

product of the annual surface speed and the cross-sectional area, that is  $56 \times 29.9 \times 10^4$  or about  $17 \times 10^6$  m.<sup>3</sup>.

The difference between the above volumes indicates that the glacier is retreating, and probably that the area of moving ice is less than the total area exposed to ablation. In fact the discharge of ice is balanced by ablation from an area that extends only as far as an elevation of about 400 m. It is at this elevation that the bed shear stress becomes small, see Table II, and that is probably the limit of the glacier motion at its bed. Just above this level and rather below Section V, where  $\tau$  is still about 0.9 bars, overthrusting and a series of thin curved bands (visible only in an aerial photograph) commence. Therefore it is reasonable to suggest that the sliding at the bed is finally transferred through the ice in the form of a series of overthrusts. However this is a suggestion requiring further study and observation in much greater detail.

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#### FRANZ JOSEF GLACIER, NEW ZEALAND SPEED OF FLOW

From information given by Mr. H. Ayres, a local guide, Professor N. E. Odell has sent details of the movement of an aircraft which crashed on this glacier in March 1950 at a point opposite Hende Ridge. Between that date and January 1955 the wreck had travelled to a point opposite Lemmer Peak, a distance of approximately two miles, which is roughly equivalent to 5 to 6 ft. (1.52-1.83 m.) per day.