

Having thus endeavored, to give you some faint idea of the physical character of the country surrounding and including the region, you are authorized by law to occupy, for a crossing of the mighty Hudson, so far as the topography and geology are concerned, let us before going any further, enquire for a moment into the climate, we have to deal with.

Although in the mountains, and some fifty miles from the sea, the Hudson River is for the greater part of the year quite salt at this place, and is influenced by the tides, and the southerly winds from the Bay of New York, and the Tappan Zee : they are by no means what we usually designate upland breezes. They are, in fact, almost salt air, considered with reference to iron structures.

The thermal range is very great in the Highlands of the Hudson, and equals one hundred and sixty degrees Fahrenheit ; at least so very considerable a quantity has to be provided for in all your mechanism for compensating expansions and contractions due to this cause.

Snow falls in great quantities, frequently six or seven feet deep on a level, and in the drifts many times this amount, and the winds are frequent and severe. I have been enabled through the kindness of scientific gentlemen living in the neighborhood, and from observations made during many years past, by order of the government to obtain valuable information on these subjects. The quantity of rain, and snow which falls in a year and also the greatest amount that has accumulated for many years past is recorded ; and the direction, velocity, and force of the wind at different places in the vicinity is known.

I have, however, been unable as yet, to collect any considerable amount of reliable information, respecting the electrical, or magnetic phenomena of the region, and but little seems to be known, or at least I have not found it recorded ; and many meteorological facts which should be well understood while building such a large and important work as you contemplate, have not been collected, apparently, and there has not been sufficient time since your orders were given, to obtain them by a series of personal investigations.

I think though, you may now rest assured, that sufficient in-