

200 m. from their outermost moraines, which were covered with alpine vegetation on their outside slopes. I have not however succeeded in establishing regular observations.

The only conclusion that can be reached at present by these observations seems to be that in about 1930 the glacier snouts were still in advanced positions, although the glaciers had been mainly thinning and receding for more than 100 years. But of their minimal extension in accordance with the highest possible climatic optimum in Iceland we know nothing as yet.

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## INTERNATIONAL GEOLOGICAL CONGRESS, LONDON, 1948

IN spite of the clash with the meeting of the International Union of Geodesy and Geophysics in Oslo, many members of the British Glaciological Society attended the International Geological Congress held in London during August and September 1948. In general, topics of interest to glaciologists were not particularly well represented in the papers presented to the Congress. For those who were interested in the chronology of the Pleistocene there was a special Section H dealing with the Pliocene-Pleistocene boundary, containing many valuable papers covering a wide field. Otherwise glaciological items were distributed through Section M under "Other Subjects."

There glaciology was represented by an important paper by Professor Arnold Heim dealing with the glaciation of South America and its relation to the tectonics of the region. Heim considers that distribution of Pleistocene glaciers could not wholly be explained by climatic change. He infers that Pleistocene tectonic movements have had a major influence on the extent of the glaciers during successive glaciations, in particular the southern Andes were higher in the Pleistocene than now, whilst the northern Andes were lower. It is clear that such considerations must have a significant bearing on the inferences as to climate that are drawn from the former extent of the glaciers.

A paper from the doyen of glaciologists, W. H. Hobbs, attributed a special significance to large erratic boulders glaciated on their undersides only. He refers to these as "saxums," and claims that such boulders represent residual masses of rock from the pre-glacial weathered zone that were glacially transported. They are usually found at or near the glacier front, and have only been seen in association with the deposits of the initial glaciation.

Frozen ground phenomena of Pleistocene age and their significance in engineering problems were the subject of a paper by Professor Guido Zuruba. In the periglacial region of central Bohemia superficial disturbances are attributed to the former presence of ground ice in a deeply frozen but unglaciated region. Some are comparable with ice wedge structures in the Cambridge district described by Patterson, and others with some of the disturbances in the Northampton Ironstone Field described by Hollingworth, Taylor and Kellaway.

The concentration of alluvial gold as a result of glacial action in the highlands of south-west

China was the subject of another interesting "Economic Glaciology" paper by J. S. Wu, who claimed that coarse-grained, exceptionally rich placer deposits are associated with crevasses in glaciated rock and in kettle-moraines, and that these are distinguishable from finer-grained, well sorted glacio-fluvial placer deposits. Glacially controlled Pleistocene changes of sea-level were the subject of a number of contributions.

In several excursions before and after the meeting geomorphological features of glacial origin were examined. Particular attention was paid to this subject in the geomorphological excursion across England and Wales conducted by Professors S. W. Woolridge and A. Austin Miller.

The universal opinion was that this Congress, the first for eleven years, was an outstanding success, both from the point of view of organization and of scientific achievement. It was evident, too, from comments of those attending excursions, that interest in glaciological problems was widespread. Glaciology has always formed an integral part of Earth Sciences and in spite of increasing specialization it is to be hoped that in future Congresses consideration will be given to the allocation of a special section to include papers on glaciological subjects.

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## ADVANCE OF THE FRANZ JOSEF GLACIER, NEW ZEALAND

REPORTS have reached England of an advance of this glacier during 1948 of about 18 m. a week. It had been receding for some fifteen years. The surface appeared to be more than usually broken as though the ice were piling up. At the observed rate of advance it is calculated that it would take about two years to reach its 1932 forward limit.

The glacier is some 22 km. long with a mean inclination of about 11 degrees. It must be one of the fastest moving glaciers of temperate regions; a speed as high as 15 m. a day is said to have been measured by Mr. A. Harper in 1894.

The surface of the Fox Glacier is reported to be rising some distance from its end, so that it, too, may be advancing soon. Further reports will be awaited with interest if the advance of New Zealand glaciers becomes general. It is hoped that authoritative information will be forthcoming as that at present available has been obtained from lay sources.

## OBITUARY

Dr. Vaughan Cornish, who died in the spring of 1948, was perhaps best known for his writings on waves. This led him to the study of the phenomena of sand dunes and later to an investigation of snow waves and snow drifts, and finally to his valuable work *Waves of Sand and Snow and the Eddies which make them* (London, 1914).

Dr. Oscar Edward Meinzer, President of the American Geophysical Union, died suddenly in June 1948. Of his many important works perhaps that best known to glaciologists was his editorship of *Physics of the Earth—IX. Hydrology* (New York, 1942).

An appreciation of François E. Matthes, who died on 21 June 1948, and whose death was briefly announced in the last number of this Journal, will be found on p. 295 of the present issue.