

since the discovery of high voltage transmission, even where it is within the coal fields, I have chosen water power as the subject of some observations for the Annual Address.

I have heretofore drawn attention to this widely distributed power outside of our coal regions as to some extent a substitute for coal, upon the assumption of local application of power in both cases, whether water or steam, and then the vast difference presented itself that with the last the power could be taken to the work, while with the other the work must be taken to the power; for there was no thought then of electrical transmission. The utilization of water power would be very slight and very slow if under the old conditions of advance into the forest (as in the agricultural portions of the valley of the St. Lawrence), because our greatest extent of water power is in the mountainous and sometimes barren regions, not inviting to agriculture though most favourable for the accumulation, maintenance and uniform distribution of water power throughout the year.

In considering the question of water power generally, and in comparison with steam, it may first be mentioned that while electrical transmission (where practicable) has enabled it to take the place of steam in many situations, the choice in others depends upon the work to be done as well as upon cost of fuel. For transmission purposes there are only the questions of the sufficiency and permanence of the power and its superior economy; but for lumber manufacture, although ample water power is at hand, and there is with it no question of ice difficulties, it is found in many cases that steam is preferable, because the mill site may be chosen in the best position for manufacture, shipment and storage of logs, and the waste material furnishes fuel for power. The cost and maintenance of a mill dam in many situations, with the necessary piers and booms for the logs, the damage and risk to mills, etc., during floods, are reasons urged (in addition to the questions of site and fuel) in favor of steam for this industry. But for other purposes the site of the water power (perhaps in a gorge) is unfavourable for many industries on account of difficulty of access and want of service ground; and here is the value of electric transmission of water power.

When adopting water power, one of the most important considerations is the possible need of future enlargement. Where all the water power of a stream of any point is secured by a dam, and this power can be drawn upon from time to time until the whole is applied, we have only to consider cost and maintenance in the first place, even