bird's blood, excepting their red colour; some oil is also discoverable. In the passage of the yolk along the oviduct, it acquires the albumen and its membrane; in this passage also the thread-like substances, which Mr. Hunter called the poles, were formed. Sir Everard next describes the changes which the egg undergoes during incubation. In four hours the rudiments of the embryo are perceptible; and in eight hours the brain and spinal marrow are surrounded by an amnion, all of which increase in distinctness for the first twenty-four hours. In thirty-six hours the intervertebral nerves and the lobular structure of the brain, and in forty-four hours the eye and heart are seen, and in two days and twelve hours it contained red blood, and arterial ramifications began to be formed. In three days the rudiments of the wings and legs were formed. These parts progressively increase until the sixth day, when the amnion is filled with water, and shortly afterwards the parietes of the thorax begin to form, and muscular action becomes evident. In seven days and twelve hours arterial pulsation was first perceived; and in eight days and twelve hours the liver was seen. In ten days and twelve hours the cutis was covered with cuticle, and the gizzard and intestinal canal were formed. The above, as well as several intermediate changes, are illustrated by drawings, and the author concludes the paper with some observations upon the circumstances in which the changes observed during the incubation of the egg, differ from those which occur in the ovum of the quadruped.

Some Observations on Corrosive Sublimate. By John Davy, *M.D. F.R.S.* Read June 6, 1822. [*Phil. Trans.* 1822, *p.* 357.]

It has sometimes been stated that corrosive sublimate suffers decomposition by exposure to light; but Dr. Davy found this not to be the case with the dry salt. Its aqueous solution, however, and especially its solution in proof spirit (the Liquor Hydr. Oxymur. of the Pharmacopœia), when exposed to sunshine, deposits a little calomel, and forms muriatic acid. The alcoholical and ethereal solutions suffer no such change; nor do the aqueous solutions, to which small quantities of muriatic acid and of muriate of ammonia have been added.

The author found corrosive sublimate soluble in water at 57°, in the proportion of 5·4 per cent. Alcohol at 60° dissolved half its weight, and ether about one third its weight. Heated with oil of turpentine, corrosive sublimate gives rise to the formation of muriatic acid and calomel, carbon is deposited, and a little artificial camphor produced; with other oils the changes are of a similar description.

Muriatic acid of sp. gr. 1·158 at 74°, dissolves twice its weight of corrosive sublimate, the specific gravity of the resulting solution being 2·412; when the temperature of this solution is somewhat lowered, it concretes into a mass of acicular crystals.

Nitric acid at the temperature of 90°, does not dissolve corrosive sublimate, nor does sulphuric acid.

A mixture of 34 parts of corrosive sublimate, and 6·75 of muriate

of ammonia, liquefies when heated, being more fusible and less volatile than the ingredients separately, and concretes into a gray crystalline mass on cooling. The author then describes the property of several solutions of corrosive sublimate and sal-ammoniac, showing that the solubility of the compound salt exceeds that of the most soluble ingredient; and details some experiments illustrating the action of the muriates of baryta, magnesia, potash, and soda, upon corrosive sublimate.

On the State of Water and Aëriform Matter in Cavities found in certain Crystals. By Sir Humphry Davy, *Bart. P.R.S.* Read June 13, 1822. [*Phil. Trans.* 1822, *p.* 367.]

After adverting to the interesting phenomena connected with certain crystalline products of the globe, and showing that the Huttonian theory more plausibly accounts for their formation than the Wernerian, Sir Humphry proceeds to offer additional arguments in its favour, deduced from his examination of the aëriform and liquid matter contained in certain siliceous stones. The fluid was in all cases found to be nearly pure water; and the elastic fluid was pure azote, existing always, however, in a state of considerable rarefaction; namely, from 12 to 18 times more rare than atmospheric air. In the only two cases in which the relation of the bulk of the water to that of the void space could be ascertained, it was nearly as 2 to 1.

In the chalcedonies of basaltic rocks the gas was also azote, but it was 61 or 70 times more rare than atmospheric air, the quantity of water to that of void space being the same as in the rock crystal.

It occurred to the author that atmospheric air might have been originally included, and that the oxygen might have been absorbed by the water; and an experiment is detailed, the result of which proved favourable to such an opinion. None of the crystals of secondary rocks examined by Sir Humphry Davy were impervious to air; in these, therefore, atmospheric air was found of its usual density; this was even the case with the cavities in dense calcareous spar.

The President observes, in conclusion, that it appears difficult to explain the results obtained, unless by supposing the water and silica separated from each other at a very high temperature; at such temperatures a liquid hydrate of silica might exist under pressure, and like other liquid bodies in the atmosphere, it would probably contain small quantities of atmospheric air; and upon such a supposition, the phenomena presented by the water in rock crystal and chalcedony might be accounted for.