

# Studies on Lichen Colonization in Surtsey 1970

By

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Surtsey was visited in the summer of 1970 for study of lichen colonization. Samples were collected in different habitats, much in the same way as in 1968 (Kristinsson 1970). Communities of lichens were detected around the crater Surtur II. Three species, *Trapelia coarctata* (Sm. & Sow.) Choisy, *Placopsis gelida* (L.) Lind. and *Stereocaulon vesuvianum* Pers. were identified in the samples brought back from this excursion. These were the first lichens ever found on the island. A second trip had been planned later in the summer to provide some more information on the distribution and the structure of this community, but had to be delayed until 1971.

## HABITATS

The lichens were found in two different places in the vicinity of Surtur II. Both habitats were influenced by warm steam. One of them was a level lava block northeast of the crater, periodically kept moist by steam coming out of a crack. At this place only tiny pieces (single phyllocladia) of a *Stereocaulon* were detected by a lens. A depressed, dark spot in the center of the phyllocladia indicates that they belong to *Stereocaulon vesuvianum*, which is one of the major pioneer lichen species rapidly colonizing all new lava fields throughout Iceland.

The second habitat was much richer in lichen vegetation, a north-facing steep slope of lava rock on the outside of the crater Surtur II. Here a community with an extension of several meters was formed by only two lichen species and kept damp by warm steam. One of them, *Trapelia coarctata* was present in such quantities, as to turn the rocks pale yellowish brown, not always easily recognizable against the almost concolored mineral residues found here and there on the rocks around the crater. *T. coarctata* is a crustose lichen, already found with a great number of spore-producing apothecia in Surtsey. It appeared to be closely associated with water tracks on the rock surface, as if it were distributed mainly by rainwater from the top to the base of the crater.

The other species, *Placopsis gelida*, was found here and there growing together with *T. coarctata*. The specimens were rather small and not fertile, but some were sorediate.

## DISTRIBUTION IN ICELAND

Two of the lichen species here recorded for Surtsey, *Stereocaulon vesuvianum* and *Placopsis gelida*, are very common throughout Iceland. *S. vesuvianum* is especially abundant in postglacial lava fields, frequently associated with *Rhacomitrium lanuginosum*. *P. gelida* usually occurs in the lava fields too, but is also frequent on any kind of basalt rock or palagonite tuff. It is probably rare or lacking in some of the more continental valleys of Northern and Northeastern Iceland. But even there it is frequent in the mountains. This agrees with its worldwide distribution, which is considered rather oceanic.

For *T. coarctata* no records are found in the literature from Iceland. Deichmann Brandt (1903) mentioned *Trapelia ornata* (under the name *Lecanora coarctata* var. *ornata*) from Viðvík, Northern Iceland, a species closely related to *T. coarctata*. This, however, does not permit the conclusion, that *T. coarctata* should be lacking or even rare in Iceland, because the information on crustose rock lichens in Iceland is very poor, and dates mainly from the last century. *T. coarctata* prefers damp localities and probably a relatively oceanic climate (Hertel 1969, 1970) and should therefore be expected to occur along the southern coast of Iceland.

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## References:

- Deichmann Branth, I. S. 1903: Lichenes Islandiae. Bot. Tidskr. 25, 197–220.
- Hertel, H. 1969: Die Flechtengattung *Trapelia* Choisy. Herzogia 1, 111–130.
- Hertel, H. 1970: Trapeliaceae — eine neue Flechtenfamilie. Dtsch. Bot. Ges. Neue Folge Nr. 4, 171–185.
- Kristinsson, H. 1970: Report on Lichenological Work on Surtsey and in Iceland. Surtsey Res. Progr. Rep. 5, 52.