

As Drewry sees it:

UBGLACIAL EDROCK FAILURE HAP

SUBGLACIAL WEAR (CHAP 4)

Abrasion

By Pure Ice

Simple Model - one point

What is known?

Boulton and Hallet

Abrasion by Cold Ice

SUBGLACIAL WATER ACTIVITY (CHAP 5)

Mechanical

Abrasion

Cavitation

Chemical

Dissolution

GLACIAL EROSION RATES (CHAP 6)

Measure the products (fig. 4)

Other Estimates

EROSION TO DEPOSITION (FIG. 2)

THE RESULTS OF GLACIAL EROSION

GRAIN - SIZE DISTRIBUTION

Case Study- Haldorsen (1981)

Lab experiment (Fig 3)

Field samples

LANDFORMS - SLIDE SHOW

Small Scale

Large Scale

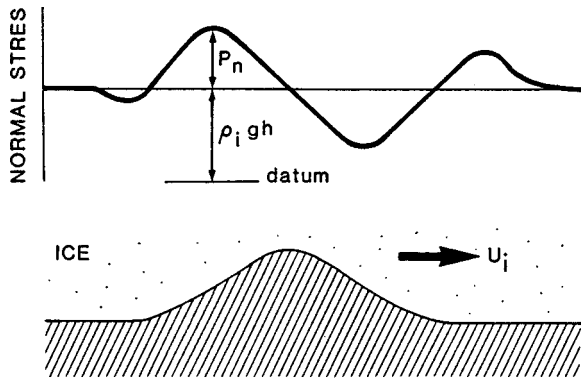


Figure 1. Distribution of normal stress over a bed undulation under sliding conditions (after Boulton, 1974).

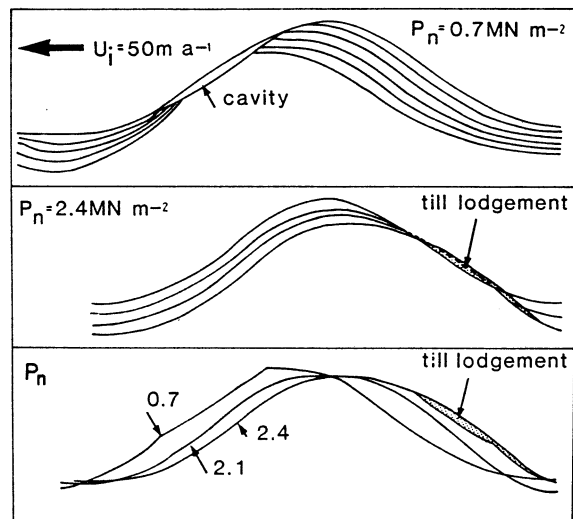


Figure 2. Abrasion of a sinusoidal undulation as a function of effective normal stress according to Boulton theory. Low normal stresses generate a downglacier asymmetric profile with the production of stepped forms and with an associated basin on the downglacier flank. High normal stresses induce lodgement of till (see Chapter 9) on the upglacier side and an upglacier asymmetry is produced (after Boulton, 1974).

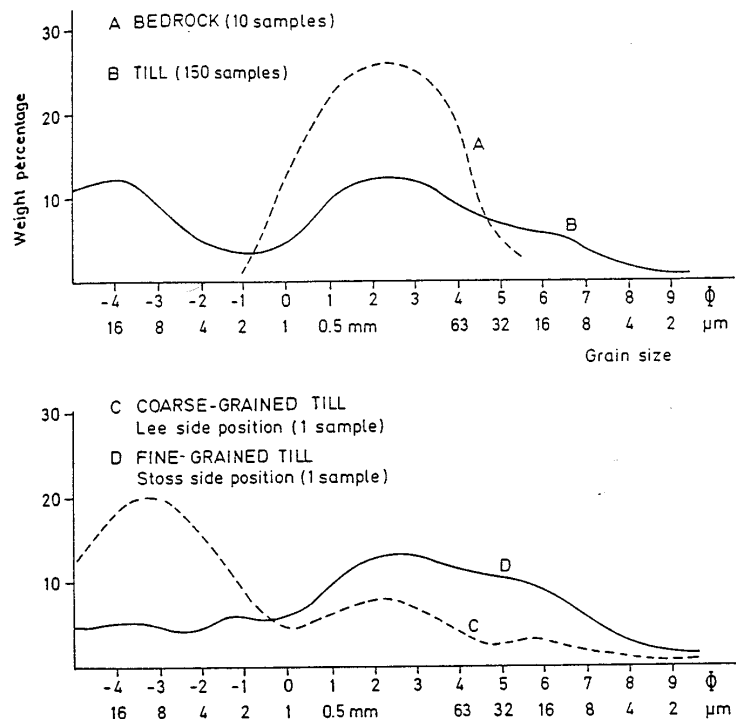


Figure 3. Grain-size distribution per Phi-interval of bedrock and till samples.

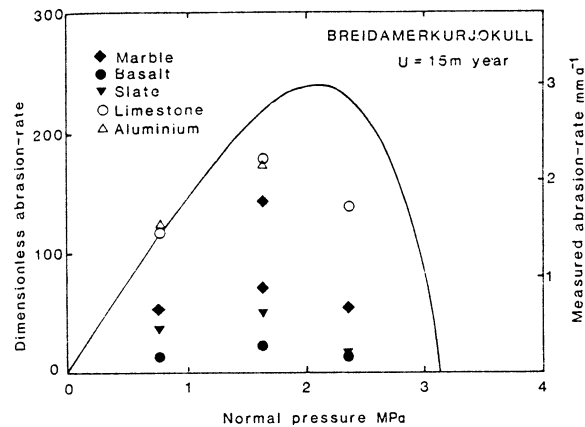


Figure 4. Measured abrasion rates at three experimental locations beneath Breidamerkurjokuli, Iceland. Platens of different material characteristics were used (see key) and of the following hardnesses: marble = 450-510 kg mm⁻²; basalt = 865-905 kg mm⁻²; slate = 605-660 kg mm⁻²; limestone = 180-215 kg mm⁻²; aluminium = 50-60 kg mm⁻². Abrasion rate predicted by Boulton theory is shown as the solid line (after Boulton, 1979).