the output voltage will be accurately related to the displacement, that is, in the case of a linear potentiometer the output voltage will be directly proportional to the displacement. This condition is encountered when the output is applied direct into the grid of a valve, or in the case of a null balance circuit as in Fig. 2.

When the load impedance assumes finite proportions an error, known as the loading error, is introduced, as shown in Fig. 9. This is due to the fact that the load draws its current through one part of the potentiometer winding and so causes the current in one part of the winding to be higher than that in the other. In practice this error can be reduced by using end resistors in series with the potentiometer thereby limiting the working range of the potentiometer to the most linear part of the curve.

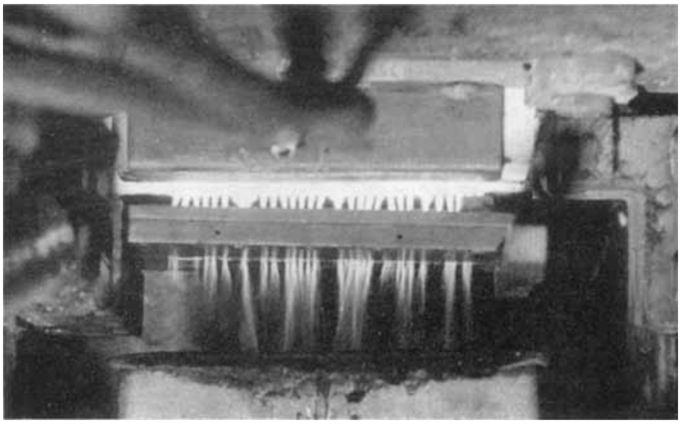
The maximum current through the resistance element is usually limited by the maximum permissible temperature rise in the winding. Heat dissipation tests carried out on the transducer element of Fig. 3 resulted in the temperature rise curve shown in Fig. 10. Results such as these are helpful in arriving at a figure for the maximum power that can be safely dissipated in a potentiometer winding, but such figures may have to be restricted if the instrument is required to function at high temperatures for long periods.

The Mechanism of Glass-Fibre Formation

A PHOTOGRAPHIC STUDY OF THE PROCESS

In the Owens-Corning glass-wool process the fibres are produced by subjecting streams of molten glass flowing at a temperature of about 1500°C from orifices in a platinum bushing to a blast of superheated steam; fiberisation takes place within the steam, and the fibres are collected on a conveyor below.

The exact mechanism of fibre production has not been fully understood, as the movement of the glass is too rapid to be followed by eye or recorded by ordinary photographic techniques. A study of this problem was therefore undertaken in the laboratories of Fibreglass Ltd. and Pilkington Brothers Ltd., St. Helens, by A. de Dani and P. E. Jellyman (*J. Soc. Glass Tech.*, 1957, **41**, 276–282) using flash photography with a flash duration of 2μs, and ciné photography at a frame speed of 3000 per second. The paper is well illustrated with the photographs and frame sequences obtained, and it is concluded that the mechanism is neither the formation and attenuation of drops of glass, nor the division of the stream of glass by branching, but is a looping and folding of the glass stream induced by turbulent flow of the steam blast.



This photograph of the Owens-Corning glass wool process in operation, taken at an exposure of 1/25 second, gives an impression of the visual appearance of the process. The bottom of the platinum bushing, and the glass above and below the blower chamber, are seen to be incandescent.