

that they have been held they have been very successful, and it is certain that if they are not continued it will be a cause of regret to many members to whom they have been a source of edification and enjoyment. It is moved that they be continued during the coming autumn, winter, and spring. Who will second the motion?

RAILLERY.

SINCE the last number of the AMERICAN ENGINEER went to press the technical and the daily papers in this country and in Europe have given much space to accounts and comments on the railroad contest in England and Scotland. It is hardly worth while now to attempt to give detailed accounts of this race, as it has been called. All that we need to say is that there are two lines from London, leading northward into Scotland, the terminus of both being Aberdeen. The general location of these being somewhat like that of two brackets placed thus ($\{$), the one on the right touches the east coast of the island, and the other the west coast. The distance from London to Aberdeen, by the East Coast line, is $523\frac{1}{2}$ miles, and by the West Coast, $539\frac{1}{4}$ miles. These lines compete for business, and as a result of this competition the companies interested attempted to show which of them could run their trains in the shortest time. That it is not easy at this distance to know exactly what the results of this trial of speed were, is indicated by the remarks of a correspondent of the London *Engineer*, who has written an interesting account of the "race," and who says that "it may be observed that there is the greatest difficulty in obtaining trustworthy records of the actual times of the trains. It was obviously impossible for one man to go by all trains of both routes, and so recourse must be had to official records or passengers' timing. Unfortunately these disagree among themselves in many important subjects."

As nearly as we can make out from the published reports received at the present date, the quickest time made on the East Coast was $523\frac{1}{2}$ miles in 520 minutes, including stops, or an average of 60.44 miles per hour. On the West Coast the run of $539\frac{1}{4}$ miles was made in 518 minutes, including stops, or 62.52 miles per hour.

Commenting on this, *The Engineer* says—and hence the title of our article: "One gratifying result of the race will be *perhaps** to silence the boasting of the American press. The far-famed Empire State Express has been thoroughly beaten. No engineer in this country, and probably very few in the United States, believes that a mile was once run on the New York Central in 32 seconds, or that 5 miles have been run in three minutes. Concerning long-distance runs, however, there is not room for doubt, an inaccuracy of a few seconds in timing being of no importance. It is said that the 'record run'† of the United States was from New York to East Buffalo, 439.5 miles, in 425 minutes, or say, 61.56 miles an hour. A reference to Mr. Rous Marten's article (published in *The Engineer*) will suffice to show that this has been most thoroughly beaten. We have, of course, yet to hear what United States railway men have to say concerning the race. Their comments can scarcely fail to be interesting."

The comment which is most "interesting" is not that of the newspapers, but of the trial made on the New York Central road on September 11, news of which will, of course, have reached our readers before this will. In this run the distance taken was $436\frac{1}{2}$ miles, which was made in $411\frac{3}{4}$ minutes, including stops, or at an average speed of 63.62 miles per hour. There has been some dispute about this also. The weight of the cars hauled on the New York Central road was nearly four times as heavy as that of those on the English

trains. On the other hand, the grades on the English lines are considerably heavier. It is also said—which is true—that a helping engine was used in going up the heavy grade from Albany to West Albany, a distance of about 3 miles, and that the time of arrival at East Buffalo was taken without stopping. If the train had been slowed down before reaching East Buffalo, and brought to a dead stop, of course some time would have been consumed thereby. On the other hand, owing to the frequent grade crossings, on the New York Central line, there are many more places where speed must be slackened than there are on the English roads, where such impediments are much less common.

In view of the performance on the New York Central road, it may now be expected that the comments of *The Engineer* "can scarcely fail to be interesting."

MATHEMATICAL PAPERS.

IN reviewing the last volume of the Transactions of the American Institute of Electrical Engineers, the London *Engineer* says: "A few years ago the United States would have been the last place in which to seek elaborate mathematical theorizing about and all around engineering problems. It is, indeed, doubtful if anybody does seek it; it seems to bubble out in some places, a pretty, sparkling stream at first, but no sooner coming in contact with things terrestrial than it generates mud—thick, or sometimes sloppy mental mud. But, as we have remarked, it does nobody any harm. No one need go to the meetings where abstruse mathematical papers are read, and no one need follow the rules which are given as the result of it all, if, indeed, the authors remember to give any rules."

It is, perhaps, not extraordinary that young students with the laurels of their graduation honors still fresh and green in their heads should write such papers; the grievance which those of us who are growing old and have had experience of more or less value is, that these young fellows insist on reading such papers. We don't quite agree with *The Engineer* that they do no one any harm. Of course if young fellows who know a great deal about mathematics, but have never studied the laws nor the limits of elasticity of an ordinary audience, choose to write and read such papers, no one has any good ground to interfere if due notice is given of their dire intention. The trouble is that they don't give such notice. We go to meetings with the placid expectation that some one who has done something that is creditable and well worth doing will read a paper and tell us of the difficulties he encountered, and how he overcame them, and what he accomplished, its value, and many other things that would be entertaining or profitable, and after a reasonable amount of time—say 20 minutes—has been thus occupied, that then there will be a discussion in which the old fellows and the young ones will all tell without boring their audience, what they know or have learned or want to know and learn of the subject in hand. Such proceedings are agreeable and refreshing, and we come away feeling strengthened for the struggle which must be renewed daily. Instead of this what actually often does happen is, that some paper is announced with a taking title for a given meeting, which leads to the belief that the kind of diversion and instruction indicated will be dispensed. On such occasions it happens at times that some youth starts in on his manuscript. First he stands on one leg of a formula and then on the other. Then he gyrates about an hypothesis which he assumes to be a fact, and weaves a spider's web of integrations and disintegrations on the blackboard; he balances possibilities in learned figures of speech, until none who hear him can tell whether he is trying to prove that the toes of his boots represent the square root of his understanding, or the end of his coat-tail is a function of his neck-tie. All we know is that what he is giving

* The italics are ours.

† This refers to a run made before that of September 11.