306. Snow Sliding down a Roof

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Source: *The Mathematical Gazette*, Vol. 5, No. 82 (Dec., 1909), p. 166

Published by: Mathematical Association

Stable URL: <http://www.jstor.org/stable/3603758>

Accessed: 24-12-2015 02:54 UTC

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It would be an easy exercise to construct a slide rule with large divisions to the scale extending to sufficient length to illustrate this property. To do so it would only be necessary to take the lengths of the graduations from a book of logarithms. I should think if any teacher were to show his pupils such a rule and then give them the logarithm book and tell them the secret of making one for themselves, he would arouse his pupils' curiosity and instruct them at the same time. They would then want to learn something about the book of logarithms. A little attempt to unravel a mystery often adds interest to a subject. If I had been allowed to learn Trigonometry in my own way, I would have opened the book at the calculation of π (in fact I often did so) and would have worked backwards when each theorem was shown to depend on something previous. Working forwards with no visible object in view often becomes very dull, and did so in this case.

G. H. BRYAN.

306. [R. 9. a.] *Snow sliding down a roof.*

The problem dealt with by the unnamed author is not the same as that considered by Mr. M. Vicker.

In the latter case a mass of snow is supposed to be sliding down a smooth roof, and portions to break off as they reach the edge. It is assumed that the portion falling away simply leaves the remainder without exerting any pull on it. On this assumption the acceleration at any instant of the portion remaining on the roof is rightly determined to be $g \sin \alpha$.

In the text-book problem it is not very easy to imagine the physical conditions.

A mass of snow is supposed to be in equilibrium on a sloping roof. The upper portion commences to slip, and as it descends it continually starts fresh portions into motion after the manner of an avalanche.

It is tacitly assumed that as long as the snow is in equilibrium it is supported by the requisite friction, but that directly it is started into motion the friction is negligible.

On this assumption the text-book solution quoted is correct. C. S. J.

It is unfortunately true that in order to construct easily solved problems in dynamics it is customary to make assumptions that are quite contrary to experience. But unless these assumptions are *explicitly* stated the solutions cannot be regarded as correct, and to teach them can only do mischief. The snow problem is an instance in point. It would have been easy to make an instructive problem similar in character based upon the assumption that the coefficient of statical friction between two bodies at rest is in general greater than the coefficient of sliding friction between the same two bodies in motion. When a candidate fails to answer a question in an examination it is no justification for him that he goes and calls on the examiner the next day, and explains what he *ought* to have said in writing out his answer. It is still less justification for the propounder of a question that he leaves the explaining to somebody else.

G. H. B.

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[37, p. 212.] The annual subscription (including postage in case of foreign journals) is appended where known.

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