reported as showing signs of unusual movement (Post, 1964). The bush pilot at Chitina, Alaska, first noticed the advance in July 1964 (personal communication from Howard Knutson). It is hoped that additional studies of recent photographs may provide more definite information on the rate and time of origin of the unusual advance of Walsh Glacier.

Naval Civil Engineering Laboratory,
Port Hueneme, California, U.S.A.
3 February 1965

RUSSELL A. PAIGE

REFERENCE

Post, A. S. 1964. Aerial photography in 1963. *Ice. News Bulletin of the Glaciological Society*, No. 15, p. 14–15.

SIR,

Fumarolic ice towers on Mount Erebus, Ross Island, Antarctica

On separate occasions the authors each had the opportunity to ascend Mount Erebus (3,721 m.), Ross Island, the only known active volcano in Antarctica. The ascent by F. C. Ugolini and H. Janetschek in February 1962 was made to study and collect soil samples and biological specimens. The work by G. Holdsworth and G. Lewis in February 1964 aimed at collecting sulphur samples from fumaroles and snow samples at various altitudes.

Although the two parties took different routes, both traversed the extensive area of active and inactive fumaroles at 3,500 m. elevation on the north-west side of the mountain. The fumarole areas offer an unusual spectacle of large ice towers and mounds (Fig. 1). The towers vary in size but they are commonly 6 to 10 m. high and 3 or 4 m. or more in diameter. An aerial view (Fig. 2) shows that some towers have a roughly circular aperture in the crest. Many of the fumaroles were not active during 1962 and 1964, which is in contrast to the situation during the 1908 ascent (David and Priestley, 1914, p. 208–17), but in 1962 a few vents close to the ground were emitting gases. The ice towers are clearly formed by the

Fig. 1. Inactive fumarolic ice towers (1962)

https://doi.org/10.3189/S0022143000018980 Published online by Cambridge University Press

Fig. 2. Field of fumarolic ice towers. Notice the opening on the tower to the bottom right

condensation of the fumarolic vapors. The crystallographic structure of the ice and the stratigraphic distribution of the chemical compounds enclosed therein might preserve part of the late volcanic history of Mount Erebus.

Institute of Polar Studies,
The Ohio State University,
Columbus 10, Ohio, U.S.A.

GERALD HOLDSWORTH*

Department of Agronomy and Institute of Polar Studies,
The Ohio State University,
Columbus 10, Ohio, U.S.A.

F. C. UGOLINI*

16 March 1965

REFERENCE

David, T. W. E., *and* Priestley, R. E. 1914. *Glaciology, physiography, stratigraphy, and tectonic geology of south Victoria Land.* London, William Heinemann. (Reports on the Scientific Investigations, British Antarctic Expedition 1907–9. Geology, Vol. 1.)

* At the time F. C. Ugolini visited Antarctica he was associated with Rutgers University and engaged in work on NSF grant G-74; G. Holdsworth was associated with the Institute of Nuclear Sciences, New Zealand Department of Scientific and Industrial Research.

https://doi.org/10.3189/S0022143000018980 Published online by Cambridge University Press