Exhibition of Nernst Lamps, showing their Development from the Experimental Form up to the most recent types

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LII. *Exhibition of Nernst Lamps, showing their Development from the Experimental Form up to the most recent types.* By Mr. J. STÖTTNER.*

MR. STÖTTNER commenced by giving a short account of the history of the Nernst lamp, and explained briefly the principle of its action. The oxides used for the glowers are thoria, zirconia, and other rare earths thereto related, such as oxides of yttrium and cerium. A paste of these is formed, and small rods or tubes are pressed through a suitable nozzle. These are hardened and cut into small lengths, and practically the principal part of the lamp is finished. Several of these rods were passed round for the inspection of Fellows. The chief difficulty in the practical lamp is in the design of a durable automatic heater to heat the filament up to conducting point. A number of automatic arrangements which have been designed for disconnecting the heater were shown. Another important part of a Nernst lamp is the bolstering resistance, which in its final development consists of a thin iron wire sealed in a glass bulb filled with hydrogen gas. If a lamp is used without a bolstering resistance, as soon as a certain critical potential is reached the current increases, at first slowly and then quicker and quicker, the potential remaining constant, until the lamp burns itself out. This phenomenon was shown experimentally. Various forms of lamp were exhibited. One with two glowers and one heater overcomes the difficulty of thick glowers. A projection lamp was shown with three glowers in parallel requiring 300 watts. The glowers in this case were heated artificially. Mr. Stöttner also exhibited and described a pole-finder for use with lamps using direct current.

DISCUSSION.

The CHAIRMAN said he would like to see details of the life and economy of these lamps under various conditions. The lamp was in its infancy, and probably even more satisfactory lamps would be forthcoming.

* Read May 22, 1903.