

I walked over to the hospital and met Dr. Bogle, who undertook to investigate and report to me upon the subject. I promised to lend him radiation thermometers, and also a standard hygrometer to test the humidity if he made very good use of those I lent him then. I had no report from him, but when I was subpoenaed to give evidence I at once received a telegram from him in reply to one I sent, in which he said, "No reliable data available." I went out at my own expense and initiative, because I thought it was so necessary after the experience I had had and the knowledge I had of the evil effects of those hutments in South Africa and elsewhere, and I wanted to have absolute determination or proof of what I maintained chiefly on theoretical grounds.

2. Well, with regard to the hutments, do you mean to say there should be no hutments at all, and that there should be tents, or what?—No. These hutments can be, I believe, improved, but they should not have been constructed in the way they are without lining; and the outsides should be painted white or some non-radiant colour. There is the ventilation, too, to be considered; it is by no means satisfactory.

3. Would the matter, in your opinion, be improved by enabling the ventilation to be closed on one side?—Only in storms. Cross-ventilation in a general sense does not do harm, but in absolute storms it would. It would be desirable in calms to have more ventilation than is provided for at the present time. It is not so much a matter of ventilation: it was, in my opinion, primarily one of temperature, and I have mainly directed attention to that matter here concerning the radiation of heat.

4. You see, if there is ventilation which is at the command of the men, there is one man, as you find in a railway-carriage, who very often wants everything closed and another man who wants everything open. There will be difficulties on that score, and probably you would find the ventilation closed when it ought to be open?—Quite so.

5. So that you must have some system, must you not, by which it is out of the control of the men—they must be ventilated willy-nilly?—Quite so. That difficulty is, however, overcome in all sorts of places, even in the House of Parliament.

6. Then you have no basis, at any rate, on which to establish the facts of radiation out there?—Not absolute determinations. I can only give you my experience, and speak from scientific knowledge and reports.

7. You have had experience of the hutments in South Africa: what were the hutments there, and how were they made?—In Ladysmith provision was made for nine thousand men, mainly in hutments of corrugated iron, and it was called "Tin Town." The soldiers there suffered very much from extreme temperatures, maximum and minimum, and respiratory diseases particularly cut off hundreds of men. More men died of disease there than from bullets, and finally Tin Town was abandoned. It stood there at the time I visited Ladysmith as a monument of slackness in scientific matters.

8. *Mr. Gray.*] Were they in use when you were there?—No; they were abandoned because of the evils that came through them. I know of men in this town who were there and who can prove it.

9. *The Chairman.*] What time of the year was it that those huts were used in Ladysmith?—At the time of the siege. I could not tell you the exact date—they were abandoned just after the siege of Ladysmith began.

10. What sort of hutments were they?—Just iron.

11. And held how many?—I could not tell you how many. I did not go up to them and examine them.

12. I want, if possible, the size?—I cannot tell you.

13. How high is Ladysmith above the sea?—Between 3,000 ft. and 4,000 ft.

14. It is rather a cold place in the winter?—Very cold. Hot by day and extremely cold at night.

15. You could not compare the cold and heat there with the cold and heat at Trentham?—No; but relatively exaggerated conditions obtain in these huts.

16. Had they anything in the roof underneath the iron?—I did not go up to them or examine them.

17. Here they have. Were they raised above the ground?—As far as I could judge. It was pointed out to me, but I can get full particulars here, because I know a man who, I think, slept in them.

18. We want to know a good deal before we can compare the hutments here with the hutments in Ladysmith?—Yes.

19. Perhaps you could get your informant to give us some definite information as to what those huts really were?—I will. I had personal experience of corrugated-iron sheds on several occasions when I was away from the column. I had to take refuge in these erections, which are very common in South Africa, because wood is scarce. They are quickly put up, and I suffered very much indeed from the intense cold, more so than when sleeping in the open.

20. Have you slept in the huts at Mount Cook?—No, I have not; but surely they are lined. Then, in Australia I was a clergyman and travelled a great deal in the backblocks, and had to put up with all sorts of accommodation which the selectors could give me. I occasionally had to go into unlined, roofed, and sided iron dwellings, and on every occasion found my vitality was lowered, and I suffered from the cold very much, although I used to cover my face to prevent radiation.

21. It was not shortage of blankets that made you cold?—No; it was the radiating effect of the iron under the clear skies of Australia. The iron concentrates the heat, making the place like an oven in the day, and a refrigerating-chamber at night, dispersing the heat. One thing Dr. Frengley asked me was in regard to conduction currents and cold on the walls. The air