

ed with life attains completeness as we see the species, genera, and entire families belonging to one hemisphere, reflected, as it were, in analogous animal and vegetable forms in the opposite hemisphere. These are, so to speak, the *equivalents* which mutually personate and replace one another in the great series of organisms. These connecting links and stages of transition may be traced, alternately, in a deficiency or an excess of development of certain parts, in the mode of junction of distinct organs, in the differences in the balance of forces, or in a resemblance to intermediate forms which are not permanent, but merely characteristic of certain phases of normal development. Passing from the consideration of beings endowed with life to that of inorganic bodies, we find many striking illustrations of the high state of advancement to which modern geology has attained. We thus see, according to the grand views of Elie de Beaumont, how chains of mountains dividing different climates and floras and different races of men, reveal to us their *relative age*, both by the character of the sedimentary strata they have uplifted, and by the directions which they follow over the long fissures with which the earth's crust is furrowed. Relations of superposition of trachyte and of syenitic porphyry, of diorite and of serpentine, which remain doubtful when considered in the auriferous soil of Hungary, in the rich platinum districts of the Oural, and on the southwestern declivity of the Siberian Altai, are elucidated by the observations that have been made on the plateaux of Mexico and Antioquia, and in the unhealthy ravines of Choco. The most important facts on which the physical history of the world has been based in modern times, have not been accumulated by chance. It has at length been fully acknowledged, and the conviction is characteristic of the age, that the narratives of distant travels, too long occupied in the mere recital of hazardous adventures, can only be made a source of instruction where the traveler is acquainted with the condition of the science he would enlarge, and is guided by reason in his researches.

It is by this tendency to generalization, which is only dangerous in its abuse, that a great portion of the physical knowledge already acquired may be made the common property of all classes of society; but, in order to render the instruction imparted by these means commensurate with the importance of the subject, it is desirable to deviate as widely as possible from the imperfect compilations designated, till the close of the eighteenth century, by the inappropriate term of *popular*