

circulating fluids in these animals as the great agent both in the absorption and the growth of parts, and throws out the suggestion, that as it flows into the stomach, it may also act as a solvent to the food received into that cavity. The particles which exist in these fluids show their analogy to those in the blood of the higher animals on the one hand, and to those in the sap of vegetables on the other: some appear to be derived from the digested food, and others from the melting down of parts absorbed. In these polypi the author never saw the least appearance of cilia, or of currents in the surrounding water, which are so frequently met with in other tribes of zoophytes.

The latter part of the paper is occupied by the account which the author gives of his various observations, first, on *Ascidia*, of which he enters into an anatomical description; secondly, on the internal currents of water, permeating the branchial sacs, and determined by the vibratory movements of cilia which are seen in that animal; and, thirdly, on the alternations in the course of the circulation of the blood in the vessels, which at one time flows in one direction, and, after a certain interval, takes the contrary course; so that the same vessel which at one time performs the function of an artery, performs, at another, that of a vein. This phenomenon of alternate currents, like that in the *Sertularia*, was met with in every specimen of *Ascidia* which was examined by the author, and also in a *Polyclinium*.

The paper concludes with several observations on *Flustra*, from which, as far as relates to the circulation of currents, the author was led to results in many respects analogous to the preceding.

A paper was then read, entitled, "On the Theory of the Moon." By J. W. Lubbock, Esq., V.P. and Treasurer of the Royal Society.

The author, adverting to the appearance of M. Plana's admirable work entitled *Théorie du Mouvement de la Lune*, enters into a comparison of the analytical methods employed by that author and M. Damoiseau, and points out some differences in the numerical values of the coefficients of some of the arguments in the expression for the true longitude of the moon in terms of her mean longitude. He then prosecutes the subject by a series of analytical investigations, which are not susceptible of abridgement, but from which he obtains formulæ which do not quite agree with those of M. Plana.

A paper was also read, entitled, "Some Suggestions relative to the best method of employing the new Zenith Telescope lately erected at the Royal Observatory." By John Pond, Esq., F.R.S., Astronomer Royal.

During the observations made by the author, in the course of last summer, with the new zenith telescope lately erected at the Royal Observatory, for the purpose of measuring the zenith distance of γ Draconis, it occurred to the author to avail himself of subsidiary observations on another star, of about the fifth magnitude, which has nearly the same zenith distance towards the south that γ Draconis has towards the north, and which passes the meridian between 20 and 30 minutes, in time, after it. The angular distance between the