still later, while eruptions of granite belong, as we learn from the products of their metamorphic action, to the epoch of the oldest sedimentary strata of the transition formation. Where knowledge can not be attained from immediate perceptive evidence, we may be allowed from induction, no less than from a careful comparison of facts, to hazard a conjecture by which granite would be re-

* See Elie de Beaumont, *Descr. Géol. de la France*, t. i., p. 65; Beudant, *Géologie*, 1844, p. 203.