

580. *Mr. Blair.*] Generally, what difference is there in the levels between the ambulatory in the north wing of Block 2 and of Block 1?—At the two south ends there is a difference of from $1\frac{1}{2}$ in. to $1\frac{3}{4}$ in. There is no step; it is an easy grade.

581. And what do you say is the average difference between these two?—About $1\frac{1}{2}$ in.

582. *Mr. Lawson.*] Which is the upper, and which down?—The north is down.

583. *Mr. Mountfort.*] So far as the levelling of No. 1 goes, is it level?—No. Between the extreme ends of the Port Chalmers step there is a difference of $1\frac{1}{2}$ in. It falls towards the north.

584. Which Port Chalmers step do you allude to?—This one [indicating on plan].

585. *The Chairman.*] Beneath the arches?—Yes. These are the only levels I have in that block. In the other ambulatory I found it very uneven.

586. Which ambulatory do you mean?—This one [indicating on plan].

587. *Mr. Blair.*] I shall now ask Mr. Hay if he can account for all these cracks and bulges by the sinking of the foundation?—Referring to the plan No. 1, Mr. Chairman, there is a portion of the foundation there coloured green: my contention is that there has been more or less sinking over the whole of that portion. That includes the middle wall of the ambulatory, some of the partition-walls, a portion of the colonnade-wall under the arches, and round the north wing throughout the portion that extends beyond the point marked *j*, and along the south walls of the north wing at *l, m*. To begin with the colonnade, I think I have already shown that the levels indicate sinking if they indicate anything, and there are still greater evidences of sinking. The first thing that would happen if there was sinking of the pillars would be that the colonnade-wall would sink all along the middle, and that would throw a severe thrust on the ends of the wall, at the lower side.

588. *The Chairman.*] At the north and south ends?—Yes, at the extreme ends. We have every evidence of a severe thrust at the north end—we have the wall sheared completely through. At the south end the evidence we have is the bending of a gaspipe. This gaspipe has been pushed through the partition-wall, and it bulges out. It has been pushed through, perhaps—I did not measure it— $\frac{1}{8}$ in. or a little more. It has come through the wall, and bulges out considerably—3in. or 4in. from the wall.

589. Can you point out that, because we did not see it?—It is on this plan. It is there, running along that wall. It has evidently been gripped by the colonnade-wall, and the brickwork contracted and pushed the pipe through the partition-wall, the brickwork being more elastic than the pipe.

590. *Mr. Gore.*] How high is that from the floor?—The gaspipe is right along the ceiling of the ground-floor. Of course there will be equal thrusts at the north and south ends, whatever they may be, and the north end has given way because there are only some 6ft. of wall there and the partition is not supported at the north, whereas on the south you have the wall running continuously along. The motion at the lower end of the colonnade-wall, the extreme north, has evidently been forward: it has crushed back the north wall and the south wall of the north wing, and tilted the whole partition over, which I call G G on Plan 4. These doors in partition G G are all tilted over on the lower flat $1\frac{1}{2}$ in. in 6ft., on the second flat 1in., and on the top flat, $1\frac{1}{2}$ in. in the whole height.

591. *Mr. Blair.*] That is the top floor?—Yes. The partition-wall is cracked at E, and the whole wall is falling bodily over. It is cracked at the top; and there is another crack I discovered just to the right of the archway going along there. This is a little crack; it is not shown on the plan.

592. *Mr. Gore.*] Three-eighths of an inch at the top?—Yes. The doorway is out of plumb. The colonnade-wall has thrown over the two walls of the north wing, the south wall and the north wall; and this tilting of the partition G G is the cause of the bulge I described before on the north wall. The two floors apparently have moved with the colonnade-wall. The ceilings clearly show that they have been stretched, and stretched just as we should have them by pushing one wall of the day-room past the other. Both ceilings are cracked diagonally. The middle wall is very much cracked. I have no sections to describe that. It is cracked up between the lift and the north wall. And on the left the dividing-wall of the stairs has tilted over. It has tilted over, I think, about $\frac{1}{2}$ in.

593. *The Chairman.*] In the whole height?—In the height of the doorway on the ground-floor.

594. Towards the north?—Yes. It shows the middle wall—partly by its own motion, partly, I think, by the dragging of the colonnade-wall—is going to the north also. Then, the roof has also gone with the colonnade-wall in its northern movements, and it has also gone with it in its seaward movement at the top. It is dragged away from the back wall—dragged away by the united action of the colonnade-wall, the middle wall, and the chimneys tilting over: these are taking the roof with them. The resultant action of the roof on the back wall has been to drag it in a north-easterly direction. The roof has been dragging from the wall: this and, I think, also the weight of the partitions on the back wall, due to the tilting of the partitions, have bulged the back wall seawards a little, as shown by the plan; and the roof at the same time has been dragging the back wall in the first recess northwards. That accounts for that warping in the return-wall from the north gable; and it would also account for these large cracks that you find at the windows. It shows that the walls between the windows have broken as beams they have resisted the motion of the roof, and have been broken at the weakest point. These back walls are broken all along the lower windows. Below that the wall is very much stronger, thicker, and solid. There is a crack just at the very extreme north end, where the wall is weakest. The pull of the roof gradually dies away in the second recess. We have very little showing there in the ceiling of the straining of the rooms. This motion of the roof and floors is very clearly shown, I think, by the cracks in all the ceilings. If you look at Plans 1, 2, and 3, you will find the cracks shown. I did not take the angles exactly, but they are near enough. The cracks are all inclined one way. Over the ambulatory, and in the rooms, they are all inclined one way, on all the floors. That shows that if