

SESSION II.
1906.
NEW ZEALAND.

PARLIAMENT BUILDINGS

(REPORT ON THE VENTILATION OF), BY PROFESSOR R. J. SCOTT, M.INST.C.E., M.INST.M.E.

Laid on the Table by Leave of the House by Hon. William Hall-Jones.

REPORT.

SIR,—

Christchurch, 19th July, 1906.

I have the honour to report that, in accordance with the request contained in the letter of the Under-Secretary for Public Works dated the 27th June, 1906, I visited Wellington and investigated the condition of the ventilation of Parliament Buildings with a view to suggesting what steps should be taken for the improvement of the same.

EXISTING CONDITION OF VENTILATION.

Dealing more especially with the Chamber of the House of Representatives I find that,—

- (1.) *South Side not Windproof.*—The south side of the building is in bad repair and by no means windproof, admitting severe draughts in southerly weather.
- (2.) *Doors and Passages.*—There are many doors and passages communicating with the galleries, and, these doors being sometimes open and at other times shut, a serious disturbing factor in the working of any system of ventilation is introduced.
- (3.) *Air-exit from Public Gallery.*—There is an independent exit from the Public Gallery which under certain conditions is the cause of unpleasant downdraughts.
- (4.) *Insufficient Exit for Vitiated Air.*—There is insufficient provision for the exit of the vitiated air, especially in the galleries.
- (5.) *Insufficient Supply of Fresh Air.*—The supply of fresh air is altogether too small, the present plant, under existing working-conditions, being capable of delivering only some 12 cubic feet per minute per person, whereas 30 is the minimum which should be provided. The result is that the atmosphere of the chamber must contain more than 0.1 per cent. carbonic acid as against the 0.04 per cent. of a normal atmosphere.
- (6.) *Air too dry and overheated.*—The air is delivered in a much too dry and even partially burnt condition. This is due to the arrangement of the heating apparatus. The air is warmed by being passed through iron tubes directly over a coke fire, and that portion passing through the tubes nearest the fire becomes greatly overheated. The moistening arrangements also are inefficient.
- (7.) *Air distributed badly.*—The air enters the chamber through the various inlets at widely different temperatures and speeds. At some the velocity is as high as 7 ft. per second, giving rise to almost unbearable draughts; at others it is zero, or there is even a downdraught. The faulty design of the air-distributing trunks is responsible for this condition of things, which is aggravated by each inlet being subject to independent control.
- (8.) *Coke-fumes.*—Coke-fumes from the furnace find their way into the chamber.

CONDITIONS TO BE SATISFIED TO SECURE EFFICIENT VENTILATION.

I am of opinion that to efficiently ventilate the chamber without draughts it will be necessary under all external weather conditions,—

- A. *Plenum to be maintained.*—That a slight plenum shall be maintained within it;
- B. *Vitiated Air discharged.*—That the vitiated air shall be promptly discharged;