

COMMENTS ON DR. DEMOREST'S PAPER*

By J. W. GLEN

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THE process of instantaneous recrystallization described by Demorest in this paper represents an attempt to explain the deformation of a polycrystalline mass of ice. Such a mass, in which the basal glide planes are not parallel in all the various ice crystals, is similar to a polycrystalline metal, particularly one with a hexagonal structure such as zinc or magnesium. In a metal in which mechanical twinning is not the chief deformation process, the deformation can occur in two ways, either by deformation of the various grains by slip along their respective glide planes or by relative movement of the grains. In the first process, the slip of one grain will impose forces on the neighbouring grains and these will set up a series of internal stresses, while the second process can only occur if the grain boundaries are smooth and regular or if molecules transfer from one grain to the other, thus making the grain boundary appear to move through the material.

Now it is well known in the case of metals that if after (or during) straining the temperature is raised high enough, the process known as recrystallization occurs. In this process (on which an excellent summary article has recently been written by Burke and Turnbull¹) new unstrained grains appear and grow at the expense of the strained grains, the final grain size depending on the number of nuclei formed and their rate of growth. There seems little doubt that this process occurs also in ice, and that the change of appearance of glacier ice is due to this process.

Thus the modern view agrees with Demorest's reasoning except in so far as Demorest imagined an instantaneous appearance of the new strain-free grain, whereas recent experiments have shown that such grains grow at a definite, and sometimes quite slow, rate.

REFERENCE

1. Burke, J. E., and Turnbull, D. Recrystallization and grain growth. *Progress in Metal Physics*, 3, Pergamon Press, London, 1952, p. 220-92.

REPORT ON THE SNOW SURVEY OF GREAT BRITAIN
FOR THE SEASON 1951-52

By E. L. HAWKE and D. L. CHAMPION

THIS Report is based, as usual, mainly on data contributed by a corps of keen volunteer observers who supply the Society each month from September to May with daily records of snowfall and of any snow cover within their range of vision. These collaborators, who now number more than 300, keep their watch at a network of land sites well spread over England, Wales and Scotland, on light-vessels in the neighbouring coastal waters, and on merchant ships at sea. The very extensive body of material thus obtained is supplemented by day-to-day observations of the state of the ground at a large number of the weather stations which furnish regular returns to the serial publications of the Meteorological Office. This important information is made available to the Society through the courtesy of Sir Nelson K. Johnson, Director of that Department. Further valuable data come from mountaineers and travellers, as well as from the road patrols working for the Automobile Association and the Royal Automobile Club. The directors of the Survey again

* See p.219.

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