



Humidity studies
by Amy Cooke Ambrose

A thesis submitted to the graduate committee in partial fulfillment of the requirements for the degree of
Master of science in Engineering physics
Montana State University
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Abstract:

It has been shown In this study of relative humidity that the amount of moisture in the air is important from a health and from an economic standpoint, In industry, in the home, and in schools and other public buildings. It has been shown that it is the indoor conditions that are important, because the most of our time is spent indoors, and that the indoor relative humidity depends upon outdoor temperature and humidity, indoor temperature, rate of air change, amount of water evaporated during ordinary household operations, and upon the number of people in the room.

There has been found a definite relation between comfort and the three most important factors In ventilation, - temperature, relative humidity, and air movement. It is believed that there is also a definite relation of health to these three factors, but such a relation has not been completely established.

The general public needs to be informed of the importance of proper humidification. Residences will be equipped with humidifying devices when people come to appreciate the value of humidity. When the public understands the need of a higher moisture content of the air in schools, churches and other public buildings and demands it, It will be forthcoming.

There is need for further research along at least two lines ae regards ventilation.

1. Relation of health to ventilation.
2. Coat of heating dry air to a higher temperature as compared to the coat of evaporating water to secure a higher percent of relative humidity at a lower temperature.

It would seem that the better health and increased efficiency in the more moist air would offset any increased expenditure, if there were such an increase, It is to be hoped that in the near future in our schools, at least, there may be installed equipment for evaporating sufficient water to increase the relative humidity to a healthful and comfortable standard.

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AMY C. AMBROSE

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H U M I D I T Y S T U D I E S .

INTRODUCTION.

In the issue of Harper's Weekly for January 5, 1907, there appeared a brief article by Mr. Emmett Campbell Hall⁽¹⁾, in which he stated that the cook's complexion was always much better than that of the mistress, and by evaporating one half pint of water daily in the living rooms of the home, milady would be as beautiful as the maid. It was this article that first interested me in the subject of relative humidity. Some experiments which I performed in the Physics Laboratory in the Spring of 1908 showed that the evaporation of one half pint of water in even a very small room would not raise the relative humidity an appreciable amount. Text books at that time gave scant space to humidity and even the most recent ones give little more. Almost nothing could be found on the subject in the current magazines. The little work I did along that line in 1908 merely satisfied me that a considerable amount of water would have to be evaporated in a house to increase the relative humidity an appreciable percent.

When in the spring of 1929 I was considering subjects for a thesis, that of relative humidity immediately appealed to me. I had never lost my interest in the subject, for recent years have brought forth various types of water pans and humidifiers about which I had read in the advertising section of current magazines. My interest was from the health viewpoint of the homemaker and teacher, rather than the commercial standpoint of the engineer and furnace manufacturer. This health phase

