A Note on Primula borealis Duby

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A fairly complete record of the history of *Primula borealis* will be found in the Transactions of the Royal Society of Edinburgh (lxi, part 1, pp. 8–10 : 1943). A short addition to that record will be found in the Transactions and Proceedings of the Botanical Society of Edinburgh (xxxv, pt. 2, pp. 186–188 : 1949). The first collections of the plant were obtained at the beginning of the nineteenth century in the region of Bering Straits. The first mention of the name, however, is in the diagnosis of Duby in 1843, repeated again in 1844. Before it received this name from Duby it was confused with *P. mistassinica* Michx. and its allies. During the present century it has not been clearly discriminated from *P. parvifolia* Duby and from *P. tenuis* Small. During the 150 years from the time of its discovery there appears to be no record of the plant having ever been in cultivation.

It belongs to the section *Farinosae* and ripe seeds of members of that section do as a rule germinate fairly well. But the individual species of that section do not last very long unless they happen to seed freely or at any rate regularly under garden conditions. Whatever the reason may be *P. borealis* has never appeared in European gardens. The plant itself is confined to Alaska and to certain areas in North East Asia, chiefly within Siberia. In recent years seed of the species has occasionally been secured by travellers in Alaska but no statement appears of any successful raising of the plant. It may have been that such seed was very slow to germinate but that is not borne out by material which was recently obtained by Edinburgh. On 31st October 1951 some viable seed was received from Professor N. Polunin now at Yale University. This seed had been collected by Miss Scamman in August 1951 at Point Hope on the arctic coast of North West Alaska. It was promptly sown on arrival in Edinburgh on 2nd November of that year and the seed germinated on 24th March 1952. One or two tiny plants came into flower in June 1953 but did not form ripe capsules. The little plants, however, persisted, small as they were, and gave promise of coming into better condition in the summer 1954. They did make progress during that year but their hold in cultivation is still somewhat uncertain. But apparently this is the first record of the plant ever having appeared in any garden in Europe.

My attention, however, was directed by Professor Polunin to a statement in the Contributions from the Dudley Herbarium of June 1951, where (page 56) the following note occurs regarding this primrose—" Mr Henry J. Thompson has counted the chromosomes on material of this collection and found $2n = 18$. Counts were made from root tip sections." At first sight it would appear that the seeds were mature and germinated and that the count was made from material grown possibly in the state of California. However, I thought it would be wiser to find out from the Dudley Herbarium what exactly had happened and at the suggestion of Professor Polunin I wrote to Dr I. L. Wiggins, Scientific Director of that Herbarium and asked him what had happened and how the count was made. He has sent me a very courteous reply in which he tells me that Mr Thompson cut paraffin

sections from the root tips and made the counts from that material—apparently collected from plants in Alaska.

I have, therefore, to conclude that the plant has not been cultivated in any garden in America. In the one or two plants which did flower in 1953 at Edinburgh the stems were less than an inch high and the form of the plant proved to be the ordinary expression of *P. borealis* as described very completely by Fernald (in Rhodora, xxx, 94: 1928). None of the specimens, even those which were not in flower, suggested at any time any transition to *P. parvifolia* and still less to *P. tenuis*. It is not as yet clear what is the exact relationship between these three plants. In one view which I have previously expressed they may all be peculiar forms or states of the same species. On the other hand when good examples of each are examined the differences are rather striking and it is difficult to believe that all come from one specific complex. Hopes were entertained that if the plant was secured in quantity and many plants were raised, in due course some of these other expressions would arise. But so far in both seasons what resulted belongs quite definitely to what Duby called *P. borealis*, just as Fernald later described it. The answer to the problem is certainly not to be determined by herbarium specimens and perhaps only careful investigation on the spot will bring out the true facts. Some of my material was collected by Miss Hutchison and she informed me that all three appeared at Nome. Certainly one collection made by her friend Miss Reat in that area appeared to contain in the same gathering specimens which would correspond to all three. But Miss Hutchison certainly segregated some of her material under *P. stricta* Hornm. (see Kew Bulletin, 1934, 53). It is this material which comes very near to *P. tenuis* Small.