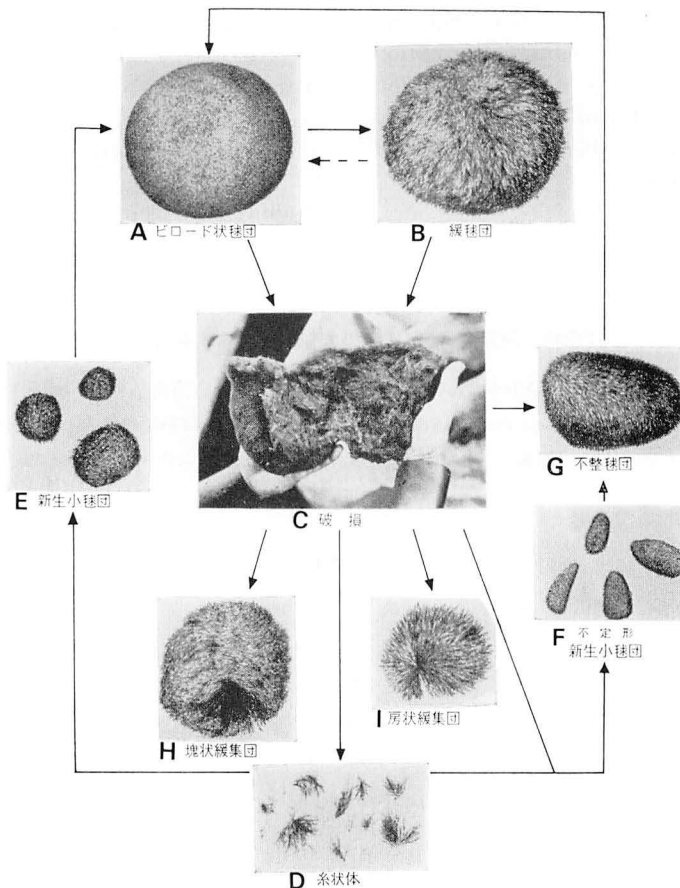


黒木宗尚: 阿寒湖のマリモの英文紹介 Munenao KUROGI: Lake Ball "Marimo" in Lake Akan

In Lake Akan in eastern Hokkaido grow a great number of beautiful lake balls called "Marimo". The balls are 3-20 cm or more in diameter and have a velvety green surface (Fig. A). They stand unrivaled in the world in figure and size, and are protected as a Special Natural Monument of Japan. The balls are free floating

above the sandy or clayey bottom 1-3 m deep in the northern part of the lake. Visitors can see the balls exhibited at the aquarium on Islet Churui situated near the northern shore of the lake.

The balls are aggregates composed of a number of branched uniseriate filaments of cylindrical cells of the green alga,



Formation of lake ball, Marimo, in Lake Akan.

A. typical beautiful lake ball showing a velvety surface, B. lake ball showing a bushy surface at the calm bottom, C. broken old large ball, D. separate short filaments, E. small aggregates newly formed of irregularly entangled short filaments, F. small fragments of broken old ball entangled with short filaments, G. irregularly shaped aggregate with a velvety surface, H. irregularly shaped loose aggregate, I. separate tufted filament.

*Cladophora sauteri* (NEES) KÜTZING. The branched filaments radiate from the center of the ball and the branches and rhizoids stick to each other to form a stable ball. Large balls have a central cavity caused by the death of filaments in the center. In some balls one or two not-so-clear concentric rings, probably indicating the interruption of growth, are visible in cross section.

The formation of the lake balls at Lake Akan occurs in two ways. Separate short filaments (Fig. D) are irregularly entangled with each other by the wind generated wave action near the shore to form small aggregates (Fig. E). Over many years, the small aggregates grow into stable balls with a regularly radial construction. The balls also form from broken fragments of old large balls with large central cavities (Fig. C). The small fragments, which are entangled with short filaments (Fig. F), and the large fragments are at first irregularly shaped, and then develop into compressed

ovate or elliptical aggregates with a velvety surface (Fig. G). They finally become spherical after being rolled along the sandy bottom for a long time.

On the muddy bottom of the lake 3–10 m deep unattached separate short filaments (Fig. D), tufted filaments (Fig. I) and loose irregular aggregates (Fig. H) accumulate abundantly as an extensive stratum 10–30 cm thick. Filaments attached to rock or other substrates are not found in this lake.

Reproduction of this alga in the lake seems to be carried out vegetatively by fragmentation. The occurrence of reproductive cells, zoospores and gametes, is unknown in the field materials.

This is a summary of a part of the paper by KUROGI, M., YAMADA, I. and YOSHIDA, T. (1976), Distribution, shape and actual amount of the lake ball, Marimo, in Lake Akan (in Japanese). (Department of Botany, Faculty of Science, Hokkaido University, Sapporo 060)