creation towards the improvement of the type. Bronn recognises the frequency of so-called "mixed forms" uniting in themselves features which subsequently are distributed and specialised in different related genera or families, but he takes such forms to be incontrovertible evidence of the law of the introduction of improved forms.

As far back as 1849, L. Agassiz had distinguished progressive, prophetic, synthetic, and embryonic types among fossil organisms, and had attributed great importance to the prophetic and embryonic types as fore-runners and signs of coming changes in the organised relations. A similar conception was afterwards conveyed by Richard Owen in his definition of "plan-forms" or "archetypes."

Both Agassiz and Bronn gave particular attention to the grades of differentiation and complexity, and to the systematic rank of an animal type, and enunciated fundamental principles of animal organisation. In 1854, Edward Forbes for the first time in literature pointed out the significance of degeneration, or retrogression of types, as shown in certain groups of animals.

According to Bronn, two fundamental principles have guided the whole succession of organisms from the oldest geological period to the present time: first, an extensive and intensive productive force continually increasing in power; and second, the nature and the variations of the external conditions. With remarkable skill and ingenuity, Bronn elucidates the circumstances and events upon which the activity of the productive force is dependent, as well as the varying conditions of the atmosphere, the climate, the distribution of land and water, the configuration of the successive land surfaces in the past ages, and the influence of the varying conditions on the animate creation. He infers from these considerations the law of *terripetal development*. From a primæval ocean rose cliffs, islands, and continents; the fauna of a universal ocean was succeeded by the first settlement of land animals and plants; as the islands and continents increased in size, and denudation altered their surfaces, new conditions of existence were provided for terrestrial and fresh-water inhabitants, and more complex correlations and differentiations of parts were rendered possible. The faunas and floras of the older geological periods bore a tropical impress: the temperature cooled very slowly, and as the conditions approached more nearly to those of the present age, the strange-looking orders, families,