

What did great harm to Goethe's correct anticipations was the fact that in optics he had unsuccessfully combated the generally accepted Newtonian theory of colours,¹ and that his morphological glimpses were taken up by Schelling and his school and incorporated in the fantastic speculations of the philosophy of nature. They shared the fate of this and passed into temporary oblivion.

The idea of the fixity of certain forms in nature, of the architectonic modelling of her objects according to certain archetypes, which Cuvier had put forth as the result of extensive observation and inductive examination of living and fossil forms, which in De Candolle was connected with the conception of geometrical order, regularity, and symmetry, found in Goethe's mind an artistic sanction. "It is," as the historian of botany has remarked, "the idealistic conception of nature which looks upon the organic forms as continually recurring

37.
The ideal
type.

¹ A full discussion of Goethe's theory of colours will be found in two addresses of Helmholtz: the first, from the year 1853, was reprinted in the first volume of his often-quoted 'Vorträge und Reden'; the second was delivered nearly forty years later at the meeting of the Goethe Society at Weimar, in June 1892. In the latter Helmholtz significantly refers to the great revolution which in the interval had come over scientific thought through the general recognition of the principles of energy and of evolution. By the light of these we are better able to understand the shadowy but nevertheless truthful anticipations contained in Goethe's poetical and scientific writings. Helmholtz traces the errors of Goethe's colour-theory

largely to the fact that he worked with imperfect apparatus and impure colours; that "he never had before his eyes perfectly purified homogeneous-coloured light, and hence would not believe in its existence. On this difficulty," Helmholtz continues, "of complete purification of the simple spectral colours, a man like Sir D. Brewster foundered, who was much more experienced and clever in optical experimenting than Goethe, and was equipped with the best instruments" (Goethe's 'Vorahnung kommender naturwissenschaftlicher Ideen,' by H. von Helmholtz, Berlin, 1892, p. 30). Cf. also Helmholtz's Memoir on Brewster's Analysis of Sunlight, 1852. Reprinted in *Wissenschaftl. Abhandl.*, vol. ii.