

*The University of Waikato*  
*Radiocarbon Dating Laboratory*



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Head: Dr Alan Hogg

**Report on Radiocarbon Age Determination for Wk- 14016**

( AMS measurement by [NZA-18839] )

<b>Submitter</b>	JP Mower
<b>Submitter's Code</b>	Soil KI03, context 303
<b>Site &amp; Location</b>	Kame of Isbister, Shetland islands, UK, United Kingdom
<b>Sample Material</b>	Charcoal from soil organics
<b>Physical Pretreatment</b>	Possible contaminants were removed. Washed in ultrasonic bath.
<b>Chemical Pretreatment</b>	Sample washed in hot 10% HCl, rinsed and treated with hot 1% NaOH. The NaOH insoluble fraction was treated with hot 10% HCl, filtered, rinsed and dried.

$\delta^{14}\text{C}$	$-135.4 \pm 4.3$	$\text{‰}$
$\delta^{13}\text{C}$	$-28.6 \pm 0.2$	$\text{‰}$
$\text{D}^{14}\text{C}$	$-132.2 \pm 4.8$	$\text{‰}$
% Modern	$86.8 \pm 0.5$	%
<b>Result</b>	<b>1139 <math>\pm</math> 44 BP</b>	

**Comments**

23/12/03

- Result is *Conventional Age or % Modern* as per Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier of 1.
- The isotopic fractionation,  $\delta^{13}\text{C}$ , is expressed as  $\text{‰}$  wrt PDB.
- Results are reported as *% Modern* when the conventional age is younger than 200 yr BP.

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**Report on Radiocarbon Age Determination for Wk- 14017**

( AMS measurement by [NZA-18840] )

**Submitter** JP Mower  
**Submitter's Code** CUCV03, context 302  
**Site & Location** Culzean Castle Caves, Culzean, Scotland, United Kingdom  
**Sample Material** Bone  
**Physical Pretreatment** Sample was cleaned, ground and visible contaminants were removed.  
**Chemical Pretreatment** Sample was decalcified in 2% HCl, rinsed and dried. Then gelatinised at pH=3 with HCl at 90 degrees for 4 hours. Rinsed and dried.

$\delta^{14}\text{C}$	$-123.8 \pm 4.1$	$\text{‰}$
$\delta^{13}\text{C}$	$-21.3 \pm 0.2$	$\text{‰}$
$\text{D}^{14}\text{C}$	$-133.3 \pm 4.5$	$\text{‰}$
% Modern	$86.7 \pm 0.5$	%
<b>Result</b>	<b>1149 <math>\pm</math> 42 BP</b>	

**Comments**

23/12/03

- Result is *Conventional Age or % Modern* as per Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier of 1.
- The isotopic fractionation,  $\delta^{13}\text{C}$ , is expressed as  $\text{‰}$  wrt PDB.
- Results are reported as *% Modern* when the conventional age is younger than 200 yr BP.

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**Report on Radiocarbon Age Determination for Wk- 14018**

( AMS measurement by [NZA-18841] )

**Submitter** JP Mower  
**Submitter's Code** LB03, Grave 5, cliff  
**Site & Location** Longoar Bay, Pembrokeshire, UK, United Kingdom  
**Sample Material** Bone  
**Physical Pretreatment** Sample was cleaned, ground and visible contaminants were removed.  
**Chemical Pretreatment** Sample was decalcified in 2% HCl, rinsed and dried. Then gelatinised at pH=3 with HCl at 90 degrees for 4 hours. Rinsed and dried.

$\delta^{14}\text{C}$	$-135.6 \pm 4.0$	$\text{‰}$
$\delta^{13}\text{C}$	$-20.6 \pm 0.2$	$\text{‰}$
$\text{D}^{14}\text{C}$	$-146.2 \pm 4.5$	$\text{‰}$
% Modern	$85.4 \pm 0.4$	%
<b>Result</b>	<b>1270 <math>\pm</math> 42 BP</b>	

**Comments**

23/12/03

- Result is *Conventional Age or % Modern* as per Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier of 1.
- The isotopic fractionation,  $\delta^{13}\text{C}$ , is expressed as  $\text{‰}$  wrt PDB.
- Results are reported as *% Modern* when the conventional age is younger than 200 yr BP.