

*Vegetable Petrifications.*—Respecting the ancient condition of our planet, the remains of vegetables, found in different strata afford interesting information which we could not have obtained from animal remains alone. The animal remains found in the transition rocks are almost exclusively marine; hence, we could not have inferred, from these remains alone, that any portion of the globe was dry land, when these rocks were deposited. In some of the slate rocks, however, a few remains of terrestrial plants, analogous to ferns, occasionally occur, which indicate the existence at that remote epoch, of islands or tracts of land. In the strata of sandstone and shale, which alternate with coal and cover transition rocks of marine origin, the remains of terrestrial vegetables are abundantly distributed, and those of marine animals disappear, entirely, in most of the beds: the part formerly covered by the sea with rivers, lakes, and marshes, on which the plants had grown, or were deposited, had therefore, become dry land. Again, at a subsequent period, the dry land and its vegetation became buried under a deep ocean, that deposited numerous calcareous beds, filled with shells and remains of marine animals, but occasionally containing a few broken fossil stems of terrestrial plants, which had probably been carried into the ocean, by the rivers of distant countries. In the upper strata, the alteration of marine and fresh water formations are distinct and frequent.

Now it appears, that as we ascend from the lower to the upper or more recent strata, a progression from simple to more complex, or, in other words, from less perfect to more perfect forms, takes place in the vegetable as well as in the animal kingdom.

Avoiding technical expressions as much as the subject will admit of, I will endeavour to state this, intelligibly, to the geological student, who may be at present, unacquainted with vegetable physiology.

Vegetables of all kinds may be arranged under two grand divisions—*Cellular* and *Vascular*.

*Cellular*—without regular vessels, but composed of fibres, which sometimes cross and interlace. *Confervæ*, lichens, fungi, algæ, or sea-weed, and mosses belong to this division. In some of these families, there are no apparent organs of fructification.

*Vascular*—with vessels which form organs of nutrition and reproduction. According to the arrangement of these organs, and

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been well observed by Cuvier, that the bones of men, left on the field of battle with those of horses, are as well preserved as the latter, making allowance for the difference of size. Neither is there any essential difference in the chemical constituent parts of human bone from those of other animals of the class mammalia. Dry bones, according to Berzelius, contain as under:—

	Human Bones.	Human Teeth.	Ox Bones.	Ox Teeth.
Cartilage, - - - -	33	—	33	3·5
Phosphate of lime, - -	51	85·3	55	81
Carbonate of lime, - -	11·5	8	9	7
Fluate of lime, - - -	2	3·2	3	4
Phosphate of magnesia, -	1·2	1·5	2	3
Soda and muriate of soda, -	1·3	2	2	2