generation are precisely similar. Sir Everard points out some errors into which anatomists had fallen in describing these, more especially with respect to the eel tribe, in which the kidneys being immediately behind the peritoneum, and closely connected, the whole mass has been mistaken for kidney.

In that species of barnacle called *Lepas anatifera*, the ovaria are situated round the œsophagus, and the ova are impregnated before they leave the ovaria.

The author concludes this paper with an account of the structure of the organs of generation in the earth worm, and of their mode of copulation. These, as well as the other anatomical facts detailed in this communication, are illustrated by reference to a variety of drawings.

On a New Phenomenon of Electro-magnetism. *By Sir* Humphry Davy, *Bart. Pres. R.S.* Read March 6, 1823. [*Phil. Trans.* 1823, *p.* 153.]

About fifteen months ago it occurred to Sir Humphry Davy to try the action of a magnet upon mercury, connected in the electric circuit; and having very lately had occasion to repeat the experiment in a more perfect manner, by the aid of a battery, consisting of a single pair of plates of about 100 square feet, constructed for the London Institution, under the direction of Mr. Pepys, he is induced to lay the result of the experiment before the Royal Society, as presenting a phenomenon which may prove important hereafter in its relations to the theory of electro-magnetism.

When two wires were placed in a basin of mercury, perpendicular to the surface, and in the voltaic circuit of the above-mentioned battery, the mercury revolved according to the common law of electro-magnetic rotation, upon presenting a magnet either above or below the wires; and the velocity was increased by using the opposite poles of two magnets, one above and the other below the mercury. When the pole of the magnet was held above the mercury, and between the two wires, the circular motion ceased, and currents took place in the mercury in opposite directions. These and other circumstances induced Sir Humphry Davy to believe that the passage of the electricity through the mercury, produced motions independent of the magnet, and that the rotations described were owing to a composition of forces; and, moreover, that such motions would, from the position of the wires, occur chiefly at the lower surface of the mercury; he therefore inverted the form of the experiment, bringing the copper wires through two holes in the bottom of a glass basin, with so much mercury in it as to stand one tenth of an inch above the polished ends of the wires. Upon making the communication with the battery, the surface of the mercury was elevated into a small cone above each of the wires, from which waves flowed off in all directions, the only apparent point of rest being central, between the wires. These cones were diminished by the approximation of

the pole of a magnet, which produced rotation, and on bringing it near enough, a depression of the mercury above the pole. The above phenomenon appeared, independent of any elevation in the temperature of the mercury, nor can it be attributed to electric repulsion. It must be referred to forces producing motions in right lines, or undulations from the surfaces of the wires as a centre; and it seems, says the author, strongly opposed to the idea of the electro-magnetic results, being produced by the motion of a single imponderable fluid.

On Fluid Chlorine. By M. Faraday, *Chemical Assistant in the Royal Institution. Communicated by Sir* Humphry Davy, *Bart. Pres. R.S.* Read March 13, 1823. [*Phil. Trans.* 1823, *p.* 160.]

By exposing the solid hydrate of chlorine, hermetically sealed up in a glass tube, to a temperature of about 100, the chlorine is evolved from it under such pressure that it assumes the liquid form, appearing of a bright yellow colour, and sinking in the warm water without showing any tendency to mix with it till the temperature fell to about 70°, when the whole re-assumed the appearance of solid hydrate. The liquid chlorine, in its pure form, did not congeal at 0°, and it instantly assumed its usual elastic form upon removing the pressure to which it was subjected. By condensing dry chlorine by means of a syringe into a glass tube, Mr. Faraday succeeded in converting a portion of it into a liquid, under a pressure of about four atmospheres.

The specific gravity of liquid chlorine he considers to be about 1·33.

In a note attached to this paper Sir Humphry Davy announces his having succeeded in obtaining muriatic acid in a liquid form, by causing sulphuric acid and muriate of ammonia to act upon each other in a strong sealed tube. The gas thus gradually liberated under pressure, condensed into an orange-coloured liquid, lighter than sulphuric acid, and instantly assuming the elastic state when the tube is broken.

Sir Humphry suggests the probability of other gases being condensed into the liquid form by a similar method of condensation under pressure; and points out the advantages which this mode possesses over a sudden mechanical pressure, and condensation by exposure to cold.

On the Motions of the Eye, in illustration of the Uses of the Muscles and Nerves of the Orbit. By Charles Bell, *Esq. Communicated by Sir* Humphry Davy, *Bart. P.R.S.* Read March 20, 1823. [*Phil. Trans.* 1823, *p.* 166.]

The author of this paper has entered into an examination of the external apparatus and muscles of the eye, with the view of explaining the necessity of six nerves being given to the parts contained in the orbit.