

1314. You had no brown coal?—No.

1315. What were your roofs?—All kinds; binds, shales, and different descriptions.

1316. Some of the mines in your district are very deep, are they not?—Yes; the last one I was in was 600 yards.

1317. Your pumping was done by steam?—We do not have much water, as a rule, in deep mines. We tube it back at the earlier stages at about a depth of 150 yards.

1318. *Mr. Rolleston.*] From this plan (Twining's) you think the workings dangerous to human life?—Decidedly so.

Mr. BLACKETT, examined on oath.

1319. *Mr. Reid.*] What are you?—I am Engineer-in-Chief for the colony.

1320. Are you familiar with coal-workings?—I have seen a good deal of them in different parts of the world.

1321. Have you ever seen a drowned mine?—No.

1322. Are you aware of the effect of water confined in a pit, as to its pressure or otherwise?—Yes; I should know what the effect would be.

1323. Please look at this plan (wall plan) and the sequence marked on it. With this sequence and this cover, could you tell us whether water allowed to accumulate in the lower workings would have a sustaining effect or otherwise; whether it would have any hydrostatic pressure in supporting the cover?—It would have a pressure equal to the head of water.

1324. Are you familiar with the method of working coal mines?—I have studied it a good deal, but have had no practical connection with the working.

1325. Please look at this tracing (Bishop and Taylor's). One of the witnesses has sworn that this narrow bord is 14ft: what do you make it?—8ft. 3in.

1326. Are you aware of any railways or superstructures built on land partly supported by water?—No; I could not quote an instance.

1327. Do you know the Chatmoss Railway?—I have been over it.

1328. Do you know if that is partly supported by water?—It is floating on a bog.

1329. What supports the line?—The embankment is supported by the moss or peat.

1330. Has the water nothing to do with it?—Yes; the water assists in the support.

1331. *Mr. Chapman.*] If the Chatmoss were drained it would shrink, I suppose?—Yes; the railway would go down.

1332. Water, if absolutely confined, has a large supporting power, I suppose?—Yes.

1333. If it is not confined it has a supporting power equal to the vertical weight of the column pressing?—It exerts an upward pressure on the roof, and a downward pressure on the floor.

1334. *Mr. Macandrew.*] Would it be possible to pump a mine by machinery without risk or danger to human life; and could not the whole operation be conducted from the surface?—That would depend on the depth of the mine.

1335. The connecting gear could go to any depth, could it not?—That would depend on what facilities you had for getting at the lower part of the mine.

1336. What I wish to know is, whether the mine could be kept pumped dry without a man or men going underground?—It could only be so kept by perpendicular shafts, for there would be no means of getting at the water except that which is directly under the shaft.

1337. *Mr. Chapman.*] But, if there was a lower level, could you not conduct the water into it from the inaccessible parts, and so pump it up?—Certainly; if the lower level was accessible.

Mr. H. A. GORDON, examined on oath.

1338. *Mr. Reid.*] What are you?—Inspecting Engineer to the Mines Department.

1339. Are you also a surveyor?—I am an authorized surveyor.

1340. Do you know anything of the sustaining power of water?—It would be equal to about 2½ tons per square yard for every 10ft. in depth.

1341. Have you had anything to do with underground workings where water has come in?—Yes; a good deal.

1342. Have you had any experience in coal?—Not a great deal.

1343. What was your experience?—In alluvial and quartz mining; the former at Ross.

1344. What was the nature of the ground?—Very heavy and wet.

1345. Many of the claims have been abandoned on account of the water, have they not?—They were not exactly abandoned, but flooded out time after time; and finally they were left full of water for over twelve months, while draining machinery was being procured.

1346. Had you occasion to examine any of the shafts in which the water had been allowed to stand?—Yes; the ground was so heavy that it had to be closely timbered, and even built up with stones, during the time we had been working; but after it had been standing full of water for over twelve months, as soon as it was pumped out the workings were standing in the same state as when we left it.

1347. What effect had the water on it?—It had the effect of keeping up the roof while it was in, but it had also the effect of bringing it down after it was pumped out.

1348. What was the nature of the ground overhead?—It was gravel.

1349. Were you surprised or not to find that the water had sustained it?—No; I should have expected it to sustain the roof from the hydrostatic pressure and cohesion of the ground. That is, the hydrostatic pressure of the water is a certain amount, and, although the material or ground to be supported, if detached in blocks would weigh about two and a half times heavier than water, still the amount of cohesive force and friction produced by separation of particles is such that the hydrostatic pressure in many instances nearly balanced.

1350. You are an authorized surveyor: have you had anything to do with colliery plans?—Yes; in New Zealand.