

apices, it is the postical lobe which is smaller and more sharply pointed, just the opposite of what we find in *Mesoptychia Sahlbergii*. The leaf-cells of *L. Rutheana* average 0.023×0.032 mm. at the margin of the leaf, 0.055×0.030 mm. in the middle and 0.055×0.039 mm. near the base. They are therefore a little larger than in the *Mesoptychia* and are more distinctly elongated in the median and basal portions of the leaf. The trigones of the two species are similar, but the verruculæ the cuticle of *L. Rutheana* are fusiform in shape, rather than oval or circular, and lend the leaf-surface a distinctly striated appearance. The underleaves of *L. Rutheana* are much more variable than in *Mesoptychia Sahlbergii*. They are occasionally bifid but are more commonly trifid to quinquefid with the median division distinctly larger than the others. The divisions are lanceolate and end in long filiform points which are commonly curved in various ways. In some cases one or more of the divisions arise from the surface at the base of the underleaf instead of from the margin. The divisions are often sparingly ciliate, but each one rarely shows more than a half dozen cilia and the latter are shorter and broader than in the *Mesoptychia*.

The perichaetial bracts of *L. Rutheana* are broader than long, measuring 2.5×3 mm., and commonly show obtuse lobes. The perianth is very large, measuring when mature 5 mm. in length and 1.4 mm. in diameter; its wall is three to five cells thick (0.14 mm.) at the base, two cells thick to about the middle and one cell thick in the upper part. The perianth is gradually narrowed above the middle but is not distinctly beaked nor contracted at the mouth. The latter is minutely setulose, the thick-walled setulæ being two cells long or less. With respect to the folds of the perianth descriptions vary. Lindberg states that it is obtusely trigonous, the third keel being postical, but asserts that while young it is often laterally compressed. Limpricht emphasizes the lateral compression and adds that there is sometimes a shallow groove down one lateral face and a corresponding low ridge down the other, sometimes a groove on each face. He also states that a trigonous perianth with the third keel antical is of occa-