

## Thermal comfort zones obtained by two alternative methods: a note

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In correspondence arising out of our recent paper (Wyon, Andersen & Lundqvist, 1972), interest has been expressed in the relative widths of the comfort zones obtained by using the Bedford 7-point scale and our proposed dial-vote scale. It was possible to make a direct comparison on our original data, using votes registered simultaneously on the two scales at the end of each hour of exposure. Air temperature rose only slowly towards the end of each hour, and the comparison is probably valid also for steady-state conditions. The proportions voting 'too hot' (Bedford categories 6, 7, dial vote  $> 66.6\%$ ) and 'too cold' (Bedford categories 1, 2, dial vote  $< 33.3\%$ ) were derived and probit analysis was performed (Finney, 1947). Only responses obtained from the 36 female subjects are considered, for very few males were too cold in the temperature range 23–29° C. The results are shown in Fig. 1, using the same presentation as in fig. 7 of the original paper. No statistically significant differences could be shown between the pairs of regression lines, either in terms of their slopes or median values. However, the tendency is clearly for the dial-vote method to yield if anything a rather narrower and lower comfort distribution, and hence a narrower zone of comfort, however defined. This in spite of a marked 'comfort zone' occupying as much as one-third full scale. As pointed out in our original paper, the comfort zone yielded by either scale should be regarded as a zone of tolerance and not as a zone of ideal comfort.

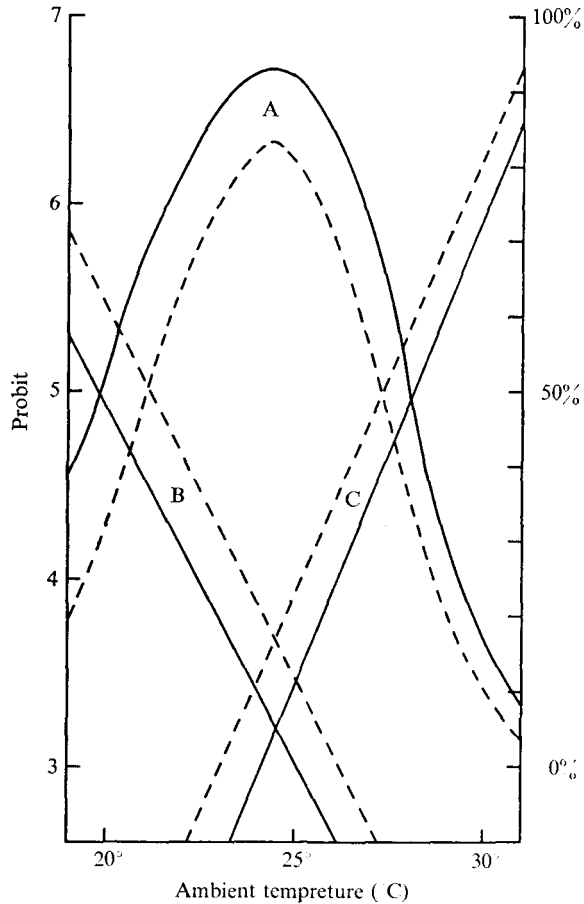


Fig. 1. Proportion of 17-year-old female subjects, wearing standard clothing of insulation value 0.7 clo, who were comfortable, uncomfortably cold and uncomfortably hot at various temperatures. The unbroken lines depict responses obtained using the Bedford 7-point scale, and the broken lines depict those obtained simultaneously using the dial vote scale. Curves A show the percentage comfortable; right-hand vertical scale. Lines B and C are the probit regression lines, left-hand vertical scale, for the proportions feeling too cold and too hot respectively.

#### REFERENCES

- FINNEY, D. J. (1947). *Probit Analysis*. Cambridge University Press.  
 WYON, D. P., ANDERSEN, I. & LUNDQVIST, G. R. (1972). Spontaneous magnitude estimation of thermal discomfort during changes in the ambient temperature. *Journal of Hygiene* **70**, 203-21.