

As we do not know anything about the temperature and moisture conditions under which the experiments discussed above were carried out, it is very difficult to determine the reasons for the low evaporation. It seems reasonable to assume, however, that the temperature was generally below 0° C. Since 680 calories are needed to evaporate 1 gramme of snow it is understandable that the lower the temperature the better must be the convectional or insolation conditions to obtain any evaporation at all. To get evaporation we need relatively dry air above the snow surface and also heat from insolation, generally from a clear sky or by a strong wind causing great turbulence. It is of course quite possible that such conditions would not occur in the region where the experiments were carried out until the spring, when stronger insolation would undoubtedly favour evaporation.

The authors cannot, therefore, draw the general conclusion that there is no snow evaporation in the Alps. It is not even possible to state that it does not take place during the winter, because such conditions as strong föhn winds must cause evaporation even in winter. Therefore if a thorough understanding of the results is to be reached, experiments for the study of the factors involved in ablation must go hand in hand with the study of the meteorological conditions.

It can therefore be said that the experiments made by the German scientists do not contradict any of the previous results that have been obtained in glaciological experiments. For hydrological purposes the results may of course be of practical value, but because of the intimate relationship between evaporation and other meteorological factors mentioned above, it seems dangerous to suggest that the results are valid for regions outside a rather small area centred around the place where the experiments were carried out.

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SUR LA DÉTERMINATION DE LA COUCHE DE SOL GELÉ. ANDRÉ CAILLEUX et ÉMILE THELLIER. *Comptes rendus des séances de l'Académie des Sciences*, Tome 224, séance du 21 avril 1947, p. 1174-75.

SUR L'ÉPAISSER DU SOL GELÉ PENDANT L'HIVER 1946-47. ANDRÉ CAILLEUX et ÉMILE THELLIER. *Académie d'Agriculture de France*, procès-verbal de la Séance du 14 Mai 1947.

THE first paper describes a simple instrument, called a "cryopedometer," for measuring the depth of frost in the ground and the second gives some observations recorded by the instrument at the Parc Saint-Maur observatory.

The instrument* consists of a series of small open-ended glass capillary tubes, 4 mm. in diameter and 20 mm. long, containing water, which are mounted horizontally at 6 mm. centres on a notched wooden rod. The rod slides into a tube set vertically in the ground. The capillary tubes, in which the water becomes frozen, are readily seen when the rod is withdrawn.

The observations in the second paper show that the ground froze twice to a depth of 23-24 cm. during the winter. The slow initial melting of the frozen zone from above and below and the final sudden disappearance of the frost are to be noted.

The simplicity of the instrument suggests that it might be very useful for expedition work and in other conditions which do not warrant employing sensitive potentiometers or other instruments.

A close sliding fit between the wooden rod and the ground tube is essential to prevent convection between adjacent capillary tubes. The reviewer is constructing an instrument as the author suggests, out of plastics, for use during the 1947-48 winter.

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* Manufactured by S. A. N. Boubée et Cie, 3 Place Saint-André-des-Arts, Paris.