

## CORRESPONDENCE

The Editor,  
*Journal of Glaciology*

SIR, *The temperature of the Sukkertoppen ice cap*

T. A. Henry and R. J. White reported in the June 1964 issue of the *Journal of Glaciology* that on Lyngbræ, an outlet of the Sukkertoppen ice cap, the temperature at depths below the winter minimum remains below the freezing point and that the ice cap in this area is an "arctic" glacier. Bull (1963) reported, on the other hand, that in the higher parts of the ice cap the temperatures to a depth of 4 m. were quite near the freezing point and that the ice cap was "temperate". Recent observations by Rundle (1965) at locations close to those of Bull again give, at a depth of 12 m., temperatures near the freezing point. This seeming contradiction can be explained by the fact that Bull's and Rundle's observations were made in the soaked facies of the accumulation area, whereas those of Henry and White come from the ablation facies of bare ice. In the former, the melt water penetrates the firn, re-freezes and releases its heat of fusion. On bare ice the melt water runs off, and the temperatures at some depth will tend to approach the mean annual temperature of the air. Hence, the firn region of the Sukkertoppen ice cap takes in more heat than the lower parts with bare ice, and the ice cap may in fact have the character of a "temperate" glacier in its accumulation area, and that of an "arctic" glacier in the higher reaches of its ablation area. (This points again to the necessity to define the level to which the terms of the classification of glaciers apply.) Such "inversions" of temperature in glaciers are known from parts of the Greenland Ice Sheet (Schytt, 1955) and from Nordaustlandet, Svalbard (Schytt, 1964).

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- Schytt, V. 1964. Scientific results of the Swedish glaciological expedition to Nordaustlandet, Spitsbergen, 1957 and 1958. *Geografiska Annaler*, Vol. 46, No. 3, p. 243-81.