siderable role both in space and in time, concerning whose mode of formation there has been much controversy, without any very definite solution being arrived at. We propose, in the first instance, to point out its mode of occurrence in modern seas, its essential characters, its geographical and bathymetrical distribution, its organic and mineral associations, and thereafter to discuss the various hypotheses that have been advanced concerning its origin in modern seas and in geological formations.

Mode of Occurrence and Macroscopic Characters.—Among the collections made by the U.S.S. "Tuscarora" along the coast of California are several specimens of dark green or black sands composed almost entirely of grains of glauconite, a little less than a millimetre in diameter. There were a few Foraminifera and mineral particles other than glauconite, of about the same dimensions, mixed with these dark green grains. If the samples which we have examined were in the same condition as when procured from the bottom of the sea, the deposits along this coast in depths of from 100 to 300 fathoms are the purest glauconitic sands that have hitherto been discovered in existing seas. The Challenger collections, and other collections examined by us from different parts of the world, have not yielded glauconitic sands so free from admixture with other materials as those among the "Tuscarora" soundings. The most typical glauconitic sands of the Challenger collections contain from 40 to 50 per cent. of Foraminiferous and other carbonate of lime shells, together with the remains of siliceous organisms. As a rule the glauconitic particles in a sample of Green Sand or Mud are not very apparent till after all the carbonate of lime shells have been removed by means of dilute acid; the residue left after such treatment is usually of a mottled green or brown colour, and consists of numerous dark green grains of glauconite, together with the casts of Foraminifera and other calcareous organisms in a paler green, or even brown, colour. This appearance is represented in Pl. XXIV. fig. 1, in the residue of a Green Sand from 150 fathoms, off the Cape of Good Hope; and again in fig. 2 of the same plate, in the residue of a Green Mud from 410 fathoms, off the coast of Australia. In fig. 3 of the same plate, the residue of a Coral Sand is represented, from off the Great Barrier Reef of Australia, near Raine Island, and it will be observed that in this deposit the residue is for the most part made up of the brown-coloured casts of Foraminifera, only a few of them having a greenish tint, while typical glauconitic grains are absent.

The individual grains of glauconite that occur in marine deposits rarely if ever exceed 1 mm. in diameter, although they may occasionally be agglomerated into nodules cemented by a phosphatic substance several centimetres in diameter, as represented in Pl. XX. fig. 1. The typical grains are always rounded, often mammillated, hard, black or dark green, some of the grains being completely covered with a pale green pellicle; their surface is sometimes dull and sometimes shining. They have occasionally the vague form and appearance of Foraminifera and other organisms; mixed with the typical grains, however, as may be seen by reference to the figures on Pl. XXIV., are numerous pale green