missed on Tuesday morning when they failed to return, and search parties were immediately organized. After several days of intensive search, the bodies were found frozen into a crevasse just below the bergschrund of the Whitewater glacier and were recovered. They were still roped together when found and so the tragedy must have been occasioned by a slip on the part of one of the party, which is made the more probable by the bad conditions then existing, a new fall of snow on ice. Earlier in the summer there had been a minor accident on this side of the mountain when a C. C. C. youth fell owing to a hold breaking out and was crushed by the rock and his leg broken.

Glacier Studies

Travelers visiting mountains where glaciers occur have an opportunity of making valuable observations of these glaciers. One of the principal problems to determine is whether the glacier is experiencing a period of expansion or contraction. The best way to accomplish this is to make detailed observations and careful measurements, supplemented by a series of photographs. However, if circumstances make it impossible to do this, very valuable data can still be recorded by simply taking a series of photographs showing, (a) the condition of the ice surface, (b) the marginal areas, and (c) the exact position of the terminus with respect to certain nearby well-defined landmarks. The photographs are of greater significance if the exact points from which they are taken are marked and described, so that more may be taken from the same positions in future years. Such photographs, although requiring little time or effort, are likely to prove of great value in the study of the glaciers of that particular district, as well as the broader aspects of existing glaciation throughout the continent or even the world. It is hoped, therefore, that mountaineers will keep this in mind when planning a visit to regions where glaciers occur, and before undertaking such a trip, will familiarize themselves with the fundamentals of glacial research.

For general information on the subject, or suggestions with regard to the study of glaciers in United States territory, it would be advisable to communicate with Dr. Francois E. Matthes, United States Geological Survey, Washington, D. C., chairman of the Committee on Glaciers of the American Geophysical Union. If any studies of glaciers in Canadian territory is contemplated, one should communicate with Mr. A. O. Wheeler, chairman of the Glacial Section, Alpine Club of Canada, Banff, in order that any new observations may be made in accordance with the systematic study now being undertaken by that group.

The observations and photographs obtained should be correlated and then made available to all students of the problem.

To this end, it is suggested that all data be sent to Dr. Matthes so that the material may be properly filed and published in the Transactions of the American Geophysical Union as well as by the "Commission des Glaciers" in Europe. Material on glaciers of Canada should be sent to Mr. Wheeler.

It is anticipated that the *American Alpine Journal* will publish brief notes on the glacier studies made from year to year in the United States and Alaska, with special emphasis on the work done by members of the American Alpine Club. Complete reports when available will be placed on file in the Club library.

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Studies Made During 1933

During 1933 members of the American Alpine Club have made a number of valuable contributions to the study of North American glaciers. Several members from California have helped to form a Committee on Glaciers in the Sierra Club to organize this work in California. This committee, under the chairmanship of Oliver Kehrlein, began its activities during the summer of 1933. The season's work was largely of a preparatory nature, nevertheless the following glaciers were visited and described, and measurements were made on which to base future observations.

North Palisade Glacier. This glacier, the largest in the southern Sierra Nevada, is situated on the east side of the crest in Inyo County, Calif. It has a frontage or width of one and one-half miles with a maximum length or depth of seven-tenths of a mile. It occurs at an elevation of 12,500 to 13,000 ft. The condition of the glacier in August, 1933, is described in great detail so that it will be possible to record very slight changes that may occur in the future. The same observers had visited the glacier in September, 1928, and concluded that in the intervening five years, the ice level had been lowered several feet and slight changes had occurred in the appearance of the ice surface.

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Minaret Glacier. The small glaciers on the northeast face of the Minaret Range in the Sierras were also visited in August, 1933. Comparing the appearance of the largest of these tongues with that shown in a photograph made in 1923, suggests that a slight advance has taken place in these ten years. However, the glacier is so situated that it cannot advance far without its tongue avalanching over a cliff.

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Glaciers of Mount Shasta. Several of the glaciers of Mount Shasta were visited and described, and their present condition compared with earlier observations.