PROF. ESPY'S THEORY OF STORMS.

As some interest has been awakened here of late on meteorology, we propose to present our readers a brief view of the "*theory* of storms," called the "Espy theory"—so designated to distinguish it from another and kindred theory, named the "Redfield theory."

Mr. Espy, in his theory, professes to explain all the seven phenomena of rain, hail, snow, water-spouts, winds and barometric fluctuations. The following is a brief synopsis of his theory.

"1. Atmospheric air is subject to expansion, —either by heat or by a diminution of pressure.

2. Aqueous vapor is specifically lighter than atmospheric air,—its weight, under given circumstances, being only about five-eighths of that of air.

3. When a portion of air becomes lighter than the surrounding air, from expansion by heat, from being more lightly charged with vapor, or from any other cause, it ascends.

4. Air, in ascending from a lower to a higher region, is subject to diminished pressure, and consequently to expansion.

5. The atmosphere is capable of containing, and does always contain a certain quantity of water in a state of transparent vapor.

6. This capacity of the atmosphere for containing water increases much more rapidly than the temperature.

7. The quantity of water actually in solution, varies greatly, at different times and places, independently of the temperature; the air, at a given temperature, sometimes being filled nearly or quite to the extent of its capacity, while at others, it falls far short of it.

8. If from any cause, the temperature of a portion of air, containing a given quantity of vapor, be reduced to a certain point, that is, at all below the dew-point, it must deposite a portion or the water.

9. Expansion, arising from diminished pressure, is attended by diminished temperature.—The actual diminution of temperature, on this account, in ascending from the surface of the earth, is about a degree and a fourth, for every hundred yards; and consequently air, highly charged with vapor, that is, with a high dew-point, would not have to ascend very high before condensation must commence.

10. The condensation of vapor is attended with the disengagement of a very large quantity—more than a thousand degrees—of latent caloric. In other words, sufficient caloric is set at liberty, by the condensation of a given quantity of vapor, to raise the temperature of a hundred times that quantity of matter (of the same specific caloric) ten degrees."

Heat is the life giving element in this theory, as of every other storm theory.

Cork, if sunk two hundred feet in the ocean, will not rise, on account of the pressure of the water.

A Wonder of Art.—One of the most extraordinary wonders of modern times is "The Britannia Bridge," over the Menai Straits, the work of that celebrated engineer, Mr. Robert Stephenson. It consists of two immense wrought iron arcades, tunnels or tubes, each more than a quarter of a mile in length, placed side by side, through which the up and down trains of railroad cars respectively pass. The ends of these tubes rest on abutments, the intermediate portion being supported across the straights by three massive and lofty stone towers. The centre tower stands on a rock, which is covered by the tide at highwater. The side towers stand on the opposite shores, each at a distance of 450 feet from the centre tower. The abutments are situated inland, at a distance of 220 feet from the side towers. The bridge is divided into four spans, viz., the two small spans at each end, which are over the land, and are each 230 feet wide, and the two principal spans, which are over the water, are each 460 feet wide. The length of one of the large tubes is 472 feet. The height of the tubes is not the same at all parts of their length. It is the greatest in the centre, where it is 30 feet outside, and diminishes gradually towards the ends, at which it is only 22 feet 9 inches. The top forms a regular arch, and the bottom is quite flat and horizontal. The internal width from side to side is fourteen feet, though the clear space for the passage of the trains is but 13 feet 5 inches. The weight of the wrought iron in one of the tubes—and this will afford the reader an adequate idea of the structure—is about 1,600 tons. The weight of the whole eight tubes amounts to nearly 10,000 tons. Each tube was built on the shore, and had to be transported a considerable distance on large flat-bottomed, close barges, called pontoons. The middle tower is 62 feet 5 inches at the base, and its total height from the bottom of the foundations is nearly 230 feet. It contains lime-stone and sandstone to the extent and weight of 20,000 tons, and there are 387 tons of cast iron built into it in the shape of beams and girders. There are two consecutive tubes forming the bridge, each upwards of a quarter of a mile long, and each weighing 500 tons. The entire length of the bridge at rail level is 1841 feet. It is stated that a very remarkable phenomenon is connected with the mass of iron in the bridge, caused by the change of temperature in the weather, which affects it like a thermometer. Alternate sun-shine and showers of rain cause the tubes to expand and contract.

The Building for the Exhibition of 1851.—The long deliberations as to the building to be erected for the exhibition of 1851, have been terminated by a decision in favor of Mr. Paxton's design and estimate. Mr. Paxton suggests a building chiefly of glass—in fact, a huge but elegant glass house. The great feature in its erection is, that no stone, brick, or mortar, will be necessary.—All the roofing and upright sashes will be made by machinery, fitted together, and glazed with rapidity, most of them being finished