DISCUSSION ON "ELECTRICITY IN MINES." PITTSBURGH SECTION,
NOVEMBER 10, 1908.

F. L. Sessions: I should like to suggest, what is not entirely original, a basis for the rating of mine locomotives as follows: the motor capacity shall be equal to a stated horse power per ton of locomotive weight per mile per hour at a stated speed in miles per hour, at 75 degrees cent. rise of motor temperature as measured by thermometer after a 1-hr. run.

Or, as an alternative which will refer strictly to the locomotive performance at the draw-bar: the rating of an electric mine locomotive shall be based upon the horse power per ton of locomotive weight per mile per hour at a given speed in miles per hour developed at the draw-bar continuously for an hour, with a rise in temperature of any part of the motors of 75 degrees cent.

W. A. Thomas: The exhaust-steam turbine will be of considerable importance in the near future. A number of plants have been equipped, and many more low-pressure turbines might advantageously be installed where the exhaust steam from reciprocating engines is being wasted. In the case of one coal company, since putting in exhaust-steam turbines 1,000 kw. have been recovered on four units, whereas formerly not more than 200 kw. in heating value were obtained from the exhaust of the engines. This economy is bound to become a marked feature in general work as well as in coal-mining operations.

The standard of laws for the use of electricity in mines, that has been considered in the establishment of laws in Pennsylvania is similar to that established in New South Wales. Electrical men who are associated with mining operations should make themselves familiar with these laws.

Probably one-third of the restrictions and special limitations in the New South Wales laws are on account of defective insulation on the wires, and as good insulation is used there as can be obtained in this country. In this country it is usually considered that up to 600 volts the wires should be left bare. In establishing rules in this country I believe it will eventually be decided that bare wires should be used and that we should not trust to insulation.

I agree fully with Mr. Sessions in his ideas on standard ratings. I think that concerted effort should be made on the part of the manufacturers to get mining men who are interested in electrical matters to comprehend more fully what an electrical rating is, and then come to a common basis, as it is confusing to an operator if he is not acquainted with these matters.

H. W. Fisher: The destruction of the lead covering of cables by acids in mines has been repeatedly brought to the attention of the manufacturer of cables. At present we are experimenting with a form of cable which is protected by the use of a high melting compound which is practically acid proof. In making

this cable the strand is first coated with the compound, so as to prevent moisture from entering the cable along the strand in case the ends are not especially well protected. Then varnished cloth is applied to about the necessary thickness for the voltage in question, after which a layer of this special compound is applied, then one or two layers more of varnished cloth, and over these the usual braids.

We also make a rubber-insulated cable which is finished with a layer of special black compound and varnished cloth and braid as above specified. These forms of cables have only recently been put on the market, but sufficient time has not elapsed for us to know definitely if they are giving satisfaction.