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A Science Service Feature

? WHY THE WEATHER ? Mailed January 16, 1929

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THE SNOW OF THE PENITENTS

Describing certain snowfields on the upper slopes of Mount Rainier, F.E. Matthes, of the U. S. Geological Survey, says:

"The manner in which the sun affects the snow is peculiar and distinctive. Instead of reducing the surface evenly, it melts out many close-set cups and hollows, a foot or more in diameter and separated by sharp spires and crests. If the sun's action is permitted to continue uninterrupted for many days, these cups deepen by degrees, until at length they assume the aspect of gigantic bee cells, several feet in depth."

More or less similar hummocky or pinnacled fields of snow, or sometimes of glacier ice, have been found on high mountains in many parts of the world, the most famous examples being those of the Andes, described by Charles Darwin and many subsequent travelers. Nowadays they are usually called by the South American name "nieve penitente", which is abridged from a Spanish phrase meaning the "snow of the penitents", given to them because, seen at a distance, they bear a certain resemblance to a throng of white-robed human figures, kneeling as if engaged in a religious ceremony.

The origin of "penitentes" has been the subject of much controversy. A plausible hypothesis is that, first of all, the wind forms waves and ridges of snow, and then flowing water, supplied by the rapid melting of the snow under the intense sunshine of high altitudes, deepens the hollows by erosion; but this does not seem to be the whole story.

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