

tion of their remains, partly from their chemical action. Their remains are likewise inclosed in deposits of sand and mud, the bulk of which they thus help to increase. Of plant-formations the following illustrative examples may be given:

1. Sea-weeds.—It was long ago shown by Forchhammer that fucoids abstract an appreciable amount of lime, magnesia, soda, and other components of sea-water, and he believed that these plants probably played an important part in the accumulation of the older Palæozoic sediments.<sup>339</sup> The calcareous nullipores which incrust shore rocks provide solid material which, either growing *in situ* or broken off and distributed by the waves, gives rise to a distinct geological deposit. Considerable masses of a structureless limestone are formed in the Bay of Naples mainly by calcareous algæ. By the infiltration of water into the dead parts of the material the organic structure is destroyed.<sup>340</sup>

2. Humus, Black Soils, etc. — Long-continued growth and decay of vegetation upon a land-surface not only promotes disintegration of the superficial rock, but produces an organic residue, the intermingling of which with mineral débris constitutes vegetable soil. Undisturbed through long ages, this process has, under favorable conditions, given rise to thick accumulations of a rich dark loam. Such are the "regur," or rich black cotton soil of India, the "tchernayzem," or black earth of Russia, containing from 6 to 10 per cent of organic matter, and the deep fertile soil of the American prairies and savannas. These formations cover plains many thousands of square miles in extent. The "tundras" of northern latitudes are frozen plains of

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<sup>339</sup> Brit. Assoc. 1844, p. 155.

<sup>340</sup> J. Walther, Zeitsch. Deutsch. Geol. Gesell. xxxvii. 1885, p. 329.