

of *Tethyum* and *Ascidium* under one name, and this was afterwards effected by Linnæus (Sys. Nat., 12th ed.), who designated the genus *Ascidia*.

Bolten's papers on the remarkable form which bears his name were published in 1770 and 1771, and the observations of Gaertner, Forskål, Phipps, Pallas, Dicquemare, Fabricius, and others, all of whom described and usually figured new species of Simple Ascidiæ, appeared during the next ten years. The most important contribution of this period (the end of the eighteenth century) was the work of O. F. Müller. His Prodrômus was issued in 1776, and contained a considerable list of named species of Tunicates, while his great work, the Zoologia Danica, gave most valuable descriptions and figures of twenty species.

Bruguiere, in the Encyclopédie Méthodique, collected all that had been done previously, but added little that was new or important. His work, therefore, represents the state of knowledge of the group up to the year 1800.

In the commencement of the present century valuable anatomical researches were made by Schalk, Carus, and especially Cuvier, who arranged the Ascidiæ along with the Mollusca under the name of Acephala nuda. At this period also, the genus *Pyrosoma* was described first by Péron, and afterwards by Péron and Lesueur; and the latter in conjunction with Desmarest wrote a memoir upon the structure of *Botryllus*. But by far the most important contributions of this period were the celebrated memoirs of Savigny, published in 1816. This author first satisfactorily elucidated the structure of the Compound Ascidiæ, and distinguished them from the Alcyonarians with which they had previously been confounded. His accounts of the different genera which he instituted, are models of patient and careful research, and the accuracy of his descriptions and figures is wonderful.

Savigny's memoirs upon the Simple Ascidiæ are no less remarkable. He broke the group up into four great genera—*Phallusia*, *Cynthia*, *Boltenia*, and *Clavelina*—which might almost be taken as types of the four families, Ascidiidæ, Molgulidæ,¹ Cynthiidæ, and Clavelinidæ. Some of these genera he further divided, and these subdivisions are in several cases now recognised as genera; and finally he described and figured a large number of new species. Lamarck, in his Histoire Naturelle, profiting by the anatomical discoveries of Cuvier and Savigny, characterised a number of Ascidiæ, Simple as well as Compound, and arranged them as a class, the Tunicata, intermediate between the Radiata and the Vermes.

Every year now brought new additions to our knowledge. Chamisso made his well-known observations upon *Salpa* about this time, and first noticed the series of phenomena afterwards more fully described by Steenstrup in 1842 as "alternation of generations;" while a little later we have Kuhl and van Hasselt's investigations upon the heart of the same form, resulting in the discovery of the alternation in the directions in which the wave of contraction passes along the heart, and the blood flows in the vessels.

¹ Taking Savigny's *Cynthia dione* as a *Molgula*, which it probably is.