Examination in convergent light does not give precise indications concerning other optic phenomena that might be used for a more exact determination of the species. The blackish brown inclusions represented in figs. 10 and 13 present vaguely regular contours, recalling crystallites, such as magnetite, found in eruptive rocks and in certain slags. In fig. 10, where they are seen under a magnifying power of about 300 diameters, they have a crystalline aspect; in all probability these inclusions are magnetic, more or less titaniferous, iron, and their presence explains why these spherules may be extracted from the mud by the aid of a magnet. It will be observed that these dark-coloured inclusions are disposed in a parallel manner following the system of lamellæ, and that they remain constant in this direction, even in thin plates. At certain points they are so abundant as to completely veil by their accumulation the structure of the mineral with which they are associated, as represented in the upper part of fig. 13. This regular arrangement of the inclusions in the interior of the lamellæ shows an approach to minerals belonging to the group of rhombic pyroxenes. It is known that the species of this group richest in iron contain tabular or prismatic inclusions of a submetallic and very characteristic aspect. Enstatite, bronzite, and even hypersthene, which constitute chondres, are of the rhombic system, but we have just seen that the mineral constituting these brown spherules belongs to the monoclinic system, perhaps, to judge from the extinctions, to a monoclinic pyroxene. Up to the present time, it must be added, no chondres have been found with other than rhombic pyroxenes, so that there is an important difference between these spherules and the chondres, if our determination of the mineral of the spherules as belonging to the monoclinic system be correct. There would, however, be nothing astonishing in the existence of chondres with monoclinic pyroxene, as this mineral is known to exist, for example, in eukrite, and it must be remembered that only a small number of the brown spherules found in the deposits were examined for their optical properties.

The external characters of these spherules, their bronze colour with metallic lustre, their excentric lamellar structure, in a word, all their properties, except the difference revealed by optical examination, show profound analogies between these spherules and the chondres of meteorites, so that we seem justified in attributing to them a cosmic origin, and this opinion is confirmed by their association with the black magnetic spherules and their distribution over the floor of the ocean, which will now be referred to in greater detail.

(c.) *Distribution of Cosmic Spherules in Marine Deposits.*

Magnetic or cosmic spherules were found in greatest abundance in the Red Clays of the Central and Southern Pacific; in short, in the deepest water, at points furthest removed from continental masses of land. When the magnetic particles are extracted from about a quart of the clay from these regions, it is usual to observe among these