According to Élie de Beaumont, the ages of the mountain-systems as a rule correspond with the limits of geological formations, and therefore also with the "revolutions" indicated by Cuvier in the development of organic creation. The mountain-systems might in his opinion be regarded as chronological documents bearing witness to the paroxysmal stages in the physical history of the earth's crust. He then attempted to ascertain after this method the ages of the various mountain-systems in Europe, deriving his facts partly from his own observations, partly from literature.

While engaged on this inquiry, Élie de Beaumont became greatly impressed with the parallelism of the strike in the several component elements of a mountain-system. He remembered a saying of Werner's, that mineral veins with parallel strike afford evidence of the simultaneous origin of the vein fissures, and he applied this principle to mountain-systems, endeavouring to prove in the most detailed manner that mountain-systems or ranges with parallel strike were of simultaneous origin. The spherical form of the earth made it, however, difficult to determine the parallelism of mountain-systems far remote from one another, since in such cases the same term of geographical orientation would be used to describe directions which were not by any means parallel. Élie de Beaumont met this difficulty by treating the mountain-systems as tangents of earth-circles and arguing from the parallelism of the tangents. He regarded as parallel all mountain-systems which crossed the meridian at a like angle.

With the principle of parallelism, Élie de Beaumont left the sure ground of inductive reasoning and entered into speculative matter, which unfortunately he continued to discuss during the remainder of his life. In his description of the mountains of Europe, published in 1852, they are represented as tangents of twenty-one circles, and from the inclination of these circles to one another Élie de Beaumont deduced a general geometrical law of orientation for the mountains of the earth. He also constructed a "pentagonal net-work" of the fifteen largest circles which corresponded to the corners of a regular isogon in the centre of the earth, and made it the fundamental basis of his elaborate scheme of the earth's mountain-systems. But the famous "Réseau pentagonal" never received general recognition, although it was much discussed for a time by the personal adherents of Élie de Beaumont.