far from land. Even in the greatest depths, however, the remains of arenaceous Foraminifera and Annelids are to be found, while fishes and representatives of nearly all the invertebrate groups, such as Hexactinellida, Monaxonida, Asteroidea, Echinoidea, Crinoidea, Actiniaria, Polyzoa, Ophiuroidea, Holothurioidea, Tunicata, and Lamellibranchiata, have been dredged and trawled from the red clay areas. The fragments of all the hard parts of these organisms may be met with sparingly in specimens of Red Clay, but not in nearly such abundance as might be expected.

When there are no remains of calcareous organisms in a Red Clay, or when in the laboratory these have been removed by dilute hydrochloric acid, the deposit or resulting residue is found to contain, in addition to the hydrated silicate of alumina and the remains of siliceous organisms above referred to, a large number of inorganic elements of a varied nature, derived from widely different sources. In the above-mentioned 70 samples, the average percentage of residue is 93·30. The most constant and widely distributed of these extraneous materials are fragments of pumice belonging to the acid, neutral, and basic types of volcanic rocks. Rounded and angular fragments of these were dredged and trawled in great numbers from all depths, and in nearly all regions of the ocean, varying in size from masses larger than a man's head down to the minutest particles. These were met with in all states of disintegration, some having undergone little decomposition, while others were surrounded by zones of alteration, or were so decomposed that the structure of the areolar pumice could with difficulty be recognised; this was especially the case when the fragments were surrounded with a coating of peroxide of manganese or formed the nuclei of manganese nodules.[1] All the mineral species usually found in the different varieties of pumice are accordingly present in the Red Clay, such as sanidine, plagioclase, augite, hornblende, magnetite, &c., and these, together with the glassy splinters and fragments of the pumice, are universally present and characteristic of these deposits. Palagonite, which arises from the decomposition of the basic volcanic glasses, is likewise universally distributed, and in some regions of great extent there are numerous fragments of basaltic glass, basalt, and augite-andesite.[2] The peroxides of iron and manganese are found throughout the Red Clays in the form of minute grains or coatings, sometimes one of these oxides and sometimes the other predominating, each giving its characteristic tint to the deposit. When these oxides are deposited as concretions around organic remains and other nuclei, they form the now familiar manganese nodules, especially abundant in those red clay deposits where the debris of basic volcanic rocks are present and have undergone great alteration.[3] Minute black magnetic spherules, often with a metallic nucleus, which are regarded as having, together with other particles, a cosmic origin, are probably everywhere present

[1] Murray, *Proc. Roy. Soc. Edin.*, vol. ix. pp. 249–252, 1877.
[2] See Pl. XVI. figs. 1–3; Pl. XVII. figs. 1, 2; Pl. XVIII. figs. 1–4; Pl. XIX. figs. 1, 2, 4; Pl. XXI. figs. 1, 2.
[3] See Pl. XXVIII. figs. 1–5; Pl. XXIX. figs. 1–4.