MICHAEL FRANK WILLIAM HOLLAND—1928-1957

READERS of the *Journal of Glaciology* will learn with deep regret of the death of Michael Holland in Greenland. Obituaries have already appeared, or will be published shortly, in *The Times* (9 August), *Nature* (28 September), the *Geographical Journal*, *Wayfarers' Journal*, *Climbers' Club Journal* and the *Polar Record*, and the present brief notice will therefore omit much that can be read elsewhere.

Holland, in a few years, had become a regular and active participant in the meetings of the Society, describing his early work and taking part in discussions. For his sheer enthusiasm, ready wit, exceptional kindness of heart and his knowledge, he will be sadly missed. Glaciology, and the work of the International Geophysical Year, are responsible for his death, for, with his young Danish companion, Carsten Velsboe, who also died, some circumstance caused him to leave the ice cap station above Inglefield Fjord and to attempt the descent of a heavily crevassed glacier during an exceptional summer blizzard. It would be proper here to record with gratitude the extreme solicitude and kind actions of the leader of the Danish party, Dr. Børge Fristrup, and of all the Danish authorities in Greenland and elsewhere. Moreover, thanks to them, his body was brought to his home near Macclesfield for burial. A memorial service was attended by a large congregation of his friends.

His contributions to glaciology, yet to be published, will come from Spitsbergen, the Alps, the Sukkertoppen region of West Greenland and from Inglefield Fjord. For the greater part they are observations and measurements of firn and glacier. His conclusions on some problems of glacial geology and relief, to be found in his notes and unfinished thesis, are indicated to some extent in his paper on Sukkertoppen, which was awaiting publication in the *Geographical Journal* when his untimely death occurred.

K. SANDFORD

CORRESPONDENCE

SIR,

Ice action on lakes

As a contribution to the documentation of the occurrence of lake features due to lake ice action, the subject of interesting observations by L. Goldthwait reported in the last issue of the *Journal*, Vol. 3, No. 22, 1957, p. 99-103, may I draw attention to certain Tasmanian examples which are unlikely to be known to many of your readers.

The examples come from the Central Plateau between 2000 and 4000 ft. (610-1220 m.) in elevation, where there are many lakes, the smaller ones of the west being certainly the product of Pleistocene ice action, the larger ones of the centre and east more probably the result of tectonic movement (J. N. Jennings, The legacy of an icecap, *Australian Geographer*, Vol. 7, 1957, p. 62. The Great Lake falls into the latter category, and it is from this lake that there is an early description of phenomena of the type under discussion by W. V. Legge (A contribution to the physiography of Tasmania, *Proceedings of the Royal Society of Tasmania*, 1902, p. 138; A physiographical account of the Great Lake, Tasmania, *Report, 10th Meeting of the Australian Association for the Advancement of Science*, 1904, p. 348). Nearly uniformly sloping 35° ramparts of dolerite boulders, which rise 3-7 ft. (0·9–2·1 m.) above lake level, are attributed to the pressure of ice floes, even though he recognized that some of these ramparts faced the north-east, from which direction strong winds are infrequent. Ice expansion pressure seems a more likely genetic process. Similar features have been seen by the writer in various other lakes of the Central Plateau.

There are in addition at least four instances of lakes divided or very nearly divided into two by ice-built ramparts of boulders—Double Lagoon, First Bar Lake, Second Bar Lake and Lake Ina. The names of the first three do of course draw attention to their special character of twin lakes. These are briefly referred to in the paper of mine cited above but had previously been observed and interpreted by Professor S. W. Carey of the University of Tasmania. The first three are shallow lakes in glacial drift, the last is partially rock-rimmed and partially moraine-dammed. The drift derived from dolerite consists of large dolerite boulders set in a fine matrix as a rule, with usually comparatively little material of intermediate size. These lake-dividing ramparts must be due to ice push from different centres of expansion, operating on the boulders projecting from the shallow drift floors.

As in New England, ice expansion seems more important than the work of ice-floes, though the latter do play some part on the larger lakes of the Central Plateau.

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Sir,

Exceptional glacier advances in the Karakoram

When I met Professor Desio in Rawalpindi in 1954, he told me about the astonishing advance of the Kutiàh Glacier which he later reported in your *Journal*.[1] In that article Professor Desio wrote that, as far as his knowledge went, no such rapid advance in historic times of a glacial front such as this had been reported. In fact, there is another report of a similar advance; Hayden[2] stated that in 1904 or 1905 the Hasanabad Glacier, which flows in a tributary valley of the Hunza in the Karakoram advanced some 10 km. within two and a half months.

These rates of flow are quite remarkable. Whereas Alpine glaciers move with maximum velocities of less than 1 m. a day (which would be considered a very high value), some Greenland glaciers such as the Jakobshavns Isbræ and the Stor Glacier, reach 20 m. a day. The Rinks Isbræ, also in Greenland, even attains 28 m. a day.[3] Professor Desio's report of the Kutiàh Glacier implies an advance of 113 m. a day in 1953, while Hayden's paper similarly implies that the Hasanabad Glacier moved forward at a mean rate of no less than 130 m. a day; he also stated that the Yengutz Har in the Nagar Valley advanced some 2600 m. very suddenly. Now in all these cases the velocity of the ice within the glacier must have been much the same as the velocity of the glacier front, the ablation there being comparatively small in such short times. When the Vernagtferner in the Eastern Alps was advancing in 1898, the ice velocity there was more than ten times greater than in the normal state of the same glacier.[4] Obviously the reason can only be a pressure from the ice masses behind which must have increased greatly in a relatively short time.

Professor Desio, too, had already found these reports of Hayden when I wrote to him.

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12 October 1957

REFERENCES

1. Desio, A. An exceptional glacier advance in the Karakoram-Ladakh region. *Journal of Glaciology*, Vol. 2, No. 16, 1954, p. 383-85.

2. Hayden, H. H. Notes on certain glaciers in north-west Kashmir. *Records of the Geological Survey of India*, Vol. 35, Part 3, 1907, p. 127-37.

3. Bauer, A. Contribution à la connaissance de l'inlandsis du Groenland; deuxième partie: Synthese glaciologique. *Union Géodésique et Géophysique Internationale, Association Internationale d'Hydrologie Scientifique, Assemblée Générale de Rome, 1954*, Tom. 4, [1956], p. 270-96.

4. Drygalski, E. von, *and* Machatschek, F. *Gletscherkunde*. Wien, Deuticke, 1942, p. 110.

Reviews of works received are published in *Ice*, the News Bulletin of the Society.