

P.S.—There is here a small geological class, the members of which take the “Geological Magazine,” and read “The Silurian System.” I have just re-perused (after a lapse of many years) the chapters on *Drift* at the close of Sir R. I. Murchison’s celebrated work; and I cannot help thinking that the accurate descriptions and sound generalizations with which they abound, if re-published separately, would be of great service in moderating the zeal of modern subaërialists. I see Sir Röderick accounts for combes in the same way that I have lately been advocating in your pages. He says “These combes and valleys could have been modelled into their actual forms only by the action of a large body of water overspreading their entire area. . . . The nature of the excavation indicates also the action of water differently propelled at different times, perhaps by tidal currents, the directions of which were determined by local causes.”—D.M.

THE ORIGIN OF BITUMEN.

To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—Your issue for March contains an article on “Petroleum and Oilfields,” in which my views on the generation of bituminous substances are alluded to and controverted; at the same time a desire is expressed for further information respecting the occurrence of petroleum and bitumen in Trinidad.

If “E. C. H. D.,” author of the article in question, had carefully considered the evidence adduced in the “Report on the Geology of Trinidad,” he could scarcely have arrived at the conclusion that the direct production of bitumen from vegetable remains is doubtful, or the proofs of the production “defective,” since this view is not proposed as a theory, but stated as an evident fact, beyond the range of discussion.

To detail, briefly as possible, the proofs on which this origin of bitumens is founded, viz.:—the existence over the bituminous districts of strata more or less charged with vegetable *débris*, with the woody matter in progress of conversion into bitumen, which conversion is induced entirely by internal chemical action, and independent of any extraneous influence, such as heat. This process is distinguished by the production of a dense, very black petroleum, which oozes out of the vegetable mass and only ceases to be formed on the complete change of the woody substance into bitumen; and is also accompanied by the formation of hydro-carbons. This oily fluid gradually solidifies (probably from the evaporation of a volatile solvent), leaving a black, very pure bitumen, locally known as “glance pitch.” The residue of the wood is represented by a brownish black bitumen of impurer nature, in which all trace of vegetable structure has disappeared. The operation of this conversion is so intense, that hand specimens of the wood, when isolated from their earthy matrix and placed in a room, have continued to