

scribed, and that many of those with which we are acquainted have not been sufficiently examined.

A general observation, which he tells us is founded upon long experience, is, that there exists a great variety of minerals which have the same substance, or collection of substances, for their basis, and are combined with the same modifying substance, but whose differences arise merely from the variety of proportions in these bases or substances.

The paper closes with an earnest exhortation to those who cultivate mineralogy, to choose for the subjects of their experiments a variety of perfect specimens from different districts, and as much as possible from different matrices; that they make a number of comparative analyses; and that the mineralogist and the chemist mutually sanction the operations of each other in their respective departments.

*Analysis of a triple Sulphuret, of Lead, Antimony, and Copper, from Cornwall.* By Charles Hatchett, Esq. F.R.S. Read January 26, 1804. [*Phil. Trans.* 1804, p. 63.]

This is the analysis to which the Count de Bournon more than once refers in his elaborate account of the same mineral, lately read to the Society. We find here, in addition to the information contained in that paper, that one of the reasons why this very scarce ore has been hitherto so little attended to, is probably its great resemblance to an ore of antimony; that by all the chemical tests by which it has been tried, its constituent parts are manifestly lead, antimony, copper, and a small proportion of iron, the whole combined with sulphur; and that when the specific gravity, the external and internal colour, the fracture, the grain, and other characters here described are considered, there can be no doubt that the three first metals exist in the ore in, or nearly in, the metallic state, combined with sulphur, so as to form a triple sulphuret. The proportion of the ingredients are as given by Count de Bournon, who, in fact, took them from this paper.

*Observations on the Orifices found in certain poisonous Snakes, situated between the Nostril and the Eye.* By Patrick Russell, M.D. F.R.S. *With some Remarks on the Structure of those Orifices; and the Description of a Bag connected with the Eye, met with in the same Snakes.* By Everard Home, Esq. F.R.S. Read February 2, 1804. [*Phil. Trans.* 1804, p. 70.]

The orifice, which is the principal object of this paper, has been long since noticed by naturalists, who conceived it to be the external organ of hearing. Dr. Russell, in the many opportunities he has had of observing a variety of snakes, has particularly examined them with respect to this feature; and he here informs us, that he has found in the whole class (exclusive of the rattle-snake,) fifteen or

sixteen species of *Coluber*, and three of the genus *Boa*, which have these lateral orifices; that they have not as yet been discovered in the genus *Anguis*; and that in general it appears that only venomous snakes have this distinctive character.

From Mr. Home's description and remarks, we learn that these orifices do not lead to the nostril or to the ear, but to a distinct bag of a rounded form, there being within the skull a hollow of the same shape, surrounded by bone, which seems purely intended to receive it. This cavity is described as resembling a cup, formed by the bones of the skull and those of the upper jaw, and not unlike the orbit. The bags bear a relative proportion to the size of the snake; they are, like the eyelids, lined with a cuticle, which forms the transparent cornea, making a part of the outer cuticle; both which, it seems, are shed at the same time.

Mr. Home proceeds next to a description of similar bags in the deer and antelope kinds, which were by some thought to be lachrymal glands or ducts. On close examination, however, it is found that these bags have a secretion of their own, and that there is no reason for thinking that tears ever pass into them, the passage into the nose being unusually free, and the orifices of the bags in general unfavourably situated for the reception of the tears. The use to which the fluid secreted in these bags is applied, is as yet unknown. In the snake this apparatus has that position which seems best adapted to pour out the fluid upon the cornea when the head of the snake is in an erect position.

*An Enquiry concerning the Nature of Heat, and the Mode of its Communication.* By Benjamin Count of Rumford, V.P.R.S. *Foreign Associate of the National Institute of France, &c.* Read February 2, 1804. [*Phil. Trans.* 1804, p. 77.]

The importance of the investigation here entered into,—inasmuch as it applies to most of the operations of nature as well as art,—appears so manifest, that we shall not recapitulate what the author advances on that subject. Before he proceeds to the detail of his experiments for the purpose of computing the emissions of heat from various bodies under a variety of circumstances, he finds it necessary to premise a minute description of the principal part of the apparatus he contrived for his purpose. This instrument consists of a hollow cylindrical vessel of brass, four inches long, and as many in diameter. It is closed at both ends; but has at one end a cylindrical neck about eight-tenths of an inch in diameter, by which it is occasionally filled with water of different temperatures, and through which also a thermometer, constructed for the purpose, is occasionally introduced, in order to ascertain the changes of temperature in the fluid. As it was in the first instance only meant to observe the quantity of heat that escapes through the sides of the vessel, two boxes were contrived, filled and covered with non-conducting substances, such as eider-down, fur, &c., which were fitted to the two ends or flat surfaces of