descriptions, but, as already stated, the nature itself of the deep-sea deposits does not allow us to make a practical application of all the resources of microscopical analysis. Some other mineral particles composed of *lapilli* and *fragments of rocks*, manganese and iron concretions, phosphatic nodules, cosmic spherules, &c., will be described at length in the following chapters.

3. **Fine Washings.**—It remains now to point out the characteristics of the third part of the residue, that denominated "fine washings." This portion comes away with the first decantations; although in these decantations the substances composing the deposit are separated, as a rule, according to their specific gravity some particles of a higher density are always carried away with the lighter substances on account of their form and their very small size. Hence it may be expected that the fine washings obtained in this way will be a mixture of various substances in which predominate nevertheless the lightest and the smallest particles of the deposit. The somewhat vague term of *fine washings* appears to be preferable for this part of the residue to a mineralogical name, such as clay, for instance. The fine washings are connected intimately with the two other groups of materials composing the residue—the siliceous organisms, and the mineral particles; but the small size of these siliceous remains and of the fragments of minerals do not, as a rule, permit them to be classed with determinable species, and, on the other hand, in this part of the residue the amorphous matter predominates, forming, to the naked eye, a kind of homogeneous mass of a decidedly clayey character. Under the high powers of the microscope one observes that infinitesimal particles of organic and inorganic nature are imbedded in this argillaceous substance, which forms, so to speak, the substratum of the whole. Hence in this heterogeneous aggregation, which comes under the name of fine washings, may be distinguished:—

a. Argillaceous matter, forming small lumps with indefinite outlines, not reacting between crossed nicols, coloured or slightly tinted by other substances, reddish grey, brownish, &c., no gelatinisation with cold acids, after treatment with hydrochloric acid becomes more or less colourless, soluble after ebullition in sulphuric acid, heated on a platinum foil becomes red, yellowish, brownish, through the decomposition of the organic substances and dehydration and oxidation of the iron. Reaction of alumina with cobalt solution. The microstructure of this clayey matter is very indefinite, having, in wet preparations, a more or less gelatinous aspect in many instances. The colouring substances are manganese and iron, or one of them. The hydrated peroxide of manganese, in small microscopic concretions or as a pigment, is brownish, transparent, and dissolves in strong hydrochloric acid setting chlorine free. With the manganese are generally associated, as the colouring matter of the amorphous substances, oxides of iron, chiefly limonite, which are dissolved in cold dilute hydrochloric acid. When this iron is not combined with the clay, it appears as small lamellæ, as confused aggregations, giving to the clayey substance an ochreous or yellowish brown colour. With reflected