

MONDAY, 2ND AUGUST, 1915.

GEORGE ROBB sworn and examined. (No. 74.)

1. *Mr. Skerrett.*] You are a member of the firm of Robb and Page, architects, carrying on business in Wellington?—Yes.

2. I think you have prepared a statement of your evidence?—Yes. I have had seventeen years' experience as an architect, gained in New Zealand, South Africa, and Europe. Have studied principles of town-planning and principles governing the planning of sanatoria and hospitals both at Home and in the colonies. I have had experience of galvanized-iron huts, &c., in New Zealand, Natal, Zululand, and Transvaal, both lined and unlined, military types and others. I have slept in lined and unlined iron huts of all types. I have designed sleeping-huts for Natives and coolies, employees engaged at some of the sugar-mills and tea-plantations in Natal, and I have also seen the huts used by the troops at "Tin Town," Ladysmith; those used at the military camp at Maritzburg; in the Native compounds on the Rand; the outpost huts of the Natal Police; huts at Zululand; bush huts in New Zealand, and the canvas huts used at the Boer concentration camp at Maritzburg; and from my experience and observations of iron huts I can say that the use of iron is not economical, because it intensifies the temperature of the atmosphere, and to render the huts comfortable and healthy it is necessary to line them with some material which is a non-conductor of heat or cold, such as wood, asbestos, or canvas. Unlined, unwarmed iron huts, even if well ventilated, are very uncomfortable in sunny weather, and, in my opinion, dangerous and unhealthy in cold; and when the ventilation is defective the huts become as ovens in hot weather and as refrigerators in cold. In huts constructed of wood or canvas the temperature of the air inside is more in equilibrium with that outside, owing to the comparatively small degree of conductivity of those materials. When it is remembered that the various degrees of conductivity, according to Kaye and Laby, for iron, zinc, wood, and canvas, or cotton of the same thickness are represented by the respective coefficients .150, .260, .0005, and .00055, which approximately means that iron has about 300, zinc 500, and wood .9 times the conductivity of cotton or canvas, it will be seen that iron galvanized with zinc will intensify the various temperatures of the atmosphere; and in the case of cold or frosty weather the bare iron walls of an unwarmed closed-in hut would radiate chilled waves of air, which would have a harmful and unhealthy effect upon any animal life within. Galvanized iron must have at least as much conductivity as iron, and probably as much as zinc. The radiation of galvanized iron is about 30 per cent. Breathing chilled air undoubtedly gives rise to respiratory troubles. It would be impossible to maintain the internal air of an unwarmed and unlined iron hut at the same temperature as the external air, owing to the radiation caused by the iron. The huts erected for the Boer refugees in Maritzburg were of canvas and wood, as the result of the experience gained in "Tin Town," Ladysmith, when many cases of chest troubles were caused by the chilling effects from the use of bare iron walls. The temporary War Office hospitals in England are lined and ceiled with asbestos sheets. I believe the huts for the troops are constructed of wood or iron in much the same manner as the hospitals. Bushmen and navvies in New Zealand will not sleep in unlined, unwarmed iron huts; they prefer the canvas or wood hut or tent. Of the hundreds employed at the rail-head north of Gisborne none will use bare iron for sleeping-huts, though they use iron huts for cooking and storage purposes. The military huts at Ladysmith were of various sizes, unlined and lined; wood floors on piles; ventilators high up, no special outlets; unwarmed; the floor-space per man was that allowed by the Army Council Regulations—i.e., 60 square feet. They were abandoned as unhealthy. The Boer refugee concentration-camp huts at Maritzburg were constructed of canvas on wood frames, wooden floor on piles, iron lean-to roof with felt under. The huts were laid out in groups consisting of four rows on a sloping site, with a northerly aspect. The space between the rows was about 30 ft. between the huts. Between each group the space was about 200 ft., down the centre of which stood the latrines or privies. These and the mess-rooms, stores &c., were of bare iron on wood framing. Each hut was about 30 ft. by 12 ft. by 9 ft., in two compartments, and accommodated not more than four people in each. No fireplaces, ample windows and door, and four ventilators high up. Some huts had screens or verandas in front. Some of the huts used by the Indians at the sugar-mills are of iron, lined with canvas or wood, well ventilated, with wooden floors and ample light, with 60 square feet of floor-space allowed per head. The hutments at the military camp at Maritzburg were constructed in accordance with the Army Council Regulations, and were lined and ceiled with wood, and had efficient ventilation. The compounds on the Rand, Transvaal, are sometimes lined, but all are artificially warmed during the cold weather. The ventilation also is good. The floors are sometimes of wood, in other cases I have seen ant-heap floors. The Natal Mounted Police hutments are lined and warmed when necessary. The police on outpost duty prefer the shelter of bushmen's caves or the small patrol-tents to the risk of sleeping in unlined iron huts in cold or frosty weather. By request I visited the Trentham Camp on Friday, the 23rd July, 1915. There had been heavy rain for several days previously. The approach road to the camp was inches deep in mud. The camp is on a fairly level site. The condition of the ground was very bad—pools of water and mud everywhere, even under some of the buildings. There was an absence of any effective surface drainage. In some cases the spaces between the hutments and around the Headquarters Staff were crudely metalled with boulders of various sizes, apparently dumped down on unprepared ground. Some of the soak-pits were partly filled with water and silt; evidently they were not dug sufficiently deep to allow the water to get away. The tents and headquarters, &c., are on the east side, and there is some congestion and disorder evident in their disposition. Some of the tents are within 3 ft. or 4 ft. of each other, and in some cases the guy-ropes overlap. Some have boarded floors. The hutments, the hospital, and some other