# Mosses and the Iceman

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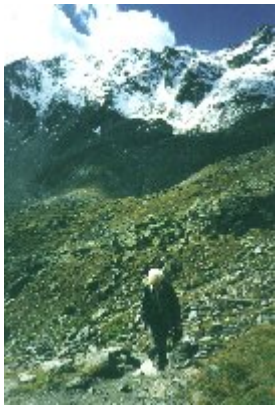
## Introduction

The Tyrolean Iceman lived about 5,300 years ago. His very well preserved body and gear melted out of the ice in September 1991. Since then numerous scientific studies have taken place concerning this unexpected discovery which in the great antiquity and complete set of everyday clothing and equipment is totally unparalleled. Small scraps of mosses and liverworts were washed from his clothes and from the mineral sediments in the hollow where the mummy was found.

## Homeland

Was the Iceman's homeland to the south of the death site or to the north? The evidence presented there strongly suggests the south. The moss *Neckera complanata* is a shade-loving, low to moderate altitude species that often grows on base-rich rock in woodland. The only moss found as a large mass, it was carried by the Iceman for some unknown purpose. On the reasonable assumption that the ecological requirements and present distribution pattern of this moss would have been no different 5,000 years ago, it is more likely to have been gathered from the low ground across easy terrain only 10-20km to the south rather than from 30-50km to the north across very high, difficult terrain.

Table 1. shows the remains of mosses and liverworts recovered from the clothes and from the mineral sediments in the hollow.



View of the Otztal Alps on the Italian side.

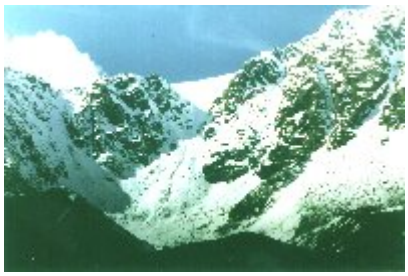
The Iceman as he may have looked fully dressed (Egg *et al.* 1992)

The mummified body of the Tyrolean Iceman

View of the Otztal Alps on the Italian side.

Jim Dickson and Klaus Oeggl of Innsbruck University (right) at the site, just inside Italy, high in th Otzal Alps (3210m a.s.l, c. 10,500 feet) in early july 1994.

A typical sieved and picked out sample of mosses (sample 92/264). The pieces are mostly a few mm long or less.



View of the Otztal Alps on the Italian side.

The leaf of *Antitrichia curtipendula*

A mass of *Neckera complanata* which came from "Grass, pieces of leather or hide (upper body clothing and leggings)" (sample 91/124). The stems are up to 6cm long.

A single leaf of *Neckera complata* about 0.6mm long from the Iceman's colon.

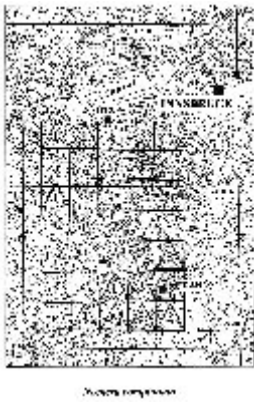
A leafy stem apex of *Hydrogrimmia mollis*.

Leafy stem of *Leucodon sciuroides*.

The single bud of *Sphagnum cf. teres*.

The single leafy stem of liverwort *Diplophyllum taxifolium*.

A single leafy stem of liverwort *Marsupella revoluta*



Map showing the present distribution of *Neckera complanata* in relation to the site. The red spot marks the death site.

## Further Work

Research on the moss and liverwort remains from the mineral sediments is still continuing: such work will allow deductions about the past vegetation within the catchment and also about the macroclimate.

## References

Dickson, J.H. 1997. Journal of Bryology 19, 449-451.
Dickson, J.H., Bortenschlager, S., Oeggl, K., Porley, R and McMullen, A. Mosses and the Tylolean Iceman's southern provenance. 1996. Proceedings of the Royal Society of London B 263, 567-571.
Egg, M., Goedecker-Ciolek, R., Groenman-van Wasteringe, W. *et al.* Die Gletschermumie vom ende der steinzeit aus den Otzaler Alpen. 1993. Jahrbuch des Romisch-Germanisches Zentralmuseums 39, 1-128.