The lecture dealt with the design and fabrication of three steel tanks lately constructed by the Construction Department of the Metropolitan Gas Company, in connection with the new Carburetted Water Gas Plant. The tanks, in order of their description, were:—

An Oil Tank, 70 ft. diameter by 20 ft. deep, with conical roof supported on steel framework, and having a total weight of 58 tons of steel work, and a capacity of 481,000 gallons or 1924 tons of fuel oil.

A Gasholder Tank, 120 ft. diameter by 23 ft. deep, having a total weight of 127½ tons of steel, and containing 1½ million gallons of water weighing 7260 tons.

An Overhead Tar Tank, 15 ft. diameter by 7 ft. 6 in. deep on sides, with conical roof and bottom, supported on a 40 ft. tower.

The lecturer traversed the essential differences in design, fabrication and erection of rivetted and welded steel tanks, showing by means of lantern slides how the engineer is enabled to design a simpler and lighter structure when considering welding as the medium for making joints, and how shop work can be entirely cut out in a great part of the work, at the same time simplifying the erector's work.

He showed how the oil tank was erected in five weeks, without pushing the work, and using only two-thirds of the materials just as they arrived from the mills, the remaining third, only, requiring shop fabrication.

The tanks, both oil and water, were found to be perfectly tight on completion, and, after some months of use, no evidence of the smallest leak had been discovered.

An overhead tar tank of 10,000 gallon capacity was shown under erection, the tank being completely welded up while on the ground, and then elevated in one piece. When at the proper height the tower was built in underneath.

The lecture was illustrated with a complete series of lantern slides.

Mr. J. T. N. Anderson said a noticeable aspect, especially in the paper by Mr. Grove, was the evidence that every detail had been provided for, to the elimination of all waste. The President's paper had not supplied so much detail; it was more a mathematical investigation. He asked whether
the curves of the bars were circles or catenaries, and what was the bearing pressure of the bars on the concrete.

The President said the bars were curved actually to arcs of circles, the form being sufficiently close to the catenary for practical purposes. The bearing pressure was about 550 lbs. per square inch. That was after three months' maturing.

Mr. J. N. Reeson said members appreciated the exceedingly valuable work the President always gave in connection with stresses, and the enthusiasm with which Mr. Grove attacked the problems of welding. A surprising thing was that even now welding was not so generally adopted as might be expected. He believed he was correct in saying that, with the exception of a few tanks of the kind Mr. Grove had mentioned, rivetting was still the practice. Mr. Grove had said it was difficult, if not impossible, to fabricate a rivetted tank so that it would contain oil without leaking. He believed that to be absolutely correct. It was surprising that the oil companies still continued to build rivetted oil tanks, although their petrol containers were welded. He considered that in a few years rivetting as a means of joining material would be out of date.

DISCUSSION ON FOUNDATIONS IN SILT.
(Paper by H. E. Grove).

The President said the paper delivered by Mr. Grove at the previous meeting, and the two papers delivered that evening, would be discussed conjointly, as they were dealing with cognate subjects. At the previous meeting Mr. Grove had dealt with the problems of piling and foundations in silt, together with the strength of the concrete used, and a description of the MacArthur pile. That evening he had briefly described further foundation work, and Mr. Grove had dealt with construction on those foundations.

Mr. J. N. Reeson said that in the case of each of the timber-pile foundations at West Melbourne, there was no substratum; so a sufficient number of piles had to be put down to give the necessary skin friction to support the structure. Where there was a substratum, however, the method of piling so lucidly described by Mr. Grove formed a distinct advance in knowledge of foundation work. Perhaps the disadvantage in that class of piling was that in the nature of things it was impossible to reinforce it. In foundation work such as was experienced at West Melbourne, where lateral