

forms only accessible to the microscope. The metamorphosis of the different organs in the plant had been suggested by Wolf, and more fully demonstrated by Goethe. Unity of organisation had been proclaimed by Saint-Hilaire and De Blainville, and the ultimate identity of the elementary structure of animals and plants had been demonstrated by Schleiden and Schwann. How was the evident relationship of the different types of living beings to be explained? It is interesting to note how the very terms which were then used implied the explanation, though this was only apparent to one or two natural philosophers who were then secretly at work. The word "affinity," which in chemistry has for ages been used to denote, without explaining, the mystery of combinations and separations of different substances, had been imported into philosophical anatomy to denote the deeper structural likeness between animals which at the first glance appeared to belong to different classes. This word ordinarily implies blood-relationship, and might have

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Affinity.

patient, and unbiassed inductive research—or, if there were a bias, it was towards Cuvier—swayed with me in rejecting the principle of direct or miraculous creation, and in recognising a 'natural law or secondary cause as operative in the production of species in orderly succession and progression' (1849)" (p. 789). . . . "Each successive parcel of geological truth has tended to dissipate the belief in the unusually sudden and violent nature of the changes recognisable in the earth's surface. In specially directing my attention to this moot point, whilst engaged in investigations of fossil remains, and in the reconstruction of the species to

which they belonged, I was at length led to recognise one cause of extinction as being due to defeat 'in the contest which, as a living organised whole, the individual of each species had to maintain against the surrounding agencies which might militate against its existence'" (p. 797). Through this passage, quoted by Owen from the preface (1866) of the same work, a controversy arose, it being taken by a reviewer to prove the admission of the Darwinian theory. There followed an explanation by Owen, rejecting natural selection and the admitted contest as explanations of the origin of species.