

rated; and it may always be made to explode by the heat of the hand, with instantaneous extrication of heat and light. After explosion the gas is found to occupy about one sixth part more bulk than before. From the gas so exploded, oxymuriatic gas may be absorbed by water, and there remains about one third part of oxygen.

When copper, or antimony, or mercury, or iron, are exposed to this gas, it has no action upon them till heat is applied; but then they burn with a very brilliant light, and generally with explosion. But charcoal, which has no affinity with oxymuriatic gas, burns only with a dull red light, by union with the diluted oxygen.

Arsenic was acted upon without the application of heat. After a short time it caused an explosion, and united with the oxymuriatic gas. Sulphur caused instant explosion, but was not burned.

Phosphorus caused explosion with brilliant light; and uniting with both constituents, formed phosphoric acid, and solid oxymuriate of phosphorus.

When the gas was mixed with muriatic gas, a gradual diminution of volume took place; oxymuriatic gas was formed, and dew deposited on the sides of the vessel.

These experiments, says Mr. Davy, enable us to explain the contradictory accounts that have been given of the properties of oxymuriatic gas, which have been confounded with those of the explosive compound. That the latter has not been collected before, is principally owing to its being absorbed by water, which has generally been used for receiving the products from hyperoxymuriate of potash; and since water absorbs about ten times its bulk of this gas, nothing could be received in the form of gas but the oxymuriatic, till the water became completely saturated.

The violent explosion, accompanied with heat and light, which is in this instance produced during the separation and expansion of two gases, says Mr. Davy, is a perfectly novel circumstance in chemical philosophy; but he sees nothing in the properties of this gas which is at variance with the conclusions he has before drawn, as to the undecomposed nature of oxymuriatic gas. The weakness of the affinity, with which the constituents are united in it, is, on the contrary, perfectly conformable to the supposition of their belonging to the same class of bodies, and to the idea of their being distinct, though analogous species of matter.

*Experiments to prove that Fluids pass directly from the Stomach to the Circulation of the Blood, and from thence into the Cells of the Spleen, the Gall Bladder, and Urinary Bladder, without going through the Thoracic Duct. By Everard Home, Esq. F.R.S. Read January 31, 1811. [Phil. Trans. 1811, p. 163.]*

Mr. Home having formerly found that fluids pass from the stomach into the circulation of the blood without going through the thoracic duct, had maintained the spleen to be the channel by which they are

conveyed ; but brings forward the present set of experiments to correct that opinion, which he finds to be erroneous.

Mr. Brodie having tied the thoracic duct in some experiments of his own, it occurred to Mr. Home, that under these circumstances the existence or non-existence of any other channel from the stomach into the circulation might be fully established.

A rabbit and a dog were each subjected to this experiment. After tying the thoracic duct, a quantity of infusion of rhubarb was injected into the stomach ; and, in an hour after, the urine was examined, and found to be tinged with the rhubarb. In the dog, the bile was also examined, and found to be tinged with the rhubarb. The existence of a channel distinct from the thoracic duct being thus established, the experiment was repeated on a dog whose spleen had been removed four days previously ; but still the urine became tinged with the rhubarb, so that the channel is not through the spleen.

As it was possible (though not very probable) that the rhubarb might, by some anastomosis, obtain a passage through the lymphatic vessel, which enters at the angle between the jugular and subclavian veins on the right side, the same experiment was repeated upon another dog, in whom this vessel was also secured by ligature, as well as the thoracic duct, previously to the injection of the rhubarb ; but in this experiment also the rhubarb found its way to the bladder, as before. When the spleen of this dog was infused in water, the infusion was slightly tinged with the rhubarb ; but when the liver was infused, the proportion of blood present was so great as not to admit of determining whether rhubarb was present or not.

In some of these experiments the thoracic duct was wounded or ruptured, so that chyle was found to have flowed from it, and was collected for experiment : in other experiments the duct itself, the mesenteric glands, and lacteals, were found distended, and the fluid was pressed from them for the same purpose ; but it was in no instance found to be tinged with the rhubarb.

These experiments, says Mr. Home, completely establish the fact, that the rhubarb did not pass through the thoracic duct, and also completely overturn the opinion of the spleen being the medium by which it was conveyed. He conceives, therefore, that the rhubarb found in the spleen must previously have entered the circulation, and thence have been deposited, by secretion, in the cells of the spleen. The objection to this opinion is, that there is no excretory duct from the spleen ; but Mr. Home observes, that the lymphatic vessels probably perform the office of excretory ducts, as they are both larger and more numerous than in any other organ of the body. In the ass, he remarks, they unite and form one common trunk ; and as they terminate in the thoracic duct, it would be a deviation from the general plan of the animal economy if their structure differed from that of other lymphatic vessels.