

In 1828 Audouin and Milne-Edwards announced their discovery of the metamorphosis through which the Ascidian passes in its development from the embryo to the adult form. This was also independently discovered in the various groups of Tunicata at later dates by Lister, Sars, Dalyell, van Beneden, Agassiz, Krohn, and Gosse.

The important works of Delle Chiaje, Lesueur, and Macleay also appeared at this time, the latter adding considerably to our knowledge of the Bolteninæ. A considerable number of works of less importance, being chiefly descriptions of new species, appeared in the second quarter of the century, the most notable being those of Lesson, Quoy and Gaimard, Milne-Edwards and Audouin, Risso, and Ehrenberg. Broderip and Sowerby first described the remarkable *Chelyosoma*, and Mertens his *Oikopleura*, one of the Appendiculariidæ, about this time. Shortly afterwards (1834), some excellent observations upon Social and Compound Ascidiæ were made by J. J. Lister, and appeared in the Philosophical Transactions. This author investigated the common vascular system in a species which was afterwards named *Perophora listeri* by Wiegmann (1835).

The curious *Pelonaia*, a form allied to *Styela*, was discovered and brought before the British Association by Goodsir and Forbes in 1840, and about this time Eschricht's observations upon Salpæ were published in Denmark, to be followed two years later by his detailed account of the anatomy of *Chelyosoma*. This was also the date of Milne-Edwards' "Observations sur les Ascidiées Composées des côtes de la Manche," one of the most important memoirs upon this group of the Tunicata.

In this country a number of short papers, chiefly by Goodsir and Forbes, Thompson, Macgillivray, Carpenter, Allman, Peach, and Alder, made their appearance between 1840 and 1845. They contain descriptions of new species, and occasionally discussions upon the systematic position and classification of the Tunicata.

In 1845 Carl Schmidt first announced the presence in the test of some Tunicata of tunicine, a substance very similar to cellulose, and in the following year Löwig and Kölliker confirmed the discovery, and made some additional observations. An important memoir by van Beneden on the embryology, anatomy, and physiology of Simple Ascidiæ appeared in Belgium in 1847. In the following year the first part of Forbes and Hanley's British Mollusca was published. This gave descriptions of all the known species of British Ascidiæ, many of them figured, and contained a great deal of original matter. At the same time Rupert Jones' article "Tunicata" in Todd's Cyclopædia made its appearance: an excellent summary of what had been done previously, and of the state of our knowledge of the group at the time. Alder's Catalogue of the Marine Mollusca of Northumberland and Durham, published shortly afterwards, added some new species to our British fauna.

About this time Huxley began his observations upon the pelagic Tunicates, and two important papers by him appeared in 1851 in the Philosophical Transactions, one upon the anatomy of *Salpa* and *Pyrosoma*, and the other upon *Appendicularia* and *Doliolum*. Gegenbaur, Vogt, H. Müller, Krohn, and Leuckart a few years later contributed further