

## ONE SQUARE MILE OF ICE: AN EXPERIMENT IN GEOGRAPHICAL ANALYSIS

H. R. THOMPSON

*University of Illinois, Urbana*

There are many definitions of geography, most of which state or imply the concern of the subject with man. Even if there are no inhabitants in a particular area, it should be possible to evaluate that area in terms of man's needs and prospects. As a test of this idea, suggested by J. H. Garland and F. W. Foster, this analysis of a small portion of an arctic icecap is attempted.

Nordauslandet (Northeast Land), the second largest island of the Spitsbergen archipelago, is largely covered by several separate domes of ice. The southwesternmost ice dome, Vegafonna, has a roughly circular plan and a maximum surface elevation of 1400 feet. Its mile-square summit has a flat surface, broken only by small sastrugi and, in summer, by tiny melt-water runnels which discharge onto raised beaches and muddy lowlands a few miles distant.

The local climate is Köppen's EF or Icecap type, but of a very mild variety. Precipitation, falling mainly in summer, is adequate to maintain the ice in its present static condition, despite the fact that temperatures do not often fall below 0°F. except in midwinter, when the sun is below the horizon and the moderating sea is masked by ice. In summer, air temperatures are frequently

above 32°F. and contact fog and wet-snow surfaces are common phenomena.

Soils and vegetation are totally lacking, as are rock outcrops. There is no reason to believe that there are any mineral resources in the bedrock below the ice.

By contrast, animal life is relatively abundant. Enormous pawmarks in the snow testify to the passage of polar bears in search of new seal-hunting grounds, and smaller tracks suggest that a scavenging fox is trailing the bears. Overhead in summer fly fulmars, terns and other migrant birds, whose eggs are also sought by foxes.

This landscape of ice and snow, totally unmodified by man, presents certain possibilities to people from civilized lands. The flat surface offers good travel for the sledges of explorers and soldiers, and a satisfactory landing ground for ski-equipped planes. Summer fog and wet snow may create difficulties for both forms of transport, but the plentiful supply of water (in liquid and solid state) is as always a great convenience. The lack of agricultural possibilities means that most food must be imported, but a few hours' hunting will often ensure an adequate supply of seal, duck, and other types of meat, besides a few eggs, at the right season.

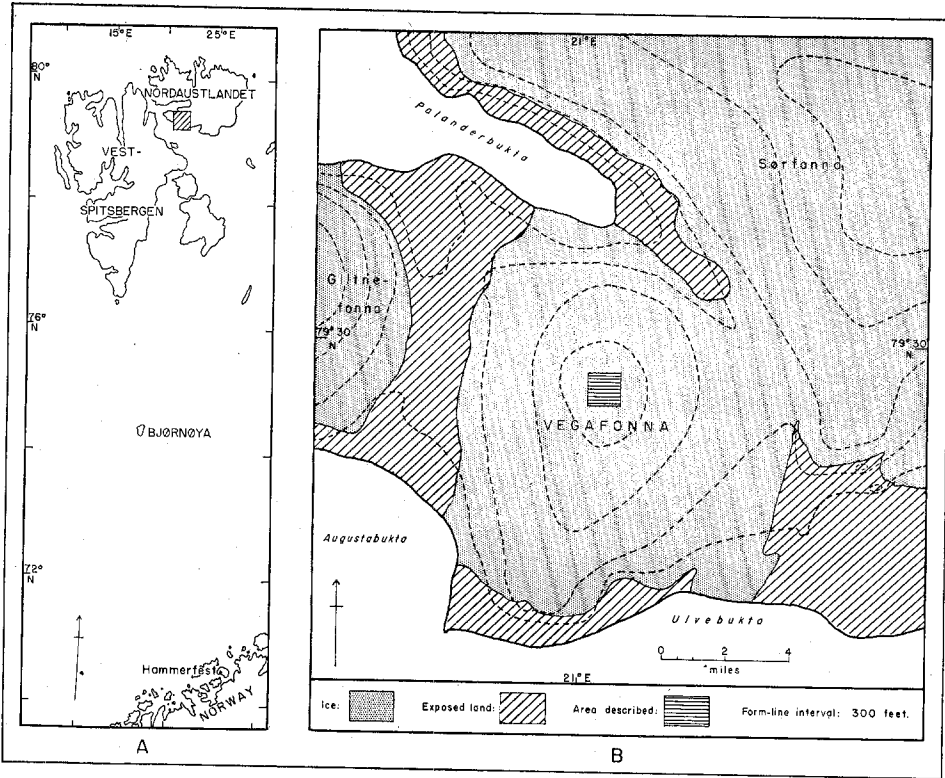


FIG. 1.—A. General location. The shaded area is that included in B. B. The square mile of ice in its local setting. The Norwegian endings “bukta” and “fonna” mean “bay” and “ice dome,” respectively. (Amended from A. R. Glen, The latest map of North East Land: *Geog. Jour.* 98: 206-207, 1941.)

Man can (and occasionally does) exploit the natural environment in another way. Observing the routes normally followed by bears and foxes, he lays out traps and in one winter collects enough skins to bring

him a handsome reward for his privations.

From this experimental study, we conclude that even an ice desert may have definite significance for man and may be analyzed by the normal techniques of the geographer.