Société Vaudoise des Sciences Naturelles. I had hoped to supplement these before they were published—an aim which remained unachieved.

I made 14 records of crystal sizes across the glacier by a method suggested by Forel—using a glass plate as a tracing medium with copying ink and taking off "pulls."

The results were as follows:—

Mean area of crystals, 30 m. from right margin of glacier	1·68 cm.^{2}
Mean area of crystals in centre of glacier	0·32 cm.^{2}
Mean area of crystals 25 m. from left margin of glacier	0·83 cm.^{2}

The answer is clear: on average the crystals at the two margins of the stream were about four times larger in area (on the exposed face) than those in the centre and about eight times as large in volume. This seems to agree with the recent researches of Mr. G. Seligman (*Journal of Glaciology*, Vol. 1, No. 5, p. 254–66).

It seemed to me that crystals at the margins owed their greater size to their being more exposed to daily fluctuations of temperature caused by radiation from the banks, and also because they had travelled for a longer time and were therefore older. If on the other hand the flow of the glacier had been the predominant factor of growth the grains ought to have been larger in the centre of the stream where the movement was more rapid.

Lausanne,
14 *September* 1949

P. L. MERCANTON

SIR, *Rate of Movement of Surface Debris in Solifluction Processes*

Little is known of the rate of development of polygonal or "solifluidal" soil patterns or of their rate of down-hill movement—subjects which are of significance to the geomorphologist and to the ecologist interested in the stability of the cover of vegetation.

In 1947, with M. Jean Michaud, I made some experimental studies at Chambeyron near Barcelonnette in the French Basses-Alpes at an altitude of 2700 metres. Selected stones were distinguished by painting them. Two years later some of the stones remained undisturbed, but others revealed clear evidence of movement. The front of the largest "rock glacier" investigated had moved a few decimeters. In another case the increase in the rate of movement from sides to centre was beautifully displayed, being very small at the sides and reaching a maximum of several centimetres at the centre.

In an experiment with polygonal soils in 1947 we intentionally destroyed the surface pattern of some small polygons (20 cm. broad). The pattern had been completely reformed into polygons by 1949. In another case painted stones were placed half-way between the centre and the side of a polygon. After two years it was found that they had moved, mainly outwards, a distance of 1–3 cm.

These experiments are being continued by Jean Michaud.

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[It would be valuable if comparable experiments were made, preferably by local observers, at localities in Britain, notably the Lake District, North Wales and Scotland on the one hand and under more severe climatic conditions, such as Spitsbergen, on the other.—*Ed.*]

REVIEWS

GLACIAL-METEOROLOGICAL INVESTIGATIONS ON THE KÅRSA GLACIER IN SWEDISH LAPPLAND 1942–1948. CARL CHRISTIAN WALLÉN. Reprinted from papers in *Geografiska Annaler*, Årg. 30, Häft 3–4, 1948 and Årg. 31, Häft 1–4, 1949 and published as *Meddelanden från Stockholms Högskolas Geografiska Institut*, Nr. 75, 1948, 240 pages, tables, diagrams.

THIS work constitutes the inaugural dissertation for the author's degree of Doctor of Philosophy presented to the Faculty of Science of Stockholm University. The investigations discussed may