

of these warm-water species of pteropoda are also known from the Indian and Pacific Oceans, where their geographical distribution is similar to that in the Atlantic. North of lat. 45° or 46° N. we meet with only a few of the warm-water forms, *Creseis acicula* and *Clio cuspidata* having been taken in isolated specimens up to 60° N. Typical denizens of this region are *Clio pyramidata* and *Diacria trispinosa*, which appear to be as numerous as under the equator. The northern forms *Limacina helicina* and *L. balea*, as well as *Clione limacina*, also occur in the northern part of the Atlantic. In the Antarctic we find species which are very similar to the northern ones.

Meisenheimer,¹ who reported on the pteropoda of the "Valdivia" Expedition, is of opinion that the horizontal and vertical distribution of the pteropoda depends mainly on the temperature. Most of the species require a high temperature, and for this reason the majority live in the surface layers.

Only exceptionally do they occur as deep as 1000 metres, and this is specially the case in the Mediterranean, where high temperatures prevail to very considerable depths. During our Atlantic cruise we found some real deep-sea forms: *Peraclis diversa*, *Limacina helicoides*, and *Clio falcata*, which occurred only between 500 and 1500 metres.

During the Atlantic cruise of the "Michael Sars" pteropoda were taken in thousands, and this material has been examined by Bonnevie, who records the following species:—

The Thecosomata include:—Limacinidæ: *Limacina balea*, *L. retroversa*, *L. bulimoides*, *L. inflata*, *L. lesueuri*, *L. helicina*, *L. helicoides*, *Peraclis reticulata*, *P. triacantha*, *P. diversa*, and *Procymbulia* sp. Cavolinidæ: *Clio pyramidata*, *C. cuspidata*, *C. falcata*, *Creseis acicula*, *Styliola subula*, *Hyalocylix striata*, *Cuvierina columnella*, *Diacria trispinosa*, *D. quadridentata*, *Cavolinia inflexa*, *C. gibbosa*, *C. longirostris*, *C. tridentata*, *C. uncinata*. Cymbulidæ: *Cymbulia peronii*.

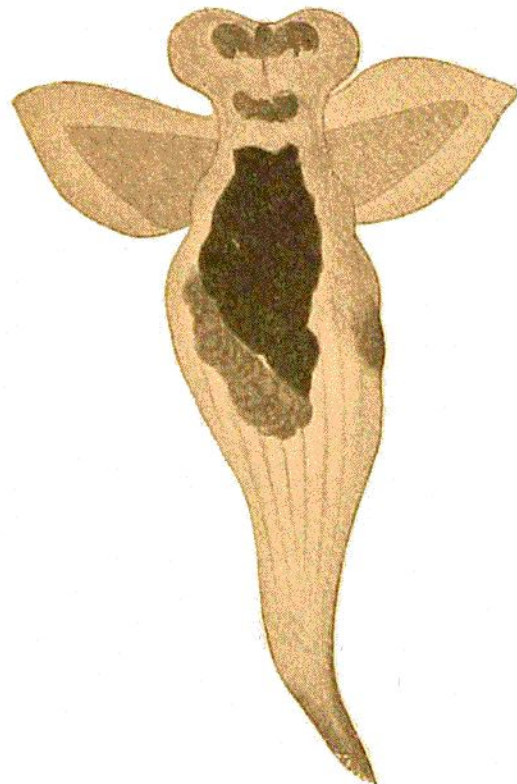


FIG. 433.

Clione limacina, Phipps. (From Vanhöffen.)

The Gymnosomata comprise, besides *Pneumodermopsis macrochira* and *Clione limacina*, several new species not yet described.

Of other Mollusca I may mention the beautiful surface forms:



FIG. 432.

Cavolinia gibbosa, Rang.
(From Meisenheimer.)

¹ Meisenheimer, *Wiss. Ergeb. "Valdivia" Expedition*, Bd. 9, 1905.