

all conditions of the atmosphere, but whether produced by electro-magnetic influence or not he could not say, although he thought it not unphilosophic to look in that direction for their cause.

DIRECTION OF THE CURRENTS OF DEPOSITION AND SOURCE OF THE MATERIALS OF THE OLDER PALÆOZOIC ROCKS.—BY PROF. JAMES HALL.

In treating of the elevation of mountains, the author remarked, sufficient consideration had not been given to the distribution of the material forming these mountain chains, in its unaltered condition. All the materials they knew of were stratified, and had been metamorphosed more or less. He proposed to occupy a few moments in following the direction of the ancient currents, and to show their parallelism with the mountain chains in the Laurentian Mountains, north-east of them, which are nearly parallel to the Appalachian chain. The Geological Survey would show whether these sediments were thicker to the eastward than to the westward; but he thought the direction of the currents which deposited the materials forming the Appalachian chain, was from the north-east. They had certainly good evidence, from the fact that the strata are of the same age, and are much thicker from the north-easterly direction than from the south-west. They gradually thin in that direction, and as he believed they were deposited by water, the further from the source they would be the thinner. They had reason to believe that in the south-west these strata were much thinner than in the north. Taking the Hudson River group which consists of sediments stretching to the south-west, with a thickness of 1000 feet to the north-east of us, it thins down to 600 feet in Pennsylvania, and finally in the Mississippi valley the thickness is not more than 100 feet. Passing from the Hudson river group and over a lapse of time, to the Oriskany Sandstone we find the deposits from the north-east.

At Gaspé the thickness is 7000 feet, in New York it is reduced to a few hundred feet, and the strata thin out in a westerly direction. The conclusion he had arrived at was that along these lines of deposit where the greatest accumulation of sediment has been made, is where we have the greatest elevation of mountain chains. This merely coincides with the direction of the ancient currents, and the Appalachian mountain range has not been more uplifted than the other portions of the country, or than the plain between these and the Atlantic. In New York and Pennsylvania we get to the Potsdam Sandstone, and, therefore, *there was no uplifting of any previously existing rocks before the Appalachian chain.* The folding and plication had commenced at an early period—at a period before the upper Silurian Rocks were formed, and we find these strata plicated, and uplifted and metamorphosed in a considerable degree. We get no lower than the Potsdam Sandstone in any part of the Appalachian chain, and we can demonstrate that no lower mass has had anything to do in giving us the elevation of this mountain chain. The Professor then referred to his examination into other formations in confirmation of his hypothesis that elevating forces had not caused the uplifting of these mountain chains. On the contrary, if there had been no folding and plication, this range of mountains, he thought, would have been twice as high as they now are.