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### THE CANADIAN TEXTILE DIRECTORY

A Handbook of all the Cotton, Woolen and other Textile manufactures of Can-  
ada, with lists of manufacturers' agents and the wholesale and retail dry goods  
and kindred trades of the Dominion, to which is appended a vast amount of  
valuable statistics relating to these trades. Third edition 487 pages, price \$3.00

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### THE VENTILATION OF MILLS.

A very important subject was recently discussed by J. Masinette, in a paper before the Manchester, Eng., Association of Engineers, namely, how to ventilate effectively woolen and cotton mills and other large buildings where there are many employes?

The point which chiefly affects the problem is that the fouling of the air is continuous. If it were possible to completely exhaust a room every ten minutes and recharge it with fresh air, this would represent the needs of the case, but it would be neither practicable nor wise. As the pollution is continuous, so must the provision of the diluting medium be continuous. For it is all that can be looked for in a case of this kind, that the air shall be so diluted that the quantity of carbonic acid will be reduced to a safe limit. Without going into the figures of the subject minutely, it may be said that seven parts of carbonic acid per 10,000 of air is looked upon as the limit which on sanitary grounds is permissible. Now in the case supposed the limit would be reached in twelve minutes, supposing the air to be absolutely pure, so that unless dilution began with the occupation of the room, there would be little chance of the proper standard of purity being maintained. There is, moreover, in addition to this factor, the question of the gas burning in the room to consider. Every burner which consumes  $4\frac{1}{2}$  feet of gas per minute eats up 45 cubic feet of air, and the carbonic acid it produces must be at once diluted or removed. Now to do this, and at the same time provide for the sufficient dilution of the acid emitted from the person, requires from 30 to 45

cubic feet for each person per minute, which, on the supposition of the presence of 900 persons, means a supply in the room in question of 27,000 to 45,000 cubic feet per minute. Taking the smaller figure, it would mean that in eight minutes the total cubic contents of the room require changing in order to provide the necessary dilution.

How is so large a volume of air to be moved without creating a draft in the apartment? For it must be remembered that any such result would be fatal to the adoption of any system. The most usual method of renewing, or attempting to renew, the air of a room is that of trusting to the natural tendency of heated air to escape by means of any openings which may exist, leaving the fresh air to find its way in as best it may. It need hardly be demonstrated that this system is a failure, even if it be accompanied, as it sometimes is, by the draft induced by the fire. There are days on which the barometrical conditions are such that the air will not move under the gentle compulsion of air heated within a room, as every steam user knows who has had a difficulty with his boiler draft on such occasions. Again, there are times when the temperature without is actually higher than that within, in which case it is impossible to hope for any movement in the air. A better method is that of extraction, but even here there is a need for caution. The so-called automatic extractors are in effect neither automatic nor extractive. The existence of an external current of air is an absolute necessity to their even partially successful working, and it is needless to say that this is not always present. Cases are not rare in which appliances of this nature have utterly failed to remove the air from a room even partially. Reference is not now made to that type of ventilator which, when rotated, does induce a partial current of air, although it may be doubted whether it is of sufficient strength to be of real service in all cases. The partial success of this type of ventilator is an additional proof, if it were needed, that some absolute application of force is required to give even such results. Extraction, to be successful, requires careful application, and care must be taken to see that the force provided is sufficient. It will, therefore, be profitable to set aside at once these cheap but ineffective appliances, and see in what way extraction can be accomplished with a reasonable hope of success.