

“Over the entire surface of the floor the air is admitted by means of four hundred apertures, made under each chair and protected by iron gratings, each about 10in. by 6in. The grated surface is therefore large, and consequently the air travels slowly in spite of its abundance. The air is pumped by a mechanical ventilator. A small gas-engine suffices to put the fan in motion. In winter the air is previously warmed by hot-water coils, care being taken not to allow the temperature to exceed 62° or 65° Fahr., as thus it does not lose any of the qualities of fresh air. There is, in fact, a mixing-chamber, where the warm air is diluted with cold air that has not passed over the hot-air coils; and, with a little personal superintendence, it is easy to obtain precisely the required temperature. During the summer the air is cooled by means of a water-pulveriser, which also adds a pleasant moisture to the atmosphere.

“The theatre, it is important to note, is not warmed by the air pumped in for breathing purposes. If this were done the cooling effects of the windows, walls, and other cold surfaces would have to be heated to a higher degree than pleasant or wholesome. All the parts surrounding the auditorium, the passages behind the boxes, vestibule, &c., are carefully warmed by hot-air flues. . . . The surrounding temperature is thus maintained at about 65° Fahr. . . . No system of ventilation is provided for this part of the House. . . . Under the circumstances, the beauties of the new theatre can be enjoyed without any inconvenience. There is no fear of taking cold or of enduring the pain of a theatre headache.”

I cannot omit mentioning the new Sorbonne, Paris, as its great amphitheatre is found to be the greatest triumph of ventilation yet attempted. The conditions are different from those of a theatre, as instead of a stage there is a platform. When tenders were called for, the condition stipulated was that each person was to have 20 cubic metres of air per hour; and, as there were 3,000 seats to be provided for, there were to be 60,000 cubic metres of air required. Messrs. Geneste and Herscher were successful in the competition that ensued, and the three screw-fans that they provided propelled the exact quantity, and at the rate required. It is important to note that no exhaust-fan has been found necessary in the outlet-shaft: the air warmed and forced in from below naturally goes upwards. It is also to be noted that there is a large mixing-chamber where the attendants can regulate the temperature, which is usually 65° Fahr. The peculiarity of this building is that the surrounding walls are hollow, and that at 10ft. from the ground for the whole length of the interior wall there is an emission of specially-heated air which counteracts any down-currents or chill that may be created by the broad surface of the cold stone walls. For a further account of this work, with illustration, see the *Lancet* for the 2nd January, 1892.

I here venture to include two more notices concerning the ventilation of the House of Commons, as they may have some interest for you:—

Builder, 5th June, 1886: “In the second report of the Committee of the House of Commons dealing with the cause of smells, &c., in the House, the drainage was found to be the cause. In the report, the Chairman of the Board of Works is reported to have said that ‘his Board did not think it necessary to ventilate, an opinion to which the Committee on the ventilation of the House will not be long able to adhere. The Committee, without echoing the groundless complaints that have been made about the ventilating system of the House (which, provided it has pure air to deal with, is really a very efficient one), point out rightly that where an extraction system is used there is a pull of air into the apartment which facilitates the ingress of contaminated air escaping from pipes or water-closets, and they recommend the substitution of propulsion which we [editor *Builder*] have repeatedly said is the true system to employ for public buildings. The report generally is a most sensible and practical document, which we hope will receive the attention it deserves.”

Builder, 13th September, 1889: “It was asserted by one of the members of the House of Commons that the House ‘was not ventilated on any systematic plan,’ one of the most unjustifiable statements we ever heard, as the Commons House is well ventilated, though there might be a deficiency of fresh air in the corridors and other parts of the House. It is impossible to get a large number of people to agree about ventilation. There is always a proportion of people who are mortally afraid of draught. In the meantime we commend to the grumblers Mr. Labouchere’s jaunty optimistic declaration that the ventilation is now ‘absolutely perfect,’ and that nothing contributed so much to health and longevity as attendance at the debates.”

Dealing with and overcoming down-draughts having occasioned the greatest difficulty in the ventilating of the House of Representatives, one or two excerpts from the studies of well-known specialists will not be without interest:—

Building News, 8th July, 1887: “It is not necessary to repeat the many objections, under certain conditions, to the system for hot-water heating as at present introduced, but I venture to say that the down-draughts are principally caused by it, and will continue to exist as long as the hot-water pipes remain.”

Builder, 24th January, 1885: “Ventilation is only successfully effected when without draught, for, if draught is felt, many people would rather have no ventilation, as the effects of draughts are palpable and immediate, while those of foul air are slow and insidious.”—*Farrow*.

Builder, 30th January, 1885: “Baron Huddleston, in the law-courts one day, ordered all the gratings to be pasted up. Mr. Justice Grove joined his learned colleague the following week, and immediately complained of the heat, and said that he preferred draughts to suffocation.”

“Cold draughts may be caused not only by the incoming fresh air, but also by local currents, induced by skylights, doors, windows, &c. Their presence may often serve to condemn in the eyes of the public an otherwise carefully-planned and satisfactory system of ventilation.

“The question as to the cause of down-draughts is somewhat interesting. It may be the down-draughts are caused by the warm air from below rising up and displacing the cold air at the ceiling. It might be well to inquire where it comes from—whether it might not be produced by coming in contact with the glass; or it may be that the air above and the ascending warm air is