

with the flowing tide. This operation was successfully carried out, and the subsequent procedure resolved itself into providing for the escape of water still impounded through a sluice fixed in the timber staging with that object. Thus, little by little, the volume of water impounded was lowered, and at the same time a constant stream of clay was tipped behind the stage, large quantities of stone having been thrown in front of the toe of the stage to weight it in position and prevent pressure from behind driving it forward. The ground immediately in rear of the breach was so precarious that when the stability of the temporary works was assured an inset wall in rear of these was constructed. By this time the drowned marshes had become to a moderate degree *terra firma*, and the first operation was to cut away the surface of the natural soil for a few feet, so that the inset wall might rest upon a fairly solid platform. The wall was then built up in puddle clay tier by tier. An operation of this character requires the most exact care. The clay has to be dumped in layers of about 12 inches to a uniform level, and then well trodden and punned into the stratum of clay below. In Australia it is a common practice to drive a flock of sheep backwards and forwards over a wall of this kind when under construction. The object to be attained is a complete blending and amalgamation of the layers of clay, so that no veins or fissures remain through which water may percolate and thus cause slips. The inset wall so constructed was laid out to a slope of 2 to 1 on the river face, and $1\frac{1}{2}$ to 1 on the back, and for several lengths, where there was a tendency to slip, short elm piles were driven along the toe. The whole of the face of the inset was subsequently pitched with block chalk 8 inches thick and Kentish ragstone 12 inches thick, carried to within 3 feet of the crest of the wall. The apex of the wall was left 3 feet wide. The unstoned portion of the wall was sown with grass seed. When the inset wall had been completed, and allowed several months to consolidate and season, the timber dam was removed. This required much caution, as small gaps in the timber work would have caused rushes of water, which might have disturbed the equilibrium of the finished work.

The paper of the late Sir John Hawkshaw describing the