

the intervening sandstones; for all these strata lie nearly flat over the edges of the inclined under strata. On the contrary, in Savoy, strata of similar formations occur nearly vertical, and frequently conformable to the range and dip of the granitic formations. These facts would prove, that the causes which have elevated granite, have acted at different epochs, on various parts of the globe, unless we are prepared to admit, that similar calcareous formations, containing similar organic remains, were not cotemporaneous in different countries."

In the latter part of the same volume I further stated, that as some of the strata on the Diableret mountains in the Vallais contain, at the height of seven thousand feet, fossils similar to those of the tertiary strata in the Paris Basin, it was more reasonable to believe, that they had been raised since their deposition, than that fresh-water formations had covered any part of the earth at such a vast elevation; and hence we may infer, that the epoch when the granite of the Alps was raised, is comparatively recent.*

When M. Daubuisson published his *Geognosie*, both he and almost all the French geologists adopted the theory of Werner, respecting the formation of granite prior to all other rocks: if, therefore, the elevation of its beds took place soon after its original formation, this elevation preceded the deposition of the secondary strata by many geological ages, and could have had no effect on the position of beds which did not then exist. My views with respect to the different ages of granitic ranges, and the discovery of the true secondary character of the calcareous mountains in the Tarentaise, have since been brought forward by some French geologists, as their original discoveries. My observations were made in the year 1820, at which time they would have been warmly opposed in France; and the answer to them would have been, "Have we not had an *Ecole de Mines* at Moutiers in the centre of the Tarentaise, where some of our first chemists and geologists resided for a long time? we must therefore know the true character of the country better than any occasional visiter."

It is not however certain, that the elevation of beds of granite or other primary rocks might not take place deep under the ocean, and a far more extensive elevating power may, at a later period, have been required to raise them above the waves, until they formed islands and continents. Indeed such must have been the case, where primary rocks are covered with nearly horizontal strata of marine or aqueous formation. Even the nearly horizontal beds of red marl, that cover the elevated beds of granite on Charnwood Forest, must have been formed or deposited under water: the whole, therefore,

* Since the author published his opinion, in 1823, respecting the recent elevation of the Alps, founded on an attentive examination of the structure of the Pennine and Bernese Alps, M. Von Buch, M. L. Elie de Beaumont, and M. Andre de Luc, of Geneva, have advanced similar opinions, and stated that the elevation of those mountains took place after the formation of the tertiary strata.