

1959 in Polmak near the mouth of the Laevvajokka River, in muddy shrubbery trampled by cattle. It occurs also in some localities along the Tana River on the Finnish side (KALLIO & MÄKINEN 1957 p. 27) and in several localities in Sør-Varanger, Neiden.

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ON THE MORPHOLOGY OF PRIMULA SIBIRICA JACQ.  
 SSP. FINMARCHICA (JACQ.) HULT.

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*Primula sibirica* ssp. *finmarchica* is the leading species of the *Primula sibirica* group. This group includes plants which have more or less separate distribution areas in Fennoscandia: (1) the shores of the Gulf of Bothnia and (2) the shores of the White Sea and/or the shores of the Arctic Ocean. Some of the plants, like *Arctophila fulva*, are represented by morphologically clearly distinct, well recognised taxa in these two regions; most of the other species are, however, morphologically very similar in both regions. The latter species include *Primula sibirica* ssp. *finmarchica*.

The main subspecies, *Primula sibirica* ssp. *sibirica*, occurs only in Central Asia; all the Fennoscandian forms have been united under ssp. *finmarchica*. However, two distinct varieties have been described in the Fennoscandian material, viz., var. *integrifolia* (Oeder) Pax and var. *arctica* Pax. These varieties differ according to PAX (1905) mainly in the length of the calyx (v. *integrifolia*: 6—8 mm, v. *arctica* ca. 4 mm). As CHRISTOPHERSEN (1941) has shown, no difference is noted in the lengths of the calyx of specimens from Troms and Eastern Finnmark in Northern Norway, which according to PAX belong to different varieties. The mean lengths obtained by CHRISTOPHERSEN were 5.20 mm (Troms) and 5.18 mm (Eastern Finnmark). Furthermore, CHRISTOPHERSEN measured specimens from populations in Northern Russia and claimed these to be identical with the specimens from Northern Norway.

To compare the populations on the shores of the Gulf of Bothnia in Finland and on the coast of the Arctic Ocean in Northern Norway, a number of measurements were made on plants collected in Oulunsalo in Finland and in Börselv in Northern Norway. Preliminarily, only the length of the calyx and the ratio of the length and breadth of the leaves were measured. The results showed that the populations analysed differed very clearly in both characters. As Fig. 1 reveals, the leaves of the Norwegian population are relatively narrower than the leaves of the Finnish population. The mean length-breadth ratios are  $1.75 \pm 0.04$  for the Norwegian and  $1.41 \pm 0.03$  for

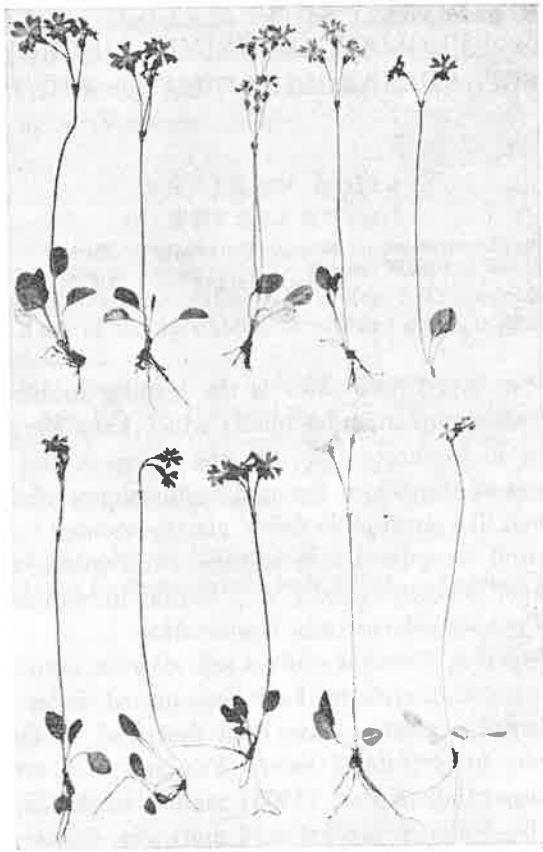


Fig. 1. *Primula sibirica* Jacq. ssp. *finmarchica* (Jacq.) Hult. Upper row: from Oulunsalo on the Gulf of Bothnia in Finland. Lower row: from Börselv on the Arctic Ocean in Northern Norway.

the Finnish population. Student's test showed that the means are significantly different at a probability level of less than 0.1 %. Also the length of the calyx is greater in the Norwegian population,  $4.35 \pm 0.06$  mm as compared with  $4.12 \pm 0.04$  mm in the Finnish population. These means differ significantly at the 1 % probability level.

JOKELA & PALLARI (1958) have described a short-stalked form, f. *brevicaulis*, collected from two localities on the shores of the Gulf of Bothnia in Finland. In summer, 1960, I found this form also in Börselv in Norway. Probably also the "curiously modified, compact form" collected by BRUUN (1932) from the Swedish shore of Gulf of Bothnia is the same form. Some measurements were made on these short-stalked forms from Börselv and

Oulunsalo. A clear difference was again found in the length-breadth ratio of the leaves. The means,  $1.50 \pm 0.07$  for the Norwegian and  $1.14 \pm 0.06$  for the Finnish population, differ at a significance level of 0.1 %. The means show, in addition, that not only the growth of the stalk but also the growth of the leaves is limited in f. *brevicaulis*.

It has been found by laboratory cultivation that *Primula sibirica* ssp. *finmarchica* is not bound to any special soil, and does not require sea water for watering. The minimum intensity of continuous light required for flowering is ca. 10,000 lux. When the Norwegian and Finnish plants are cultivated in the same conditions, the differences remain constant. Experimental cultivations have also been arranged at the Kevo Subarctic Research Station in Utsjoki (Finnish Lapland).

Because no seeds have been obtained from Russia, the characters of the populations on the shores of the White Sea are largely unknown. However, *Primula sibirica* ssp. *finmarchica* seems to offer a suitable material for studying the rate of evolution during the relatively short period after the Great Ice Age in Fennoscandia.

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