

or is associated with, organic matter, for on heating on a platinum plate it burns, becomes black, and finally assumes the brown colour of oxide of iron.

*Microscopic Characters.*—The thin slides of glauconite become transparent during the polishing process, and have a beautiful green tint; they present no special structure, being generally pretty homogeneous, except in the case of inclusions of foreign particles. Sometimes on the edges the colour is a little deeper, but this is an exception, and is possibly an indication of the commencement of alteration. The normal green tint may also, in cases of decomposition, pass into reddish or brownish, which is seen as a zone on the edges or even throughout the whole extent of the grain in section. We have never been able to observe in glauconite a sensible dioscopism, and, as already stated, this homogeneous mass does not show any structure with ordinary light. In Pl. XXV. fig. 1 some sections of glauconite are represented as seen in polarised light. Between crossed nicols it presents a characteristic aspect; it never extinguishes at one time throughout the whole extent of the observed section. It shows aggregate polarisation, which presents itself in the following manner. The glauconitic particles have indefinite contours, and appear dotted with little points united the one to the other, and polarising with a bluish green tint. These deep-coloured points are detached from a base generally yellow or yellowish green in colour. The dotted parts of a bluish green colour more or less deep form a rather close network, which is very vague as to its contours; this network is seen in characteristic form in the two circular sections in Pl. XXV. fig. 1. The outlines of the sections of glauconite are not clearly defined, and the relief is feeble. Glauconite is never seen with a zonary structure, except in cases where alteration has commenced or where it shows, as previously mentioned, a border of a deeper colour following the external contours; nor does it present a fibro-radiate or a concretionary structure. Sometimes the microscope shows vaguely that around the grains there is a colourless zone of slight thickness, in which the arms of the cross of spherulithic concretions may be observed. Microscopic examination appears to show that the substance of glauconite itself is quite homogeneous. Sometimes, however, and especially when this mineral is enclosed in Foraminiferous shells, it includes, in the largest or terminal chamber, mineral particles similar to those in the sediment in which it is formed; among these particles the most frequent are quartz and magnetite, the latter of which may be extracted by the magnet. There may also be seen a darkish powder, the feeble yellowish reflections of which might well indicate pyrites. In some sections the form of some of the chambers of the shells of Foraminifera appears to be vaguely outlined. When the grains have undergone alteration, these sections not only show a brownish or reddish tint, from the presence of hydrate of iron, but this alteration is frequently accompanied by cracks traversing the glauconite in many directions. The sections of the glauconitic casts appear in the preparations with all the characteristic contours of the organisms in which they have been moulded, and the