May 5, 1863.

JOHN HAWKSHAW, President,
in the Chair.

Mr. ZERAH COLBURN submitted a Paper describing the several plans of Iron Bridges in use upon the Railways of the United States, illustrated by a series of diagrams.

No. 1,091.—“American Iron Bridges.” By ZERAH COLBURN.

After reading the Paper, Mr. COLBURN said, he had refrained from entering more into detail to avoid making it tedious, but he should be happy to reply to any questions. No doubt, in looking at the diagrams, it would be considered that American engineers had practised great economy in designing these bridges. The fact was, that if bridges could not be constructed of iron at a moderate cost, the Railway Companies in the States would not adopt them, but would continue to use timber bridges, which could be built at from £5 to £7 per lineal foot. It was on the score of cost, alone, he believed, that American engineers had adopted cast iron for all parts in compression; so many square inches of section could be put into the tubular form for one-third the cost in cast-iron that would be incurred with wrought-iron plates. In the case of the Green River Bridge, the top chords and the vertical posts were of cast-iron pipes. Care was requisite in casting the pipes. Mr. Fink tested the iron for all the pipes, and holes were drilled in the side that lay uppermost in the sand, to ascertain that the cores had not floated, and thus that the metal was of uniform thickness. The fact of cast-iron being used in the top chords was a sufficient explanation why bridges were not made continuous over two, or more, spans in America. In nearly all these bridges almost the whole of the iron was made to do work in carrying the load. They, no doubt, differed from what English engineers were accustomed to, and he feared the diagrams would present an extraordinary appearance to English eyes; but they were faithful representations.

Mr. Colburn then called attention to the drawing of a bridge with truss rods to every upright post. The span was