



The formation of drumlins

A.C. Fowler (1) and **Heike Gramberg** (1)

(1) Mathematical Institute, Oxford University

The instability theory of drumlins predicts growing travelling waves of appropriate wavelength, but appears to be compromised by observations of stratified drumlin cores, indicating that the drumlins grew in place. We suggest a mechanism whereby this can occur, which also predicts a typical drumlin amplitude of tens of metres. The increasing effective pressure as the drumlins grow causes locking of the till and the formation of a cap, following which the drumlins are locked in place, and carve their way down into pre-existing sediments.