

BOTANICAL INVESTIGATIONS IN SOUTHWEST GREENLAND, 1946

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FOUR Danish botanists took part in the Botanical Expedition to West Greenland in the summer of 1946. Morten Lange was the mycologist, M. Skytte Christiansen the lichenologist, Kjeld Holmen the bryologist, and the writer was responsible for collecting vascular plants and fresh water algae and for making analyses of the vegetation and measurements of the environmental factors.

The expenses of the expedition were paid by the Carlsberg Foundation and further assistance was given by the Royal Danish Navy and the Grønlands Styrelse. The American authorities at the Bluie West 8 airbase in Søndre Strømfjord placed a house at our disposal, where we were able to set up a laboratory for microscopic work and handling of the material collected.

Our investigations concentrated on three areas: Arsuq Fjord, Godthaab, and Søndre Strømfjord. At the last place we spent a little over one month, and from our headquarters at the airbase we made several fairly long excursions, such as to the edge of the ice cap and into the Ørkendalen, an extensive valley with desert-like areas of drift sand. The edge of the ice cap is stagnant in this region; no oscillations of any importance have occurred for a long time, and the vegetation extends right up to the lateral moraines and river beds in front of the ice wall (see Figs. 2 and 3, also further details in Böcher 1949 a).

In the Søndre Strømfjord region the main areas studied lay between Iritvdlinguaq, midway along the fjord ($66^{\circ}30'N.$), and the ice front (about $67^{\circ}N.$). Here the climate is continental with desert-like precipitation (a little over 100 mm. annually) and fairly high summer temperatures (about a mean of $10^{\circ}C$ in July in the lowland which has an almost subarctic climate). Considerable deposits of loess are conspicuous, especially on south-

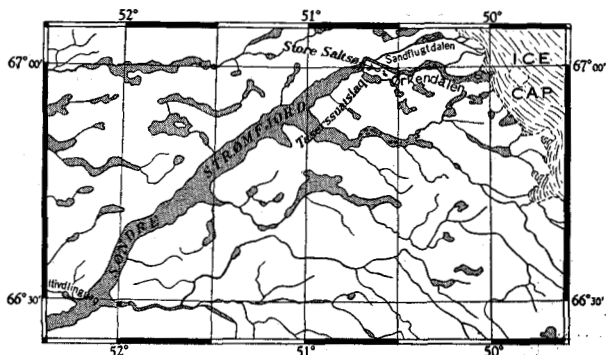


Fig. 1.

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Fig. 2. Members of the expedition leaving the house at the head of Søndre Strømfjord.

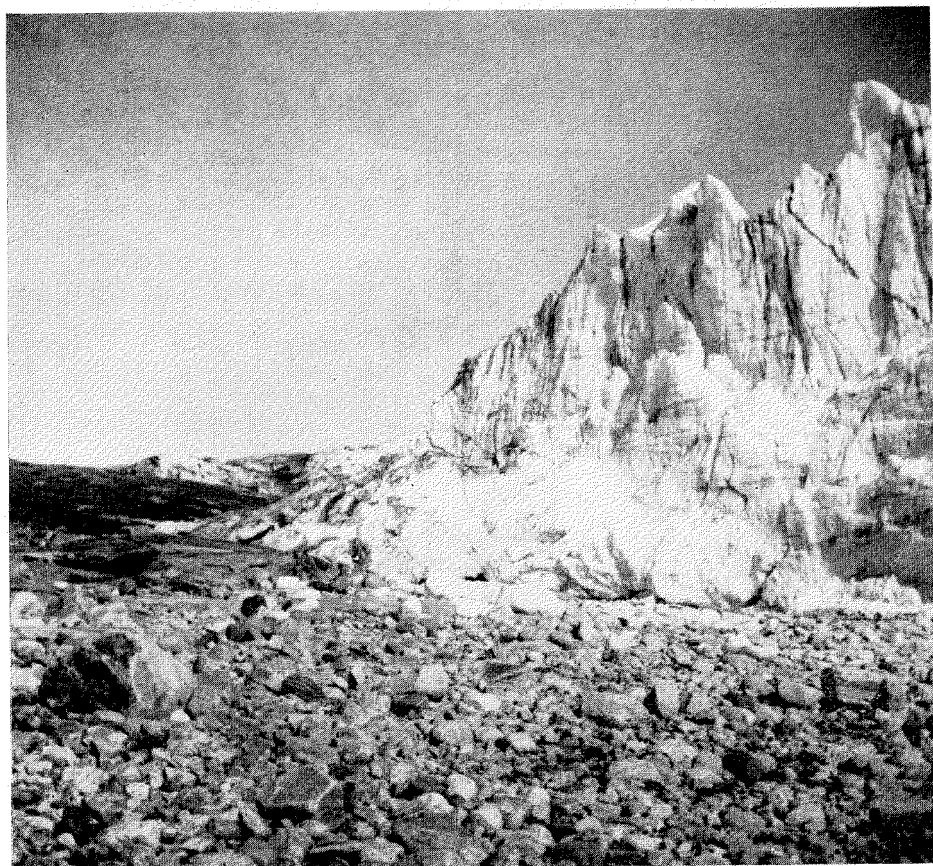


Fig. 3. The edge of the ice cap, about 67°N . In the left background the heath vegetation reaches up to the lateral moraines.



Fig. 4. Large dune formed at the entrance to a small valley leading to the ice cap. In the foreground the low dunes are overgrown by willow.

The water in these is more or less salt and salt crusts on the ground round the lakes are fairly common; the vegetation is strongly affected by the saline, extremely alkaline soil (soil reaction sometimes with a pH of more than 9). One of the salt lakes was particularly interesting. It was surrounded by four clear cut terraces, and on the western side of the lake these consisted of alternating layers of loess and undecayed moss particles of *Drepanocladus aduncus*. The sedimentations are quite large and the terraces show that the climate has gradually become drier. A detailed account of the investigations on the climate and the soil of the region, of the analyses of the water and the salt crust, and of the topographical conditions of the salt lakes has been published (Böcher 1949 b).

Comprehensive vegetation analyses and ecological investigations as well as the greater part of the floristic material have not yet been completed. It can be said though that the flora in the most continental parts of West Greenland differs considerably from that of the coastal mountains.

During the expedition several seed samples were collected and these were later sown in Copenhagen. The plants which appeared as well as some living plants brought back with us were cytologically examined. The material has proved to be very interesting. On the basis of differences in chromosome numbers some species can be further divided. Within the genus *Luzula* a new species can be distinguished which has a deviating number of chromosomes and is morphologically distinct. It occurs in most parts of continental West Greenland and has also been found in Ungava and in Labrador (see Böcher and Larsen 1950; Böcher 1950 b).

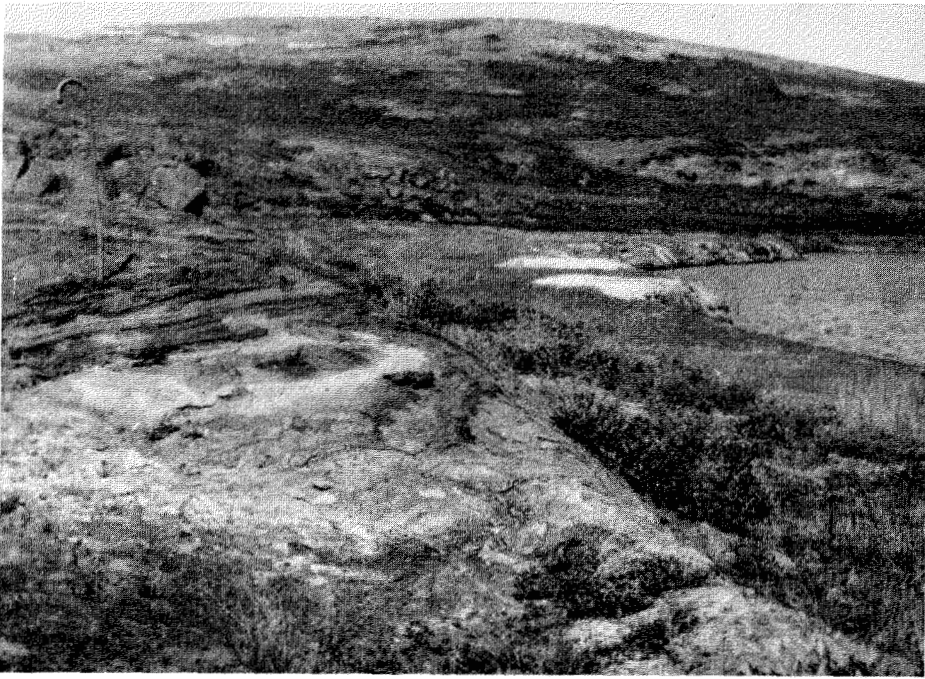


Fig. 5. Støre Saltsø, at the head of Søndre Strømfjord. The lake is surrounded by terraces formed of loess and moss; white salt crusts can be seen on the lowermost terrace.

The finds of *Sisyrinchium montanum* and *Selaginella rupestris* were most interesting as these are both North American species whose northern limits lie just north of Newfoundland (*Sisyrinchium*) or in Nova Scotia (*Selaginella*). The occurrence of these species in Greenland has been dealt with in another paper (Böcher 1948). The many collections of *Cryptogamia* have not been finally worked up. Morten Lange has published a paper on the Gasteromycetes (1948) and the writer has described some freshwater algae collected in Arsuq Fjord (Ivigut), which proved to contain a number of hitherto unknown species (Böcher 1950 a).

All the material collected belongs to the Botanical Museum of Copenhagen, and the results are published in the *Meddelelser om Grønland*.

REFERENCES

- Böcher, T. W. 1949 a. "The Botanical Expedition to West Greenland 1946". *Medd. om Grøn.* Vol. 147, No. 1, pp. 1-28.
- Böcher, T. W. 1949 b. "Climate, soil, and lakes in continental West Greenland in relation to plant life". *Medd. om Grøn.* Vol. 147, No. 2, pp. 1-64.
- Böcher, T. W. 1948. "Contributions to the flora and plant geography of West Greenland: I *Selaginella rupestris* and *Sisyrinchium montanum*". *Medd. om Grøn.* Vol. 147, No. 3, pp. 1-26.
- Lange, M. 1948. "Macromycetes: Part I, The Gasteromycetes of Greenland". *Medd. om Grøn.* Vol. 147, No. 4, pp. 1-32.
- Böcher, T. W. 1950 a. "Structure and biology of four species of the *Stigonemataceae* from a shallow pool at Ivigut". *Medd. om Grøn.* Vol. 147, No. 5, pp. 1-20.
- Böcher, T. W. 1950 b. "Contributions to the flora and plant geography of West Greenland: II The *Carex capitata*-, the *Luzula multiflora*-, and the *Torularia humilis*-complexes. *Medd. om Grøn.* Vol. 147, No. 7, pp. 1-40.
- Böcher, T. W. and K. Larsen. 1950. "Chromosome numbers of some arctic or boreal flowering plants". *Medd. om Grøn.* Vol. 147, No. 6, pp. 1-32.