

cone at the far end were standing on a completely elastic and finite material; in such a case the wave is completely reflected, and on returning to the top of the tube it causes the weight to move upwards. There is thus a very significant rebound, which can be calculated using the impulse law.

This is obviously not the case in practice. The rebound is very small even when the cone is resting on an ice layer, and is zero when the cone is in soft snow. The amount of energy lost is variable and unpredictable.

This fact has no important consequences if we use the Rammsonde qualitatively, but is most important if we use the Rammsonde resistance for quantitative studies, as does Bull². The only correct method of using a Rammsonde would seem to be:

- (1) to use W_2 instead of W_1 for the ram resistance,
- (2) to put a ring of soft material (rubber or lead?) at the point of impact to ensure that the blow is always inelastic.

The omission of the factor $R/(R+Q)$ in the first term of the ram resistance formula leads Bull to very high values of the frictional resistance. In fact, as Haefeli says: "by choosing the cone diameter slightly larger than the outside shaft diameter, the friction between shaft and snow can be practically disregarded".

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1. Bader, H., Haefeli, R., and others. Der Schnee und seine Metamorphose. *Beiträge zur Geologie der Schweiz Geotechnische Serie, Hydrologie*, Lieferung 3. Bern, Kümmerly & Frey, 1939. English translation by SIPRE, 1954, p. 128-38.
2. Bull, C. The use of the Rammsonde as an instrument for determining the density of firn. *Journal of Glaciology*, Vol. 2, No. 20, 1956, p. 714-18.

DUPLICATE PAPERS

A new list of duplicate papers in the Library of the Society available for distribution to members can now be obtained from the Editor. As this service is becoming increasingly popular early application is advisable.

GLACIOLOGICAL LITERATURE

THIS selected list of glaciological literature has been prepared by J. W. Glen with the assistance of T. H. Ellison, W. B. Harland, Miss D. M. Johnson, G. T. Warwick and the Staff of the Scott Polar Research Institute. Its field is the scientific study of snow and ice and of their effects on the earth; for the literature on polar expeditions, and also on the "applied" aspects of glaciology, such as snow ploughs, readers should consult the bibliographies in each issue of the *Polar Record*. For Russian material the system of transliteration used is that agreed by the U.S. Board on Geographic Names and the Permanent Committee on Geographical Names for British Official Use in 1947. Readers can greatly assist by sending reprints of their publications to the Society, or by informing Dr. Glen of publications of glaciological interest.

GENERAL GLACIOLOGY

[INTERNATIONAL GEOPHYSICAL YEAR.] International Geophysical Year, 1957-58: Antarctica 1955-56. *Polar Record*, Vol. 8, No. 53, 1956, p. 182-87. [Progress and plans. Map shows stations planned.]

GLACIOLOGICAL INSTRUMENTS AND METHODS

MILLECAMPS, R. Sur l'application de la photogrammétrie terrestre à l'étude de la Mer de Glace. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Tom. 242, No. 1, 1956, p. 159-61. [Description of photogrammetric method used to determine daily motions on the Mer de Glace.]