

the cost of fuel being about \$2,675,000. These figures, representing as they do about one-twelfth of the Railways of America, will give a faint indication of the interest involved.

In the above table we have abundant evidence of the effect which the Fuel account has on the profits of Railways, as well as a clear indication of the rate at which that account is increased as the forests disappear in the vicinity of the lines. There is no question but the consumption of wood in our Railways has been increased in their earlier stages by an insufficient estimate of the consequences, and it is doubtless true that less attention has been given to matters affecting it than to any other particular branch of Railway Economy. In England it has been more strictly attended to, but a wide difference between Coke and Cordwood has in a great measure negatived the value of the experience had in that country—the management of the one being quite unsuitable to the other. The time is arrived however, when the subject must receive greater attention, and some recent articles in American periodicals devoted to Railroads evince a desire on the part of our neighbours to enter upon a careful investigation of the question.

It is a received opinion among Mechanical Engineers, that only a portion of the heat generated in the furnace is imparted to the water in the boiler, and experiments have shown that this is owing to the want of a sufficient admixture of oxygen to produce the perfect combustion of the gases evolved from the burning fuel—hence the attempt to introduce a great supply of air at different parts of the furnace.

It was and is still with many a popular belief that the elongation of the flues of a boiler would produce a corresponding economy in the fuel—the flame escaping from the funnels of steamboats, and supposed to be continuous from the furnace, being pointed to as evidence of the escape of a large amount of unappropriated heat—it is now known that this flame is produced by the ignition of the gases on the coming in contact with the fresh air, and a careful set of experiments made by Mr. Stephenson and later by Mr. Armstrong gave conclusive evidence that no corresponding advantages are obtained from lengthened flues.

A recent writer in the *American Railway Times* says :

“ There are two causes why all the heat which fuel may furnish is not obtained. First, that the inflammable gases, evolved by the heat, are not all consumed from a want of sufficient supply of oxygen, the air drawn through the fire being only sufficient to decompose more fuel than when decomposed it could burn, or supply with oxygen. The thick smoke, that escapes from a chimney, when fresh fuel is