A Science Service Feature

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? WHY THE WEATHER ? Mailed June 24, 1932

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EFFECTIVE TEMPERATURES

Within the past eight years there has come into extensive use in America a scale developed by the American Society of Heating and Ventilating Engineers for expressing the combined effects of air temperature, humidity and air movement upon human sensations of heat and cold. This scale of so-called "effective temperatures" has been made the basis of various charts or diagrams showing how, under specified conditions, the values of the scale are related to values of the three meteorological elements above mentioned. A feature of such a chart is a "comfort zone," including the effective temperatures that are usually found comfortable, and a "comfort line," supposed to represent the maximum of comfort as determined by atmospheric conditions.

There has been a good deal of discussion concerning the accuracy and applicability of the effective-temperature scale and the limits of comfort represented in these charts, and the latest developments of the subject are set forth in a report presented at the June, 1932, meeting of the society. This report includes a chart for still air, on which the "comfort" section is limited to relative humidities between 30 and 70 per cent. This includes a winter comfort zone and line and a summer comfort zone and line. The winter comfort line corresponds to an effective temperature of 66; the summer comfort line to an effective temperature of 71.

"Both summer and winter comfort zones," says the report, "apply to inhabitants of the United States only. Application of the winter zone is further limited to rooms heated by central station systems of the convection type. Application of the summer comfort zone is limited to homes, offices and the like where the occupants become fully adapted to the artificial air conditions. The zone does not apply to the theaters, department stores and the like, where the exposure is less than three hours."

The last sentence is explained by the fact that, in an artificially cooled building, people gradually become "acclimated" to an effective temperature lower than is found comfortable when the building is first entered from a hot street.

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