four Sub-families, genera and species exhibit minor peculiarities of structure, and even individual specimens are more or less affected in this respect by local conditions. This diversity of structure depends partly on the sort of foreign matter employed in the construction of the test, and partly on the cement secreted by the animal for its incorporation.

Notwithstanding a certain amount of selective power, the nature of the foreign material depends more or less on the character of the sea-bottom. Siliceous sand is the most common extraneous constituent; but on some sea-bottoms, as for instance in pure Globigerina ooze, siliceous grains are rare, and the dead shells of the smaller Foraminifera are used in their stead (Pl. XXX. fig. 13). In the tropics, siliceous sand is often replaced by the calcareous débris of the coral-reefs (Pl. XXX. figs. 15–17); and in like manner the tests of Radiolaria and the frustules of Diatomaceæ are sometimes employed in considerable numbers where such organisms abound. The preference for sponge-spicules, broken or entire, as a building material, which is so conspicuous a feature of certain genera of the Astrorhizidæ, exists in like manner amongst the Lituolidæ, though not to the same extent (Pl. XXXI. figs. 16, 17, &c.).

But the physical characters of the test are also influenced, and perhaps to an even greater degree, by the mode in which the foreign constituents are combined. Under all circumstances the superficial portion of the sarcode, whether in the form of a distinct chitinous envelope or of a less completely differentiated layer, is the basis of the investment. In some cases this of itself is sufficient to serve as the matrix for the arenaceous particles, but much more frequently inorganic matter is collected or secreted by the animal in quantity large enough to make a kind of cement or plaster, in which the foreign particles of whatever sort are embedded. The cement varies very much, both in quantity and chemical composition, but its principal constituent is generally either carbonate of lime or peroxide of iron. In rare instances silica or some siliceous compound is employed, either by itself or in conjunction with other mineral substances.

In the Sub-family Lituolinæ the test is constructed of coarse materials, and, as compared with the allied groups, the sand is proportionately in excess of the cement; nevertheless, the cement is present in sufficient quantity to produce tolerably strong and substantial walls, though the exterior is rough and sometimes wears an unfinished appearance. The principal exceptions to the typical Lituoline structure are found amongst the Nodosariform species. In *Reophax sabulosa* the cement is deficient in quantity, and the test is thick and crumbling. In *Reophax nodulosa* the incorporating medium is more or less siliceous,—sometimes to such a degree that large specimens, half an inch or an inch in length, preserve their form after all the calcareous and ferruginous constituents have been removed by means of strong acids, and still retain sufficient firmness to bear handling without injury. In *Reophax membranacea* the investment is little more than a brown membrane with sufficient calcareous matter and siliceous grains to