upper surface in contact with the air was melting. On the lower margin of the top one could see nearly vertical crystals projecting upwards some 5–8 cm., about 2–5 cm. wide, with 3–8 cm. space between. In places on these small pillars there was a crust of snow probably belonging to a former surface before melting. In contrast to the ice crystals of these mounds, the surrounding snow was typical of that in the McMurdo region—loose, powdery and fine grained.

About 500 m. further north-north-east, on the frozen lake where the glacier from the north-east peters out, one could see 5 or 6 mounds, some oval (Fig. 3), some more elongated. The ice was blue and clear in small vertical columns joined together. The surface showed the same cellular network. There were crevasses which cut across the mounds. At Cape Royds (Fig. 4) there was a much fractured mound. 6–8 m. in diameter, with radiating crevasses. In the lake at the front of the Victoria Glacier the mound was 1–2 m. high, and 10 m. in diameter. The radial crevasses were 20 cm. wide and 60 cm. deep. On the wall the ice was clear blue and furrowed by vertical lines which were very conspicuous. At the surface the design was the same as before with a wide cellular network on a transparent base.

Laboratoire de Géologie du S.P.C.N., ANDRÉ CAILLEUX
12 rue Cuvier,
Paris 5e.
27 September 1961

SIR,

I have seen Professor Cailleux's letter, and would say that the phenomena described by him are similar to the "icings" which commonly form on rivers and lakes in Siberia. One of the ways in which the water which feeds the "icing" is forced up from under the floating ice, is by the pressure caused by the freezing process itself; as the floating ice on the surface grows thicker, the water beneath it (if there is no outlet) may be forced up through a crack in the ice into the open air, where it freezes at once. The mound thus formed can look very like those in the photographs.

A very general description is given in P. A. Shumskiy's *Osnovy strukturnogo ledovedeniya* (Moscow, 1955), p. 199–200.

Scott Polar Research Institute, T. E. ARMSTRONG
Cambridge.
6 October 1961

SIR, *Vaughan Lewis and Norway*

For the last fifteen years of his life, glaciers in Norway were Lewis's main subject of research.

It all started when, after an international excursion to the Rondane mountains, which I organized in 1946, he went on alone to the Jotunheim, to those glaciers where we met again in the unforgettable summer of 1947.

The outline of the enormous amount of work done by him and his collaborators on the Jotunheim and Jostedalsbre glaciers will be known to all readers of this *Journal*. Several of his students also went to other parts of the country, notably to the Rondane, Dovre and to Svartisen in the north.

In 1953 we were able unofficially to offer him the Chair of Physical Geography in the University of Oslo, vacant after the retirement of Professor Werenskiöld, his great friend, who also died in the summer of this year. But very understandably, Lewis felt his connections with Cambridge were too close to be severed, even for a short period.

At the time of his death Lewis's membership of the Norwegian Academy of Sciences was under consideration.

In September 1958 Lewis was invited to Oslo and gave a course of lectures on glaciological subjects. His ability to perceive unfamiliar geomorphological features was never more evident than on the excursions we made in the Oslo area with its very peculiar surface forms, largely conditioned by geological structure.

Two of his advanced students worked in Norway under my supervision. They and I keenly felt what they owed to the high standards he set them.

His determination, resilience, humour and humanity made him very dear to his Norwegian friends. "He was a man, take him for all in all."

Oslo Universitet,
Blindern, Norway.
27 October 1961

KAARE STRØM

SIR,

Melting of fresh-water ice in sea water

In my article in the last number of the *Journal of Glaciology* (p. 1051–52) I overlooked the most detailed early experiments on the question. In 1903 during the Gauss expedition von Drygalski (1921) studied the melting of cubes of fresh-water ice in sea water at temperatures between $-0{\cdot}25^{\circ}$ and $-1{\cdot}9^{\circ}$ C. He immersed the cubes to depths of 4, 10, 50, 200 and 380 m. Surprisingly, with similar measured temperatures, cubes of equal size used to melt faster at lower than at higher levels. Von Drygalski thought that the faster melting in the lower layers was caused by an occasional influx of slightly warmer water.

Institute of Polar Studies,
Ohio State University,
Columbus 10, Ohio, U.S.A.
24 October 1961

F. LOEWE

REFERENCE

Drygalski, E. von. 1921. Das Eis der Antarktis und der subantarktischen Meere. (*In Deutsche Südpolar-Expedition 1901–1904 . . . herausgegeben von E. von Drygalski . . . I Bd. Geographie, Ht. 4.* Berlin und Leipzig, W. de Gruyter. p. 365–709.)