On the succeeding day, however, the eruptions were repeated with still greater violence than before; and the quantity of matter thrown up subsequent to this period was so great, that upon Capt. Tillard's return to St. Michael's on the 4th of July, one side of the crater was elevated nearly eighty yards above the level of the sea, and the circuit of it so nearly complete, that the channel of communication between the inside and outside was not more than six yards over, and the water within was boiling hot. The beach was also proportionally heated; so that although by rowing round to the leeward side Capt. Tillard was able to land on the outer margin, the heat prevented his ascending at that part more than a few yards. The inclination also was so steep on all sides, as to occasion considerable difficulty in the attempt to reach the summit. The declivity below the surface of the sea was such, that at the distance of twenty or thirty yards the depth was found to be twenty-five fathoms.

A portion, about sixty feet in length, on one side of the opening being separated into a sort of peninsula, this part was chosen for ascending, by means of a narrow isthmus of cinders, that connected it with the rest of the circumference of the crater.

When Capt. Tillard had ascended the ridge, it was found too narrow to walk upon, the descent within being as steep as that on the outside. But the ridge gradually widened toward the other extremity, which was elevated between twenty and thirty feet from the sea, with a flat top, bounded by a precipice on one side of the channel of entrance.

Within the crater was found the skeleton of a guard-fish, so burned as to break to pieces on attempting to take it up; and it was said that great numbers of fish had been destroyed by the eruption, and thrown dead upon the coast of St. Michael.

The general material of which this mound consisted, was found to be a spongy substance like cinders, to which stones had been reduced by the action of heat; but there were also other portions of stone that had undergone no such alteration.

On the primitive Crystals of Carbonate of Lime, Bitter-Spar, and Iron-Spar. *By* William Hyde Wollaston, *M.D. Sec. R.S.* Read February 13, 1812. [*Phil. Trans.* 1812, *p.* 159.]

In consequence of the supposed agreement of these three minerals, in the same primitive form of their crystals, the two latter have been arranged by the Abbé Haüy among those varieties of carbonate of lime which contain substances foreign to its proper chemical nature.

It has been objected to M. Haüy, that the magnesian carbonate of lime, or bitter-spar, is a proper chemical compound, and as such should have a form different from that of mere carbonate of lime; and that since iron-spar frequently contains little or no lime, its crystalline form should also be different.

It is now found by the author of the present communication, that such differences as the theory appeared to require do actually exist.

Respecting the primitive rhomboid of carbonate of lime, he has already communicated to the Society an observation, that its angle is greater by full half a degree than that assigned to it by crystallographers; and he now adds two corresponding observations respecting those substances which are so nearly allied to it.

By employment of the same improved method of measurement by means of the reflective goniometer, he has found that the obtuse angle of the primitive rhomboid of bitter-spar, exceeds that of carbonate of lime by full 1° 10′; and that the corresponding angle of iron-spar exceeds the same angle by nearly 2°, and accordingly is, in fact, $2\frac{1}{2}$° greater than former measures had given it.

The angle of carbonate of lime is here said to be 105°, and nearly 5′. That of bitter-spar $106\frac{1}{4}$°; that of iron-spar 107°. And since in the last instance the author found the substance under examination to be wholly free from lime, he infers that when the same form occurs in other specimens that do contain carbonate of lime, it does not depend on the presence of that ingredient, but depends on the carbonate of lime alone.

He thinks it, however, possible, that in certain mixtures each of these substances may exert their crystalline powers; and in consequence of the near agreement of their primitive angle, may occasion that degree of curvature of the surfaces which gives the peculiar lustre of what is called pearl-spar.

Among the varieties of these minerals which contain manganese, the author has thought it not improbable that the form of some of them might be altered or modified by its presence; but he has not hitherto succeeded in detecting any other form which could be ascribed to that ingredient.

Observations intended to show that the progressive Motion of Snakes is partly performed by means of the Ribs. *By* Everard Home, *Esq. F.R.S.* Read February 27, 1812. [*Phil. Trans.* 1812, *p.* 163.]

In the cobra di capello, Mr. Home formerly observed to the Society, that the power which it possesses of elevating its hood, depends on the motion of the ribs of the neck, which have a peculiar form adapted to that purpose. He has lately found that this motion is not, as he then supposed, confined to those ribs alone of that snake, but appears to be common to all the ribs of the whole tribe of snakes.

Mr. Home acknowledges himself indebted to the President, who first remarked an apparent motion of the ribs in succession, like the feet of a caterpillar, in a large coluber, brought for his inspection into his library. And Mr. Home, by placing his hand underneath the belly of the snake, distinctly felt the ends of the ribs press in succession on the palm of the hand as the animal passed over it.

By examining the skeleton of a large boa, formerly sent from India by Sir William Jones, and now deposited in the Hunterian collection, the structure of the ribs which adapts them for such motion was very evident, and is described by the author with figures, which show a