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GLACIERS AND CLIMATE

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The investigation of glaciers has hitherto been conducted mainly by geologists, but the task belongs logically to the domain of meteorology, the science of weather. A glacier is a moving mass of ice fed from a snowfield, which, in turn, is fed by the condensation of atmospheric moisture. The distribution of glaciers over the globe depends upon climatic conditions; especially temperature, snowfall and prevailing winds. Every glacier undergoes incessant changes of volume in response to vicissitudes of weather, though the response is generally sluggish and is not always easy to recognize. Lastly, the traces left upon the earth by prehistoric glaciers furnish the most striking evidence we possess of the vast changes of climate that have occurred in ages past.

Not only are glaciers under the control of climatic conditions, but they themselves take a part in shaping climate. This is especially true of the huge continental glaciers, or ice-caps, of Greenland and Antarctica, which have marked effects upon the temperature, barometric pressure and winds of the north and south polar regions, respectively. The ordinary mountain glaciers of lower latitudes have, as one of their effects, the production of cold daytime winds blowing down the slopes; the reverse of the normal valley breeze, which, in the absence of snow and ice at high levels, blows up-slope by day. In some cases these glacier-winds are extremely violent.

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