Enquiry 6: Drumlin swarm survey

Aim: To investigate whether the drumlins within a swarm have similar physical characteristics.

Research questions

1. Do these drumlins have similar length:width ratios?
2. Do they have similar heights and slope gradients?
3. Do they have similar orientations?

Geographical context

Drumlins are a common feature of glacial deposition. Although their formation is not yet fully understood, it is accepted that their more gently-sloping ends point in the direction of the ice flow which formed them. They consist of boulder clay, a type of glacial till, and occur in clusters called 'swarms'. Their low, rounded, almost streamlined outlines give these clusters a kind of basket-of-eggs appearance. Their gentle gradients and clay soils make them ideal for grazing cattle and sheep. Many have farm buildings on their crowns (summits), to avoid the marshy lower land around them.

Location identification techniques

- A map to locate the drumlin swarm within its local region and to identify that region's main relief and drainage features.
- Ordnance Survey 1:25 000 map(s) indicating the extent of the chosen drumlin swarm. OS maps of this scale often show the spot heights of drumlins and contours at 10 m intervals indicate their individual size and shape.

Main health and safety issues

- Avoid contact with farm animals – and their waste!
- Be careful of slipping on marshy, clay surfaces.
- Know where your teachers and their transport are located.
- Always carry a reliable mobile phone in case of emergencies.

Data collection activities

- Taking photographs of individual drumlins and long-distance views of the whole swarm, both from various angles.
- Obtaining oblique-aerial images of the drumlin swarm.
- Making annotated sketches of selected drumlins.
- Measuring the length and width of individual drumlins.
- Measuring the gradients of the steeper (stoss) end and more gently-sloping (lee) end of individual drumlins.

Data collection resources required

- Camera, clipboard, wet-weather protection for clipboard.
- Tape measure, ranging poles, clinometer, compass.

Suggested sources of secondary data

- Ordnance Survey 1:25 000 scale map(s).
- Internet sites on drumlin formation and swarm locations within the UK.

Recommended data presentation and analysis

- Map to locate the swarm within its region's relief context.
- Tables to provide the data collected on each drumlin.
- Scatter graphs/best-fit lines to investigate correlations between data sets.