

in the northern waters of Alaska, and as Dr. Huntsman observes, "perhaps overlap" in Behring Sea. Some species seem to be very local, while others are world-wide in their range. The familiar *Pelonaia corrugata* occurs in both oceans, and in the Arctic as well, and presents in all localities the same features; "they do not seem to differ in any respect," as Dr. Huntsman notes. Alas, they are the homeliest in looks of all the Tunicates! The same ubiquity applies to the greenish transparent *Ciona intestinalis*. *Phallusia ceratodes* appears, on the contrary, to be very local, and is a species first found and named by Dr. Huntsman, and "quite distinct from any yet described." In contrast are forms like *Ascidioopsis paratropa*, a new species described by the author, and very distinct, yet closely related to species from Corean seas, from Northern Europe, and from Puget Sound, which latter is, however, less than a hundred miles south of Departure Bay, where it was first discovered.

But if the colours, the forms, and the distribution of these strange animals present such striking features, their life-history, physiology and anatomy are, to the popular mind, even more extraordinary. Thus, they possess a heart, without valves, and ventral in position, below the base of the endostyle. The heart, in all true invertebrates possessed of that pulsating organ, is dorsal in position, but in man and the Vertebrata it is on the ventral or under side, as in Tunicates. It is enclosed in a pericardium, and pulsates with a progressive vermiform movement, and every few minutes it reverses its action, and drives the blood in the opposite direction. Thus the heart's contractions drive the blood now this way, now that way, a curious characteristic feature of the Sea Squirts, and not probably found in any other group of animals. Can it be that human fickle-heartedness has come down to us from our Ascidian ancestors, with their uncertain cardiac phenomena! The endostyle is interesting, and is a long open canal, glandular and ciliated, with thickened sides, and extending along the ventral face of the cage-like gullet or perforated branchial pharynx. It is active in the digestive functions. The sac-like body has two important openings, one at the top, inhalent, and the other lower down at the side, which is exhalent. A thick coat or tunic loosely encloses the whole animal, whence the name Tunicate. This peculiar leathery tunic shows fibrillæ, and even cells (mesoderm cells which have wandered from the body of the enclosed animal), but it contains, most wonderful of all, a substance, like the cellulose which is peculiar to plants. Bertholet regarded it as a special substance, Tunicin, but recent researches appear to confirm the old and long accepted view that it is really cellulose. Now, cellulose has been regarded as