polymorpha. Two of these, *Salpa rhomboides* and *Salpa polymorpha*, are probably not Tunicata at all. *Salpa tricuspidata* is probably the solitary form of *Salpa democratica-mucronata*, and *Salpa gibbosa* the solitary form of *Salpa costata-tilesii*. In the official account of the voyage[1] they figure various varieties of *Salpa costata-tilesii* and two other species, *Salpa longicaudata* (probably the solitary form of *Salpa democratica-mucronata*) and *Salpa birostrata* (probably the aggregated form of *Salpa runcinata-fusiformis*). A few years afterwards the same authors[2] added to the list the species *Salpa bicaudata*, *Salpa cordiformis*, and *Salpa microstoma*.

Chamisso[3] had first discovered in 1819 the remarkable alternation of generations which takes place in the life-history of *Salpa*, each species occurring in two forms,—the solitary asexual and the aggregated sexual,—which are usually very unlike one another, and are produced alternately. Kuhl and van Hasselt[4] afterwards discovered the well-known periodic reversal of the heart-beat; and the circulation was more fully investigated later by Eschscholtz[5] and by Milne-Edwards.[6] Meyen[7] (1832) described the nervous system and some other parts in the anatomy of *Salpa*.

Eschricht[8] in 1841 gave a very full account of the species *Salpa cordiformis-zonaria*, with a description of the method of formation of the "chain," and excellent figures. M. Sars[9] also gave an account of the process of gemmation in another northern form.

The first good account of the reproductive organs is due to Krohn,[10] who, in 1846, wrote on the life-history and classification of the genus. This was followed in 1851 by Huxley's memoir[11] on *Salpa* and *Pyrosoma*, which gave an account of his observations made during the voyage of the "Rattlesnake," and independently of those of Krohn. These two important works added considerably to the knowledge of both the structure and the life-history of *Salpa*, and Krohn also did good service in clearing up the synonymy of the species to a considerable extent, and in placing the aggregated and solitary forms of the same species together.

C. Vogt in 1854[12] carried on the work begun by Krohn, and gave a very full account of the embryology and life-history of *Cyclosalpa pinnata*, with a shorter description of other species. H. Müller[13] and Leuckart[14] also about the same time contributed to the knowledge of the structure and relations of *Salpa*, giving a good account of the nervous system and sense organs, and of some parts of the development.

Costa, Macdonald, M'Intosh, and other zoologists have added more or less important

[1] Freycinet, Voyage autour du Monde, Zool., Paris, 1824.
[2] *Ann. d. Sci. Nat.*, tom. x. p. 225, 1827.
[3] De animalibus quibusdam, etc., fasc. i., de Salpa.
[4] *Ann. d. Sci. Nat.*, tom. iii., 1824.
[5] *Oken, Isis*, 1824.
[6] *Ann. d. Sci. Nat.* (Zool.), sér. 2, tom. xiii., 1840.
[7] *Acad. Cæs. Leop., Nova Acta*, tom. xvi., 1832.
[8] Anat. physiol. Undersøgelser over Salperne, *K. Dan. Vidensk. Selsk.*, Afh. viii. p. 297, 1841.
[9] Fauna littoralis Norvegiæ, 1846.
[10] *Ann. d. Sci. Nat.* (Zool.), sér. 3, tom. vi. p. 110, 1846.
[11] *Phil. Trans.*, 1851, part ii. p. 567.
[12] *Mém. de l'Inst. Genev.*, tom. ii., 1854.
[13] *Verh. phys.-med. Gesellsch. Würzburg*, Bd. iii. p. 57, 1852; and *Zeitschr. f. wiss. Zool.*, Bd. iv. p. 329, 1853.
[14] Zoologische Untersuchungen, ii., Salpa und Verwandte, Giessen, 1854.