

ground. It was soon afterwards discovered that she was actually sailing along with her keel in the mud, which was sufficiently indicated by a long yellow train in our wake. Some inconvenience was caused by this extreme shallowness, as it retarded our headway, and affected the steering; but there was in reality not much danger, as it was ascertained, by forcing long poles into the ground, that for many fathoms below the surface on which the sounding lead rested, and from which level the depth of water is estimated, the bottom consisted of nothing but mud formed of an impalpable powder, without the least particle of sand or gravel.' The Liassic deposit of Eathie must have been of slow deposition. It consists of laminæ as thin as sheets of pasteboard, which, of course, shows that there was but little deposited at a time, and pauses between each deposit. And, though a soft muddy surface could have been of itself no proper habitat for the sedentary animals,—serpulæ, oysters, gryphites, and terebratulæ,—we find further, that they did, notwithstanding, find footing upon it, by attaching themselves to the dead shells of such of the sailing or swimming molluscs, Ammonites and Belemnites, as died over it, and left upon it their remains; from which we infer that the pauses must have been very protracted, seeing that they gave time sufficient for the Terebratulæ,—shells that never moved from the place in which they were originally fixed,—to grow up to maturity. The thin leaves of these Liassic volumes must have been slowly formed and deliberately written; for as a series of volumes, reclining against a granite pedestal in the geologic library of nature, I used to find pleasure in regarding them. The limestone bands, curiously marbled with lignite, ichthyolite, and shell, formed the stiff boarding; and the thin pasteboard-like laminæ between,—tens and hundreds of thousands in number in even the slimmer volumes,—composed the closely written leaves. For never did characters or figures lie closer in a page than the organisms on the sur-