

Report on Lichenological Work on Surtsey and in Iceland

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In order to study the inevitable colonization of Surtsey by lichens, a detailed knowledge of the lichen flora of Iceland itself is indispensable. A manual to the lichen flora with information not only on the taxonomy but also on the chemistry of all species would facilitate the identification of the young, sterile specimens of lichens, that will be the first to be found on Surtsey. Study of the lichen vegetation of recent lava flows in Iceland is also important for comparison to the development of lichen colonization on Surtsey.

Consequently, the following report briefly summarizes the three major lines of lichenological research in progress.

I. THE LICHEN FLORA OF ICELAND

Collections of lichens were made in the summers of 1965, 1967 and 1968 in about 80 pre-selected areas throughout the whole country. An effort was made to collect all lichen species in each area. Identification of these collections, morphological and anatomical descriptions of all the species, distribution maps, and chemical investigation of the lichen substances have been main aspects of the study made at Duke University since the fall of 1967. At present 13 genera with 85 species have been treated, including 6 species new to the country. The work is being supervised by Dr. W. L. Culberson, Associate Professor of Botany at Duke, a specialist in lichen taxonomy; the chemical part is supervised by his wife Dr. C. F. Culberson, a specialist in lichen chemistry.

II. SUCCESSIONAL STAGES OF PLANT COLONIZATION ON RECENT LAVA FLOWS IN ICELAND

Permanent quadrates were established and vegetational analyses were made to study lichen and bryophyte colonization of the lava field of the Hekla eruption of 1947. This research is

being planned and performed in cooperation with Bergþór Jóhannsson mag. scient., Museum of Natural History, Reykjavík, who is presently working on the moss flora of Iceland. In the summer of 1968 about 20 species each of lichens and bryophytes were recorded in the lava field, but no vascular plants have been found there so far. Unfortunately no botanical investigations were made until 18 years after the eruption, so that the first stages were missed.

In the lava field from the Askja eruption of 1961, situated in the northern part of the Central Highlands at an elevation of 900–1000 m, some young moss plants were observed in pores on the rock surface formed by air bubbles in the molten lava. No lichens were detected there, although they are plentiful in the older surrounding lava fields.

III. LICHEN COLONIZATION ON SURTSEY

Surtsey was visited in the summers of 1965, 1967 and 1968. Several different habitats were searched for initial stages of lichens and samples were taken for microscopical study. The results have been negative so far; no lichens have yet been encountered on the island. Samples were taken from the vertical and horizontal surface of lava blocks, and from the tops of projecting lava peaks, some of which are frequently visited by birds. Other samples were taken from the manured bird cliffs along the shore and from marine rocks, some of which have already been colonized by green algae.

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