

continuous with the longitudinal muscular fibrillæ. Lying between the caudal prolongations of these superficial cells, are other cells destitute of prolongations, and forming a tissue to which Kleinenberg gives the name of interstitial tissue.<sup>1</sup> It is among these interstitial cells of *Hydra*, and among cells which, by their deep position in the ectoderm and freedom from connection with the muscular fibrillæ, correspond to them in other genera, that we find the cnidocysts or cells within which the thread-cells are formed.

The thread-cells are developed out of the protoplasm of the cnidocysts in a way not yet determined, and without the direct participation of the nucleus of the cnidocyst, which after the development of the thread-cell still continues visible in it. Jickeli, from some observations which he has made on the thread-cells of *Hydra*, concludes that the axial tube is at first present as an external extension of the walls of the capsule, and that it subsequently becomes internal by invagination.<sup>2</sup>

Since the thread-cells in order that they may exert their proper function must be among the most superficial cells of the ectoderm, a migration from the deeper to the more superficial parts of this tissue-layer becomes necessary. It will be afterwards shown that the faculty possessed by certain cells, both of the ectoderm and endoderm, of wandering from one part of the Hydroid body to another, is now a well-established fact. No light has yet been thrown on the mode of formation of the cnidopods or filiform processes which are sent off from the bases of the cnidocysts.

That the thread-cells serve as weapons of defence and offence is now generally admitted. Their whole structure, and the phenomena which they present when called into action, are all in favour of the view which would assign to them such an office in the economy of the animal. Their benumbing and even fatal action on the animals with whose surface they come in contact has been too often noticed to allow of any doubt on this point. Semper<sup>3</sup> has described a gigantic Plumularian, a native of the East Indian Archipelago, which attains nearly the height of a man, and which on account of its formidable stinging properties is held in dread by bathers. Kirchenpauer has identified Semper's Plumularian with an *Aglaophenia* to which he assigns the specific name of *philippina*, probably identical with *Aglaophenia macgillivrayi*, examples of which have been obtained by the Challenger, and have been described in the first part of the present Report (Plumularidæ, p. 34, pl. x.). That the stinging property which can thus make itself so severely felt even by the human subject must here reside in the thread-cells will scarcely admit of doubt. Indeed there is no other part of the Hydroid to which it can with any reason be attributed.

The thread-cells of the Hydroida, though almost exclusively confined to the ectoderm, are by no means uniformly distributed in it. They are as a rule most

<sup>1</sup> N. Kleinenberg, *loc. cit.*

<sup>2</sup> Carl F. Jickeli, *loc. cit.*

<sup>3</sup> C. Semper, Reisebericht, *Zeitschr. f. wiss. Zool.*, Bd. xiii.