

**IX. Axils/cups open;
Apothecia and pycnidia brown
Sect. Chasmariae, series Megaphyllae**

The reason why these two species are put together is not clear to me; C. thomsonii is superficially very similar to Unciales.

1. Primary squamules present, persistent, large (525 mm long, 17 mm broad). Podetia P+ red (fumarprotocetraric acid), usually thick (turgid, often sparsely present; to 10 tall. Primary squamules coarse, rugose, with broad and rounded divisions; upper side glaucescent; underside creamcolored. Podetia with \pm complex branching, sometimes dying at base, the branching dichotomous or polytomous, the axils closed or open and often dilated, with short terminal branchlets in pairs or small groups, the branchlets usually subulate and sterile, sometimes with with apothecia at the tips; small cups occasionally present, the inner membranes variously lacerate or perforate, the margins sparingly proliferate with subulate or small cupbearing apices, esorediate; cortex smooth, ashy glaucescent, either continuous or composed of contiguous or dispersed areoles separated by whitish bands or lines; squamules sometimes present. Apothecia brown, at tips of podetia. Atranorin and fumarprotocetraric. On mineral soils and soils rich in humus, arctic to northtemperate, Alaska to Iceland, S to Washington in the west, most frequent from Great Lakes area to NE United States and SE Canada.C. turgida

1. Primary thallus absent. Podetia P (without fumarprotocetraric acid), numerous, usually thick, \pm richly branched, ca. 46 cm tall. Podetia growing in dense to loose cushions, dying at the base and growing at the apices, ca. 46 cm high, 13 mm thick, ashy whitishgray, browned at the tips and sometimes also elsewhere, the dead basal parts becoming yellowish gray to black; tips not longpointed but rather obtuse, slightly white pruinose; branching irregularly anisotomic polytomous, with tetrachotomy dominant and dichotomy also frequent; cupless or with indistinct cuplike formations at the axils, which are often irregularly expanding; axils perforate or closed when young, later mostly perforate; with age the podetial wall may also become split, torn and perforate; rarely with scattered podetial squamules ca. 13 x 0.52 mm in size, scarcely lobate; outer surface areolatecorticate, with rather wide, purely white and archnoid medullary interspaces, at base sometimes with tuberclelike outgrowths. Fertile podetia hardly thicker than sterile ones; apothecia 0.20.4 mm wide, brown; margins long persistent. With atranorin alone or usually with one or two out

of three unknown substances. Among lichens and mosses in
tundras, Alaska and NW Territories.C. thomsonii