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DISCUSSION.

Professor P. G. H. Boswell drew attention to the descriptions of British supplies of fireclay, etc., which were being undertaken systematically and published by the Geological Survey. He also referred to the matter of "impurities" in fireclays, and gave some details of an electro-osmotic process of purification, in which a current was passed through a suspension of the clay in water to which a small quantity of electrolyte had been added. The process was carried out in a semicircular trough, using a revolving drum-anode and a screen of wire-netting half an inch distant as cathode. The colloidal iron and titanium compounds were retained on and under the wire-netting, while the clay, purified, compact, and dry (containing only 18-20 per cent. water), was thrown on to the cylinder. Its composition approximated to that of pure kaolin, but it retained its plasticity.

It was noteworthy, as pointed out by Professor Fearnside, that the best refractory materials, like the best glass sands, appeared to owe their high quality to association with decomposing vegetable matter.

Mr. S. N. Jenkinson doubted whether the presence of titanium in clay was harmful. He suggested that pots could be made thinner by using a bind which vitrified on heating.

Mr. T. Jackson believed that some of the improvements suggested could be utilized to increase the life of the brickwork round the working holes, which deteriorated so rapidly.

Mr. F. J. Foster stated some of the difficulties that arose when furnaces were worked at very high temperatures.

Mr. S. N. Jenkinson suggested practical remedies for overcoming these difficulties.

Mr. W. M. Gardner, in a written communication, discussed the nature and uses of the Meltham rocks.

Mr. Cosmo Johns contributed a Paper on "Glass Industry Refractories, with Special Reference to Tank Furnaces," which was not read at the meeting.

The comparatively low temperatures in tank furnaces are favourable to long life of the refractories, and as far as resistance to fusion is concerned, an abundance of silicious material is available. But the corrosive action on acid materials of an atmosphere charged with alkaline dust or vapours is an important factor. This action is greatest on the port blocks, and for these special material should be selected. A preliminary to such selection is an accurate knowledge of the composition and temperature of the furnace gases.

A complication introduced by the low temperatures is the existence at some point along the temperature gradient through the brick of the critical temperature 575°C., at which takes place the $\alpha \rightleftharpoons \beta$ inversion of quartz. With variations in temperature the position of this point will fluctuate and lead to alternating stresses, and hence a zone of weakness in the brick, and shearing will ultimately result. This the author has actually observed in Midhurst sand-lime bricks in which some free quartz was present.