DISCUSSION ON MR .W. SHELLSHEAR'S PAPER—"ON THE MODERN TENDENCY OF RAILWAY PRACTICE."

MR. WELLS said that the idea of a general standard he thought to be a good one; especially with regard to iron bridges. The Department of Roads had already a standard for wooden bridges, and the adoption of a standard for iron bridges could be as well applied to them as to wooden bridges.

Mr. Norman Selfe said, with regard to easing off curves on railways, we were living in better days for engineers than they were twenty-five years ago. He instanced the case of a gentleman who, for reading a paper on easing-off curves, had eventually to leave the Service, and said that in the past no place could bear comparison with New South Wales in stifling talent; but he was glad to see gentlemen like Mr. Shellshear coming forward and giving the result of their experience. He would also ask them to notice that Sir John Coode had practically endorsed what Mr. Shellshear had said, in a former paper of his, dealing with river and harbour improvements. It was a simple matter of mathematics, as to the disposition of the question of setting off curves of varying radii, and he had no doubt that any man in the Public Works Department was competent to supervise and carry out such a detail to completion. The adoption of a uniform standard would imply that we had reached finality, which he thought would be an undesirable idea to become possessed of; because we, being a progressive race of people, must always expect to have diversity of opinion, and the effect of a uniform standard would be to crush this out. It was a matter of astonishment to him that we had not adopted centre couplings.

Mr. Cruickshank endorsed what Mr. Shellshear had said in his paper, and thought it was very encouraging to see men of his

position coming forward and giving the Association the benefit of their knowledge. The uniformity of templet system no doubt had many advantages, and it would be much better if such a system were more widely adopted. With regard to the brake question, he had no doubt the valve spoken of by Mr. Shellshear was in many ways advantageous.

The President said he failed to see why in a commercial community we should have thirty different types of locomotives. He thought it was possible to get the best article of its kind, and we had many facilities for procuring the best obtainable. He was satisfied from a commercial point of view that it was a matter of very great importance. Referring to remarks from Mr. Selfe with regard to Government officers expressing their opinions openly, he was exceedingly pleased to see that they did so, and he hoped that in the future we should never see a Government official placed at the disadvantage of not being able to step out and express his candid opinions.

Mr. Shellshear, in reply, said that ironbark sleepers had proved immensely superior to any other kind of wood, and were not liable to the attacks of white ants as were posts and rails, fencings, and girders of bridges of other kinds of wood. The greatest enemy of ironbark timber was dry-rot, caused by the timber being felled with the sap in. In the United States they made their bridges to a set of standards, and carried them out satisfactorily, all being gauged to a uniform pattern. The curve he had defined was simply the introduction of a short length of an elastic curve, at the entrance of the curve, the difficulty being between the passage from the straight to the curve. As to the question of standards for ordinary rolling-stock, we had so far arrived at perfection that there was not likely to be any extensive improvements in the general details for some considerable period, and he thought if a series of standards were prepared from the best examples in use at present they would probably meet all requirements for some time to come. He believed that the greatest field for compound engines would be found in their use in connection with goods traffic.