Hunker Creek (51, 57); Dawson (Williams), not listed by Howe. New to America. Previously recorded from Siberia only. The Yukon material has been compared with Siberian specimens kindly communicated by Dr. Arnell.

The genus *Mesoptychia* is allied to *Lophozia* and also to *Acrobolbus*, both of which have succubous, alternate and variously lobate leaves. It is distinguished from the first of these genera by the possession of a perigynium and from the second by the possession of a perianth. The perigynium of *Mesoptychia* is further distinguished from that of *Acrobolbus* by being hollow and by carrying down with it, as it develops, the unfertilized archegonia. The occurrence of both perianth and saccate perigynium in the same plant is a most remarkable feature but is not entirely unique, for we find it duplicated in *Arnellia*. In this genus, however, the leaves although succubous are undivided and opposite, coalescing in pairs at their antical bases, and the underleaves are simple. In the genus *Gyrothyra* as well as in *Nardia hæmatosticta* and the allied *N. Breidleri*, we also find a certain approach to the condition described for *Mesoptychia*. In these plants the end of the female branch becomes fleshy after fertilization and forms an erect perigynium, which encloses the developing sporophyte. On the outside of this fleshy perigynium are borne the perichætial bracts and at its mouth the rudimentary perianth. The lower part of the perigynium extends downward as a small solid bulbous enlargement, into which the foot of the sporophyte penetrate more or less deeply. In *Gyrothyra* the unfertilized archegonia remain near the mouth of the perigynium, somewhat as in *Acrobolbus*, while in the two species of *Nardia* they are found at the bottom. The most essential difference between the three plants just discussed and *Mesoptychia* lies in the fact that their perigynia are erect, growing upward at right angles to the fruiting axis, while in *Mesoptychia* they are pendent and grow downward. There are of course many other differences drawn from purely vegetative characters.

As in other saccate genera, the development of the perigynium in *Mesoptychia* is dependent upon fertilization. The