RADIOCARBON DATING OF A RAISED BEACH AT 10 m IN THE SOUTH SHETLAND ISLANDS

By J. D. HANSOM*

ABSTRACT. Recently dated organic remains from the South Shetland Islands extend the absolute chronology for this area after deglaciation.

MATERIALS taken from beach shingle at a height of *c.* 10 m above sea-level, in the South Shetland Islands, have yielded radiocarbon dates which help date the area's glacial chronology.

Collagen isolated from fragments taken from whale vertebrae found embedded in raised shingle at two separate sites on the south coast of Byers Peninsula, Livingston Island, gave the following dates:

Site A. 10.3 m raised beach shingle; sample embedded *in situ* to a depth of 0.3 m.
SRR-1086. 2 823 ± 40 years B.P.

Site B. 10.13 m raised beach shingle; sample embedded *in situ* to a depth of 0.4 m.
SRR-1087. 3 121 ± 35 years B.P.

Using a correction factor of 650 to 850 years to adjust for ^{14}C deficiency in Antarctic waters (Olsen and Broecker, 1961), the proposed age of the "10 m" beach is *c.* 2 100–2 400 years B.P.

The beach at 10 m is one of a series of raised beaches which occur up to an altitude of 54 m and accompanied the last major phase of deglaciation in the South Shetland Islands (John and Sugden, 1971; Sugden and John, 1973). So far, few absolute dates exist which can be used to date the raised beaches. One radiocarbon date on marine molluscs suggests that deglaciation was well advanced, approximating to present conditions, by 9 700 years B.P. So far, no datable deposits have been found associated with beaches higher than 5–7.5 m a.s.l. However, the prominent beach at the latter altitude has been dated at 500–700 years B.P., while lower beaches at 3 m are dated at 300 years B.P.

The significance of the two dates of 2 100 and 2 400 years B.P. is that:

i. They are the highest organic remains yet found in raised beaches and they represent the highest dated raised beach in the South Shetland Islands.

ii. They agree well with and extend the tentative absolute chronology so far established for this area.

iii. They relate to the collagen fraction of the bones and thus are both reliable (Broecker, 1965) and comparable with previous dates from this area.

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* Department of Geography, University of Aberdeen, Aberdeen AB9 2UF, Scotland.

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