will of course understand that the beds of coal (*a* and *d*) were once continuous, and in a horizontal direction; the effect of the intruded trap has been to twist upwards the edges of the lower bed of coal (as is shown at *c*). These carboniferous beds rest on red conglomerate.

The alterations produced in the strata in contact with these ancient lava currents will be considered in the next lecture; at present it is only necessary to state, that changes of the most striking character occur in the coal and its associated beds, wherever they lie within the range of the volcanic influence; the coal being charred, and deprived of its bituminous quality, and oftentimes changed into culm or anthracite.

14. ORGANIC REMAINS OF THE CARBONIFEROUS SYSTEM.—The animals and plants entombed in the carboniferous group are exceedingly numerous, and well-defined. In the coal, the vast abundance of terrestrial plants, the presence of fresh-water shells with but few marine species, together with the entire absence of zoophytes, crinoidea, and other marine exuviæ, which abound in the mountain limestone, present a remarkable contrast with the calcareous deposits of this system. The shales of the limestone, however, contain vegetable remains. Marine fishes, shells, corals, and crinoidea, swarm in the limestone, but are of rare occurrence in the old red sandstone.

It is a circumstance worthy of remark, that the