

the fact, that already 100,000 different species have been described: and every day increases the number. Among the stately forms of the tropics, the less luxuriant forests of the temperate zone, and the dwarfed productions of the arctic regions, where returning frosts nip the early blossoms of spring and prevent the autumnal seeds from ripening, there roam in all directions, countless numbers of other, higher, and more complex beings, adapted to a wider range of existence, and prepared to undergo change of climate, place or atmospheric temperature, to which plants are entire strangers. Animals and plants, in many ways, are inseparably connected. Both follow, with wonderful precision, the laws of their geographical distribution. And while the vegetable kingdom obtains its nourishment from the mineral, it in its turn yields the support, directly and indirectly, essential to the economy of animated creation. Great though the number of minerals, metals and earths may be, numerous as are the plants covering the crust of our planet, and varied and diversified though the animals now existing or whose remains are exhumed by geological research may be; yet the simple or elementary substances—simple because nothing differing from themselves has been obtained from them—of which ocean, land, plants and animals are formed, number little more than three score.

Viewing life in its simplest aspect as “the mutual exchange of relations,” we have in this the bond of union common to everything surrounding us. This is the life of a mineral, of a continent, of the world itself, in all their sympathies, antipathies, and elective affinities. And although an impassable chasm separates the mineral from the vegetable, and as impassable a gulf intervenes between the plant and the animal; which is again equalled by the distance intermediate between the animal and man; yet it is impossible to say where the inorganic ends and the organic begins, and equally difficult to assign their proper limits to the vegetable and animal creations. In plants, this life, common to everything, is subordinate to another principle of existence—vegetable life; in the animal both are subservient to a still higher principle—animal life: finally, in man all are instrumental in furthering the requirements of spiritual life. How wonderful the combination! Not more so, however, than that everything in the composition of minerals, plants, animals and man—all things physical around us—are referable to one or more of the few substances composing the crust of our planet and the atmosphere which floats around it.