

Station.	Depth.	No.	Loss on Ignition.	PORTION SOLUBLE IN HCl.										PORTION INSOLUBLE IN HCl.					
				SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	MnO ₂	CaCO ₃	CaSO ₄	Ca ₃ P ₂ O ₇	MgCO ₃	Cu	Total.	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	CaO	MgO	Total.
143	1900	74	4.10	6.00	3.00	5.80	2.70	16.07	2.62	49.57	0.98	tr.	86.74	8.40	0.60	0.16	tr.	9.16	

Microscopic Characters.—The microscopic examination of thin sections of the phosphatic nodules shows that they present special peculiarities, depending on the nature of the deposit in which they have been formed. The phosphate of lime is the principal constituent, and presents the same characters in every one of the concretions examined, but the nodules differ in the nature and abundance of the heterogeneous particles cemented by the phosphate. These particles, whether of organic or mineral origin, are seen to be the same as those in the deposits containing the concretions; for instance, the nodules from Station 142, where the deposit is a Green Sand, are principally composed (to the extent of two-thirds) of glauconitic particles, quartz, and silicates (see Pl. XX. fig. 1), while in those from Station 143, Globigerina Ooze, the remains of Foraminifera predominate (see Pl. XX. figs. 2-4). In the first case, where the aggregations are formed of glauconitic and sandy particles, the phosphate plays simply the role of a cement interposed between the mineral grains. In the second case the phosphatic matter is more abundant, not only cementing the particles but penetrating through the cavities of the shells; it fills up the spaces between the sections of the Foraminifera, and plays in a manner the role of a fundamental mass, pseudomorphosing, sometimes entirely, all the carbonate of lime of these organic remains.

The phosphatic concretions from the above-mentioned Green Sand show under the microscope an agglutination of angular (rarely rounded) quartz grains, along with rounded glauconitic grains, all of which are abundant in the deposit; there is neither pseudomorphism nor penetration of phosphate into the interior of the mineral particles; the phosphate plays only a relatively subordinate part, binding together the mineral particles of the deposit (see Pl. XX. fig. 1). It is distinguished by a brownish yellow tint, and is seen interposed between the minerals as a network of phosphatic matter. In the microscopic preparations isolated patches of phosphate, scarcely exceeding 0.1 mm. in diameter, are occasionally to be seen; one may observe upon these larger patches that the substance is concretionary; they do not extinguish uniformly between crossed nicols, but spots with indefinite contours and vague tints of polarisation appear, like those presented by very closely aggregated geodic minerals, chalcedony for example, or, better still, certain zeolites.

The phosphatic concretions from the Globigerina Ooze in deeper water, 1900 fathoms (see Pl. XX. figs. 2-4), present considerable differences from those dredged