# Bone advice

Our ability to radiocarbon date bone and other collagen containing samples such as antler, horn, and teeth (dentine) depends upon the preservation of the protein component of the bones (mostly collagen). The preservation depends largely on the burial conditions (soil acidity, temperature, moisture etc.).

We remove the mineral component of the bones because it is not reliable for dating. We then purify the remaining material to concentrate the collagen and remove as much soil contamination as possible. A collagen yield of less than 1% means that the sample was not well preserved and is unacceptable for dating purposes. The sample will not proceed to the final AMS stages.

To maximise the likelihood of getting reliable radiocarbon ages from your bone samples here are some suggestions based on our experience:

- Always send clean and dry bone samples. Damp samples may contain modern mould growth.
- Avoid porous bones (cancellous tissue) as these are low in collagen and more likely to contain contaminants. We can remove these from otherwise hard bones.
- For teeth the dentine that is most reliable for dating as the enamel exchanges carbon with the environment. The tooth root (which is dentine) may have better collagen preservation if it was protected for some time in the bone. Dentine also has a high initial collagen content.
- Hard, dense bones (difficult to break by hand) usually contain sufficient collagen for dating.
- Medium hard bones (bones easily broken by hand) may contain sufficient collagen for dating.
- Bone fragments which are 'powdery' or 'chalky' and friable normally will not contain sufficient collagen for dating.
- Bone fragments which appear to be in the final stages of decomposition at time of excavation will not contain sufficient collagen for dating.
- Bones that have been cooked for long periods (especially boiled) may not contain sufficient collagen for dating.