are not applicable to problems of the present type where viscosity is absent and the motions are two-dimensional. On the other hand, the results recapitulated in this note are in agreement with those obtained by LIN (1945) and KUO (1949).

For certain disturbances covered under (3), according to LIN (1945) and KUO (1949), the introduction of a very small viscosity is effective in producing damping without at the same time leading to a sensible dissipation of the total kinetic energy. The introduction of such viscosity cannot, however, produce instability for the cases covered under (1).

The invariance of I is in essence a spherical adaptation of the principle of invariance of the centroid of a vortex system as demonstrated, for example, in the textbook by LAMB (1932). The extremal properties of I (as here demonstrated by the character of $\triangle$) for certain circumstances, are mathematically similar to those of the geopotential energy integral for properly selected stratified fluids as pointed out by FJØRTOFT (1950).

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Floating ice islands in the Arctic Ocean

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During his recent visit to Alaska, Dr Sverre Petterssen suggested that the readers of Tellus might be interested in information on the recent discoveries of large floating ice islands in the Arctic Ocean.

The undersigned, having reason to suspect the existence of such islands, initiated visual and radar search in Spring 1950 by the 375th Reconnaissance Squadron in connection with the routine weather reconnaissance flights to the North Pole (the Ptarmigan Flight). Although no deviation from the standard track could be made in search of such islands, the suspicion was soon corroborated. On June 3, 1950 the radarscope showed indications of a large floating island (called T-1) at 73°15′N and 159°05′W. This, or a similar ice mass was seen by radar ten days later at 74°30′N and 159′05′W. Whether or not these radar returns were from the same or from two different ice masses could not be determined. The relatively large distance between them might, however, suggest that they were two different islands.

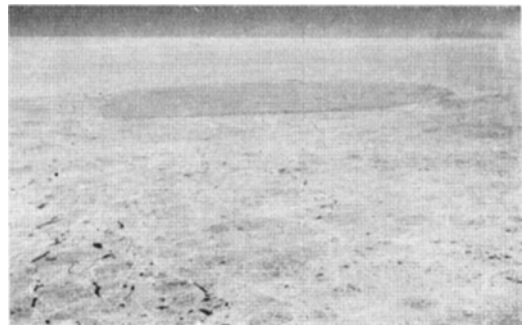

Fig. 1. At a distance of 65 miles, T-2 could be distinguished clearly from the surrounding pack. This photograph was taken at a distance of 45 miles.

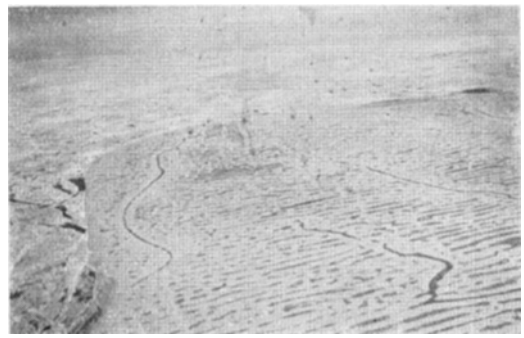

Fig. 2. The high edge of T-2. Note the washboard pattern, the drainage system and the steep cliff.

The first visual identification of floating islands was made at 86°40′N and 167°00′E on 20 July 1950 when three photographs were taken; during the following two weeks several additional pictures were obtained. This island has been called T-2.

Island T-3 was discovered toward the end of July 1950 when several radar oscilloscope photographs were taken of a rather small but well-defined island at approximately 75°24′N and 173°00′W.

On 24 August 1950 this island was identified visually and one photograph obtained.

The islands observed so far have several common features which clearly distinguish them from the surrounding pack. The surface shows a regular corrugated pattern, like that of a washboard, with troughs and ridges 300 to 600 feet apart. Superimposed on this pattern is a drainage system of rivers about 100 to 200 feet wide, running or meandering across the island from one side bounded by a steep cliff to the other side where no appreciable cliff is apparent, and suggesting a wedge-shaped cross-section of the ice mass. Some of these features are apparent from the attached photograph.

The projection of the ice mass above the water was variously estimated by the observers from 30 to 100 feet or more, suggesting a total thickness of 240 to 800 feet. Experienced drainage engineers who have examined the photographs of T-2 have estimated the relief to more than 200 feet, implying a minimum thickness of 1600 feet at the high edge.

Although the size of T-1 could not be determined, fairly accurate information on the other islands is available. The area T-2 was found to be about 300 square miles; the shape was slightly elliptical without any sharp corners, suggesting that the island had drifted in the pack for a long period of time. On the other hand, T-2, which covered an area of about 50 square miles, had a pronounced angular shape, which might be taken to indicate a relatively short history as a floating island.

A full report on the information collected during last summer's exploration is being prepared for publication by the American Meteorological Society.