

A MEGALITHIC LUNAR OBSERVATORY IN ISLAY

While in Islay, an island of the Inner Hebrides, at the invitation of the Islay Historical Works Group, my daughter Mrs B. Austin and I surveyed the site at Ballinaby on the west coast. Here there are two menhirs, one of which is a tall slender stone, said to be 18 ft high. At the base it is roughly 3 ft by 9 in and so the ratio of height to thickness is exceptionally high. A stone of this height immediately suggests a lunar site, and when we saw that the long sides point accurately to a likely looking notch, we felt we had to measure the profile accurately. A second visit had to be made to get the Sun in the evening, the ideal time for accurate azimuth determination.

The measured points on the profile in the figure are from eye level and are considered to be correct to ± 0.3 . With mean parallax $57'0$ the declination of the point *B* is found to be $29^\circ 17'7$ and so, deducting mean semidiameter, the Moon's declination becomes $29^\circ 02'2$. Similarly dealing with the point *C* we obtain $29^\circ 26'6$ less $15'5$, that is $29^\circ 11'1$. Assuming this to be the extreme north position $\epsilon + i + \Delta$ where ϵ is the obliquity of the ecliptic, and taking the mean perturbation Δ to be $8'7$, we obtain $\epsilon + i = 29^\circ 02'4$, or only $0'2$ different from that found at *B*.

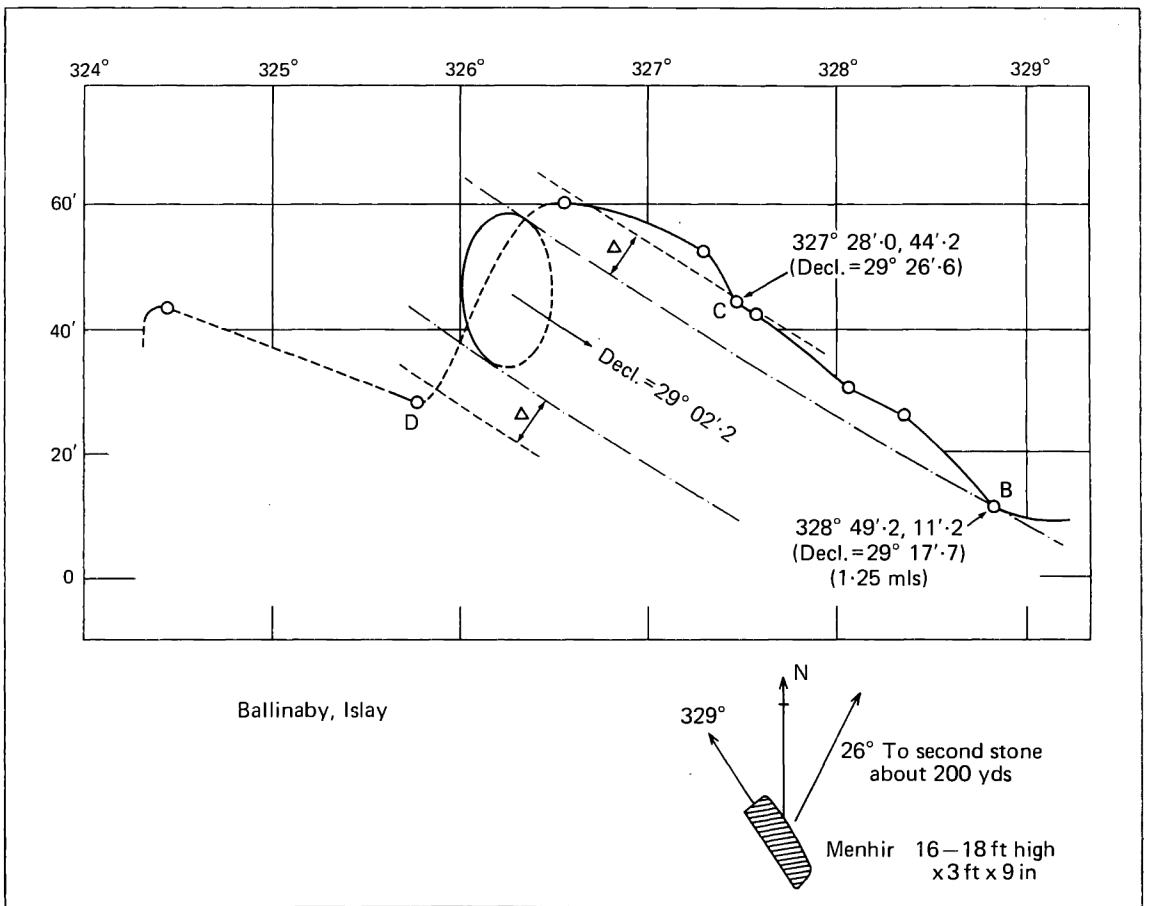


FIG. 1. Measured profile of the foresight as seen from Ballinaby, Islay ($55^\circ 49'0$, $6^\circ 26'3$); Moon setting with extreme declination $29^\circ 02'2 \pm 0'5$.

The erectors were lucky to find a profile which gave two desired points. It is too much to expect that they found a third point near *D*, which seems to be 2' too low.

Unfortunately the low altitude of *B* makes the correction for refraction, which we took to be 32'·2, uncertain by perhaps $\pm 0'·5$. However, accepting the above value of $\epsilon + i$ and deducting the inclination of the lunar orbit ($i = 5^{\circ} 08'·7$), we find $23^{\circ} 53'·5$ for ϵ , corresponding to the value in 1650 B.C. ± 70 years.

It is explained fully in paragraph 7.5 of my *Megalithic lunar observatories* (Oxford, 1967) that there is a peculiar difficulty about the value of parallax to be used, and only if we are sure that the observations, made to establish the position of the menhir, extended over a period of 50 to 100 years can we accept 1650 B.C. as being the mean date. Nevertheless it is interesting to compare the dates similarly found at other sites:

Islay	1650 B.C.	This note
Temple Wood	1770	<i>Megalithic lunar observatories</i> , 47
Forty sites, mostly in Scotland	1650	<i>Megalithic lunar observatories</i> , ch. 7
Carnac	1700	<i>JHA</i> , ii (1971), 159
Solar line, Caithness	1580	<i>JHA</i> , iv (1973), 120
Solar lines, Argyllshire	1750	<i>Megalithic lunar observatories</i> , ch. 4

At Ballinaby there is no possibility of mistaking the foresight. There is ample room for movement when observing, but we do not yet know if the line of movement was directed towards the second stone or if the actual line of the stones indicated a hilltop in Ireland that might have shown $-(\epsilon + i)$. This would make the site resemble Mid Clyth, Temple Wood and Dirlot where the foresights for the south declinations are far away and those for the north declination are comparatively near.

Our thanks are due to Mr Gilbert Clark and Mr Patrick Roy for assistance here and elsewhere in Islay.

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