PLATE XXIV.

This Plate is intended to represent as nearly as possible the appearance of the casts which are formed in and on the Foraminiferous shells and other calcareous organisms in different varieties of marine deposits.

Fig. 1. Glauconitic particles that remain after the removal of the carbonate of lime from a deposit on the Agulhas Bank, off the Cape of Good Hope (magnified 35 diameters). The grains have an average diameter of about 1 millimetre, and are isolated or agglomerated into nodules. They are often mammillated, and always more or less rounded; some are hard and black or dark green, others softer and pale green or yellow. The surface of the grains is often shining. The casts of Foraminifera, and other organisms, are pale green or brown, rarely dark green, although many of the dark green grains appear to have the form of the Foraminifera rudely displayed. Station 142; 150 fathoms. Southern Ocean.

Fig. 2. Similar deposit from off the coast of Australia (magnified 35 diameters). On the removal of the carbonate of lime there is seen to be a very much larger number of casts of the calcareous organisms than in the Agulhas Bank formation. The chambers of the shells are filled, or partially filled, with red, yellow, brown, and pale green casts in various stages of consolidation. Where these casts are not opaque they give aggregate polarisation. Besides the casts, there are many grains in the deposit, similar to those described by mineralogists under the name of glauconite, which in many cases show roughly the form of the Foraminifera. Station 164B; 410 fathoms. South Pacific.

Fig. 3. Casts obtained by removing the carbonate of lime from a large quantity of Coral Sand from off the Great Barrier Reef of Australia (magnified 25 diameters). They are all of a brick-red colour; one or two had a greenish tinge, but there was no true glauconite. These casts have a porous aspect, arising from the presence in the cast of carbonate of lime, which has been dissolved by the action of the acid. The red substance of these casts gives aggregate polarisation. Station 185B; 155 fathoms. Torres Strait.

Fig. 4. Red casts of Foraminifera from the South Pacific (magnified 25 diameters). This is one of the few instances in which numerous perfect casts of these organisms have been found in a deep-sea deposit far from land. There is frequently an external as well as an internal cast, and the two are united by numerous little pillars which had occupied the foramina of the shells. There is no glauconite in the deposit. When the colour is discharged by concentrated hydrochloric acid, colourless globules of the original forms remain, showing that we are not here dealing with an infiltration of fine mud or clay, but with a chemical combination that has taken place in the interior and on the external surface of the shells. Station 176; 1450 fathoms. South Pacific.