

the Rothstock Cirques, the Creux du Vent (Jura), with Gavarnie and other cirques in the Pyrenees? I may add that I saw in 1908 from a steamer two rather small but good cirques on the flank of Salina (highest point 3,156 feet) in the Lipari Islands. In these and other countries, this question has been always in my mind, so that I cannot recede from the position which I have assumed.

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THE CAUSES OF GLACIATION.

SIR,—In *Nature* of July 29, 1920, is an article by Dr. C. G. Abbott, of the Smithsonian Astrophysical Observatory, entitled "Solar Variation and the Weather". In it he gives an account of observations on solar radiation. These "showed on their face a variability over an extreme range of 10 per cent. . . . The sun appeared to be a variable star having . . . a fluctuation in the march of years . . . a fluctuation running its courses in a few days, weeks, or months. Both are highly irregular". The article contains comparisons of observed changes in terrestrial temperatures with observed changes in solar radiation. "It is very striking that the solar changes produce such large and prolonged temperature effects."

In speculations on the causes of Glacial Periods the suggestion has been put forward that sun-heat may have varied in past ages. Apparently there is evidence that variation is occurring even now, and that its variation is capable of producing considerable changes in temperatures on the surface of the earth.

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