

Comfort Chant

Humidity, Heat Cause Discomfort

By JOEL MYERS
Collegian Weather Expert

"It isn't the heat it's the humidity."

Many people are heard quoting this phrase during the summer months in an attempt to explain their discomfort which is due to the oppressive weather.

The actual cause of their discomfort, however, is a combination of these two weather factors—heat and humidity.

Since the knowledge of either the temperature or humidity does not always give an appropriate measurement of comfort, a scale based on some type of combination of these two factors will give some idea of human comfort.

I have developed the following table to allow the public to easily compute body comfort.

Before describing this table, it will be necessary to explain a basic principle upon which it is founded. If you wet one hand and leave the other one dry and then wave both hands in the air, an apparent difference in temperature is noted between the two hands. The wet one feels cooler because the evaporation is a cooling process.

This is the principle upon which the wet bulb thermometer is based. It is merely a normal outdoor thermometer that has a wick placed around the bulb with water on the wick.

In other words, two thermometers are needed to make use of the comfort scale—a wet bulb and a regular one.

Since water evaporates from the wet bulb at a rate that varies with the amount of moisture in the air, a large deviation between the air temperature and the wet bulb reading indicates dry air. That is, the lower the relative humidity, the faster the water will evaporate from the wet bulb thermometer, and hence the greater the difference between the actual temperature and the wet bulb temperature.

To make use of the comfort scale perform the following simple calculation:

Take the wet bulb reading and divide it by the actual temperature and then multiply by 100.

Wet bulb x100

Temperature

To this number add or subtract the amount indicated below according to the air temperature.

AIR TEMPERATURE

Table 1

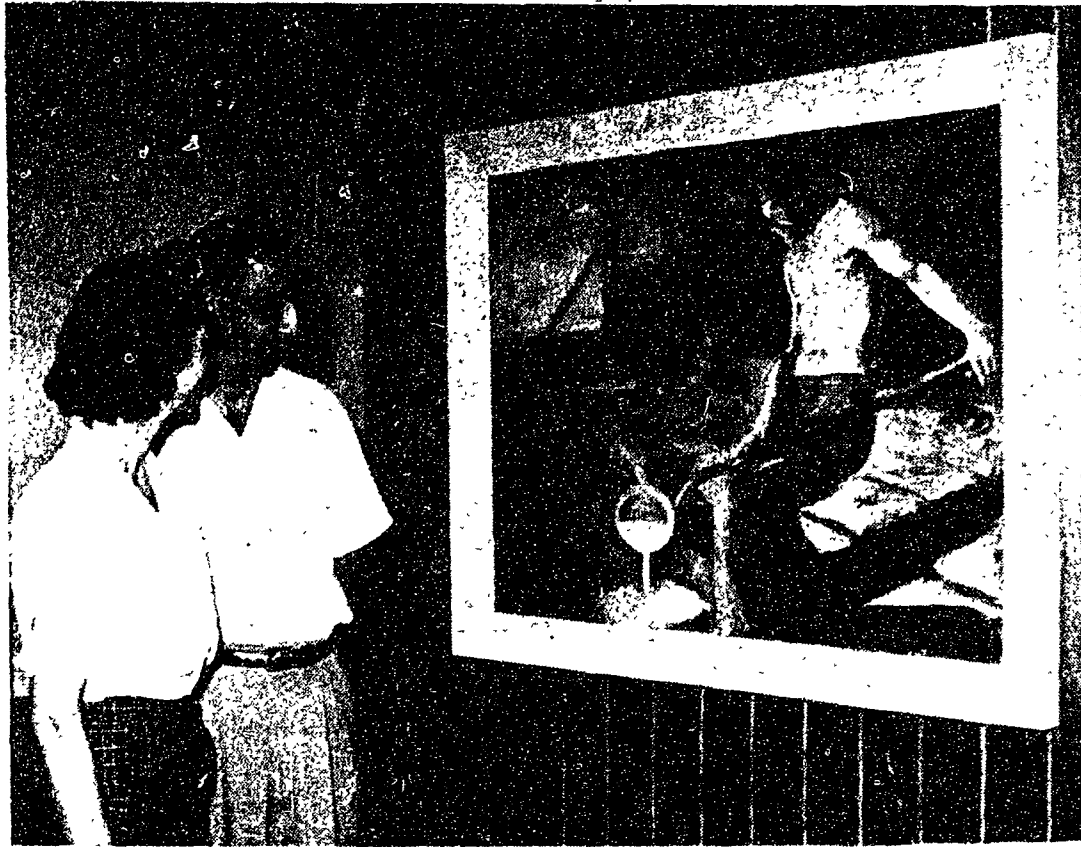
- 40 to 45 (subtract 75)
- 46 to 55 (subtract 60)
- 56 to 65 (subtract 45)
- 66 to 75 (subtract 30)
- 76 to 85 (subtract 15)
- 88 to 95 (no change)
- 96 to 105 (add 15)

The number that is remaining I have named the COMFORT NUMBER and is simply compared to table 2 and body comfort is found.

Table 2

0 to 9

- Cold, invigorating weather; houses need heat
- 10 to 19
- Chilly, jacket required; houses need heat
- 20 to 29
- Cool, sweater needed; houses need heat



LIQUID STEEL, an oil painting by Carl A. Walberg, is admired by Mr. and Mrs. C. J. Hillson of State College. The painting was recently donated to the Mineral Industries Art Gallery by the Pittsburgh artist.

30 to 39
Cool; on borderline between heating homes and not heating

40 to 49
Pleasant, often sunny

50 to 59
Nearly perfect weather; enjoyed by almost all

60 to 69
On borderline between comfort and discomfort; depends on individual

70 to 79
Uncomfortable for most persons—fans and air conditioning welcomed by all

80 to 89
Almost unbearable—some factories close when over 85

90 to 100
Unbearable conditions—go swimming

One big advantage of this chart is the fact that the Weather Bureau has the means of predicting both temperature and wet bulb readings with a reasonable degree of accuracy. By plugging the predicted high temperature and high wet bulb reading into the above formula, the maximum discomfort for that day may be computed in advance.

It must be noted that the above scale will be accurate so long as no precipitation is falling and the wind is less than 25 miles per hour.

The accuracy of this chart will

decrease with an increase in wind speed because evaporation and hence cooling of the body increases greatly with higher wind velocities.

This scale is of little use in any time other than the period from the beginning of May until the end of September and it is also useless when the temperature falls below 40 degrees.

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