

beautifully illustrated. Heller's "Untersuchungen" commenced in 1874, and the last part published (Abth. iii. 1) appeared in 1877. The work is devoted to a description of the Simple Ascidiæ of the Adriatic and Mediterranean seas, and commences with an account of the anatomy of *Ascidia mentula*. In the succeeding systematic part a number of new species are described, most of them briefly, a few with a considerable amount of mical detail. Kupffer's report upon the Tunicata collected by the German North Sea Expedition contains descriptions of several new Simple Ascidiæ, and anatomical notes upon some imperfectly known species.

An important paper by Fol, which appeared in 1874, must not be overlooked. It gives an account of the structure and function of the endostyle, showing its glandular and non-nervous nature.

In 1875 Kowalevsky's elaborate memoir upon the development of *Pyrosoma* was published. Huxley had long before (1862) investigated this genus, and described the remarkable "Cyathozoid" which gives rise to the first "Ascidiæ" of the colony. Kowalevsky's researches confirmed Huxley's discovery, and gave fuller details of some of the stages.

In the same year Todaro's and Brooks' elaborate but in some points rather conflicting accounts of the development of *Salpa* made their appearance.

In 1880 a paper appeared upon the Simple Ascidiæ of the seas of Denmark by Traustedt, containing descriptions of a number of old and imperfectly described, and a few new, species. It also settled some questions of priority in naming, and gave very full lists of the synonyms of the species. A second paper by the same author has just appeared (1882), containing descriptions of some new West Indian species of Ascidiidæ.

In 1881 a very important memoir by C. Julin was published in the Archives de Biologie. This paper gives the results of anatomical investigations into the condition of the nervous system and some neighbouring organs in a few species of the Ascidiidæ. Julin corroborates Ussow's account of the relations of the subneural gland to the olfactory or dorsal tubercle, and further declares that the latter organ is nothing more than the complicated aperture of the duct from the gland, and that it has nothing whatever to do with an olfactory or any other sensory function. Julin considers that the gland is homologous with the pituitary gland of vertebrates, and that the duct and aperture into the branchial sac represent the embryonic connection of the pituitary gland with the pharynx. In a second paper published in 1882 Julin extends his observations to two other species of *Ascidia*, and enunciates a theory suggested by Professor E. van Beneden that the subneural gland in the Ascidian, and the pituitary gland in the vertebrate embryo have a renal function, and may be considered as kidneys specially developed for the elimination of effete matters from the blood circulating in the neighbourhood of the central nervous system.