

Committee. So that for a contractor to urge that he is absolutely bound to carry out the orders of one individual man—and that man in a subordinate capacity—is nonsense, because he can appeal over that man's head in half a dozen directions. The Inspector will be called directly, and he will give evidence that he did not order the removal of these timbers.

Though a good deal has been said about this timbering, I do not think the Committee yet realise exactly how the matter stood. Something was said as to the timbering being ordered to be removed before the key of the arch was put in; and some members expressed surprise at this, because they thought the arch would possibly fall. But members did not realise that there are two sets of timbers. The timber referred to was not the set that supported the arch. There was first a set of heavy timbering which supported the material in which the tunnel is excavated. Then there is another set of timbering altogether, which supports the brickwork. [Producing a photograph of the timbering in the tunnel]: Here is a photograph. This shows the poling-bars—the longitudinal bars which support the roof of the tunnel. After the struts on which these bars rested originally had been taken away this underneath frame was put in, and that is the frame on which the arch was built, and that frame is referred to in the specification as the one that the contractor was not empowered to remove until some days after the brickwork had been put in, and not removed at all except on the sanction of the overseer. [Referring to another drawing]: This drawing illustrates the method of timbering adopted when the contractors first put in a ground-sill or sole-piece. This piece of timber was persistently put in just in the line of the invert. The department urged and urged at the time that it should have been below the invert, so that this brickwork could have been constructed continuously through there without coming into contact with that sill. [Pointing to the plan]: The sill should have been down here. This perpendicular leg should have been through the invert. That was all the more annoying because this great piece was left out of the invert, which materially weakened the structure. On that sill they founded two upright legs. Then there was a main sill that ran across the excavation. These are the poling-bars—very heavy bars that run lengthwise along the roof of the tunnel and support the ground that has been excavated. In this case as the ground ran they put in slabs above the poling-bars like weatherboards, and thus roofed it completely in. Between each poling-bar there was a round chock put in, so that we had a complete arch that rested on solid excavation here and solid excavation there, and that arch was complete in itself without the assistance of these legs. They were put in as additional support. There was a tom put in to support every one of these poling-bars. The poling-bars used by the contractor in this contract were for the most part very long, running up to 30 ft. in length, and generally being about that length. The contractors in trying to get in the poling-bar for the next section beyond, when they had completed one section, persistently and regularly every time—themselves, without any assistance or suggestion whatever—took out that principal tom. Not only did they do this without suggestion from the department, but they did it in defiance of the instructions of the department. That was the mainstay of the crown bar, and they persistently took that tom out to get in the crown bars for the next length. They were round bars long enough for two lengths. When that was taken out and the brickwork built they put the crown bar on top of the brickwork, generally only a few inches on it, and that brickwork, quite green, had to stand the strain of several feet of this crown bar. The lengths were 11 ft. One end would be supported at a distance of 11 ft., and the other end supported on this brickwork, and the whole weight came half on the new brickwork and half on the legs. The strain was so great that it positively flattened the arch. The contractors removed the packing at the sides, and we found it bulged out quite sufficiently to make the side toms perfectly loose—you could take them out with your hands. As to whether they were ordered out or not is a matter of no consequence, because they were perfectly loose. And this is the origin of the statement given by the contractors that Witheridge ridiculed the idea of stress being on these timbers. There was no stress on these timbers. The arch completely bellied at the top and thrust out the shoulders, so that these timbers had no weight to carry. This main sill was put in in two pieces to facilitate it being drawn out. The department contended that when the brickwork was carried out up to the level of this sill, which rests on the brickwork, that the brickwork should not have been completed round the arch while that sill remained in. It was a very large piece of timber, 12 in. square, and as the brickwork above the top had to be gathered it left an opening of some 20 in. by 12 in. in the side of this wall—an opening which unquestionably weakened the wall, and which the department thought it highly inadvisable to leave; hence the opposition of the Inspector to that sill remaining in. However, that sill, of course, could easily have been cut off on the line of the brickwork here, and that would have obviated building it in. It, perhaps, would have rendered it useless for the next length, but that would have meant but little extra expense, because the timber in this case was of no particular value, as the railway ran through a forest; and, to show that the contractors thought so, they left these poling-bars in repeatedly. [Pointing to the plan]: Here is the inner frame on which the brickwork was constructed. This is a sill running across a punching-piece from the lower sill, the punching-pieces resting alongside the brickwork to just about the springing of the arch, and this was flanked with pieces that we call “lagging” up to about this point near the crown of the arch, but just leaving room for the key. This piece was left open for the contractors to work in in getting in the key. After completing the arch and the brickwork entirely and efficiently this piece was put in, and that frame was not removed until the brickwork was properly set.

4. *Mr. Wright.*] You have not informed the Committee at what intervals these sills were placed?—I have another drawing to illustrate that. [Producing it.] On this drawing is represented the work as it was left just before the fall took place. The contractors had been bricking up to a certain point. A short distance beyond this point there was a set of legs duly set, and crown-bars running along here. The excavation then was only just beyond this length, and there was a false sill carrying a short strut which supported the overlap of the poling-bars from the previous section. The contractors, in the course of their excavation, took that sill away, against the