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HUMIDITY AND VENTILATION.

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In the design of any system of heating the engineer should plan to furnish sufficient heat to maintain a comfortable temperature, sufficient moisture to keep the humidity normal, and sufficient fresh air to dilute the gases of respired air to a point where they become harmless. While it is beyond the scope of this article to give much space to heating and ventilation, humidity is considered in some detail, as it is of more consequence than is usually supposed. The remarks concerning humidity apply in general to all buildings artificially heated, though the equipment described would be only suitable for hospitals, and similar institutions—not for private houses or small buildings.

It must be noted that from the effects of deficient humidity the rich suffer more than the poor. Among the poorer classes the kitchen stove is often the only source of heat; and a boiling kettle keeps the humidity normal. In flats heated by a hall stove, a water pan helps to moisten the air, and similarly houses heated by hot air furnaces have a tank from which water evaporates. It is therefore, chiefly with steam and hot water heating that we find too dry an atmosphere and its consequent effects, overheating and stuffiness.

Watery vapour exists in the atmosphere and mixes with it just as does any other gas. It is a common fallacy to consider that water is absorbed by the air, though a vapour will form whether air is present or not. Water exists in three states, solid, liquid, and gaseous, being the boiling point at atmosphere pressure 212°F. Below the boiling point a vapour will form, but there is a limit fixed by the temperature and pressure to the amount of vapour which a cubic foot of space may contain. When this limit is reached evaporation ceases, and the vapour is said