

(I.) The common ground-mass or maltha; (II.) the cells scattered in the maltha; and (III.) the various skeletal productions. The cells scattered in the maltha belong in our Keratosa to three different groups, viz., (1) malthocytes or collencytes (usual connective cells); (2) amœbocytes (amœboid wandering cells); and (3) gonocytes, or sexual cells (eggs and sperm).

*Maltha*.—The common ground-mass of the connective tissue, which we call shortly maltha, is usually described as ground-mass, matrix, intercellular substance, mesogloea, collenchyma, &c. It is secreted by the connective cells of the mesoderm, which are derived originally from the primary exoderm cells. Those spongiologists who have especially examined the Keratosa (F. E. Schulze, Lendenfeld, Poléjaeff, and others) distinguish in this group two different main forms of the maltha; it is clear and transparent in the Macrocameræ (Spongelidæ and Darwinellidæ), and granular and opaque in the Microcameræ (Euspongidæ and Aplysinidæ). All the Keratosa of the deep sea (as far as the maltha is well preserved) seem to agree in this respect with the Spongelidæ; their mesodermal ground-mass is clear and transparent, in most species soft, scantily developed, and not voluminous.

*Malthocytes or Collencytes*.—The common cells of the connective tissue, which produce the maltha or matrix of it by secretion, are not very abundant in the Deep-sea Keratosa, and may be easily overlooked in the examination of the scanty maltha, owing to the predominant masses of xenophya filling up the latter. The best objects for their examination (as for that of the maltha in general) are those Keratosa in which the xenophya are calcareous, derived from Globigerina ooze. Having dissolved the calcareous matter by dilute acids, there remains a soft and transparent maltha, in which the small malthocytes are scattered irregularly. Their form is usually stellate or spindle-shaped, with a small granular ovate nucleus, a little protoplasm, and a few short pointed apophyses.

*Amœbocytes*.—The remarkable amœboid wandering cells, which seem to possess an important physiological function in all sponges, are also found in our Deep-sea Keratosa. They are scattered in the maltha in far less numbers than the malthocytes, and may easily be distinguished from them by the larger size of the protoplasmic cell-body as well as of the clear vesicular nucleus. The more voluminous protoplasm usually encloses a variable mass of dark, highly refracting, and intensely staining granules, and often these enter in the lappet-like processes, or lobopodia of the cell, as in the similar common Amœbæ. The Amœbocytes of the sponges are comparable to the Leucocytes of the higher Metazoa, and are probably derived from the original, not differentiated, exoderm cells. Their functions are probably multifarious, referring mainly to the nutrition of the sponge. They may be vehicles of food and of reserve nutriment. But in the Stannomidæ they may also produce the peculiar spongin-fibrillæ of this family, comparable to odontoblasts which produce dentin fibrillæ.