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The Pleiades

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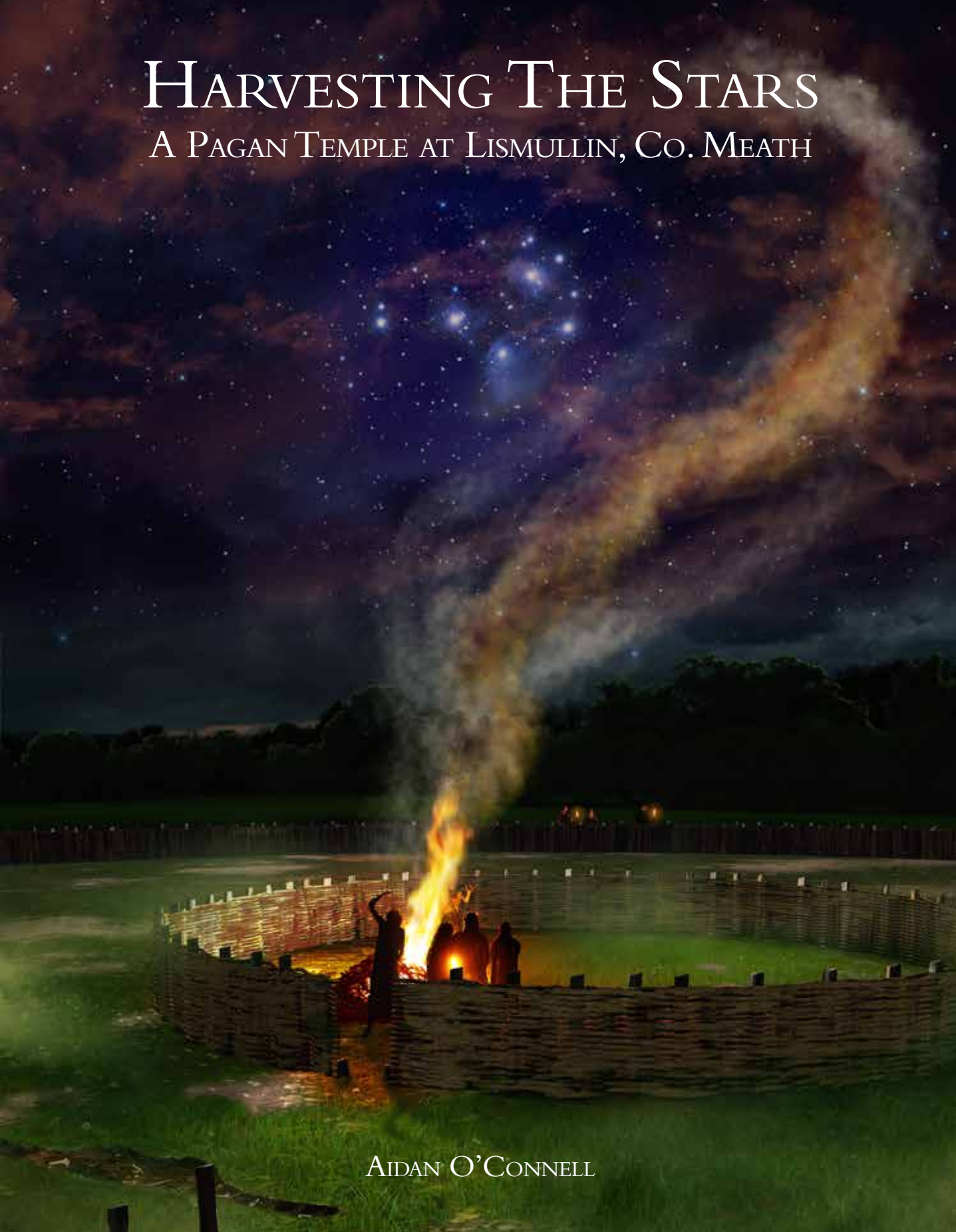
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HARVESTING THE STARS

A PAGAN TEMPLE AT LISMULLIN, CO. MEATH



AIDAN O'CONNELL

Harvesting the Stars

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A pagan temple at Lismullin, Co. Meath

Aidan O'Connell

with contributions by

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Front cover—An imaginative reconstruction of the Lismullin 'temple' with the Pleiades star cluster overhead, by the artist Phil McDarby.

Back cover—Copper-alloy ring-headed pin found at Lismullin, with post-excavation plan of post-enclosure in background (Photo: John Sunderland).

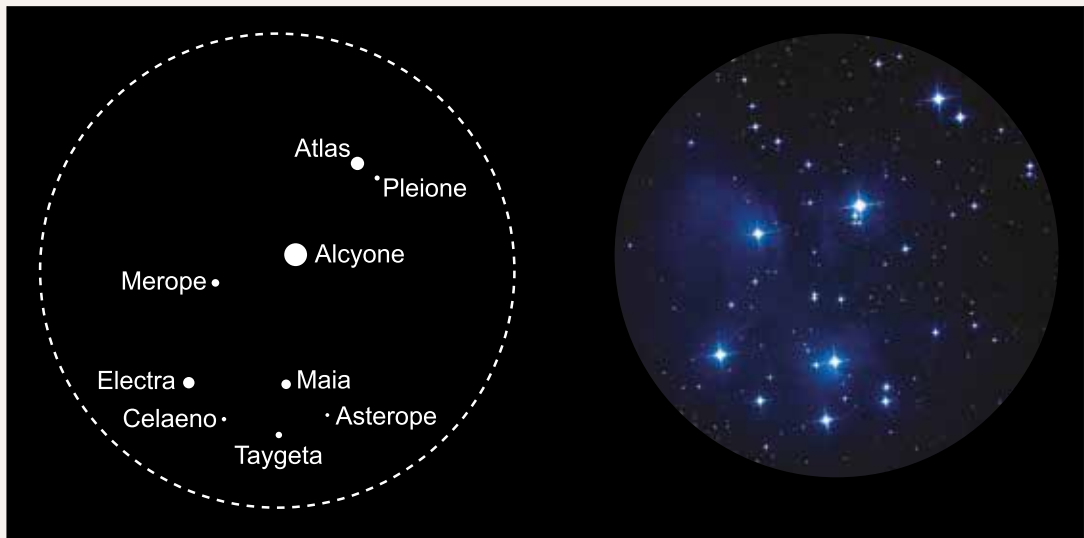
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The Pleiades

Frank Prendergast

The Pleiades is a visually distinctive grouping of stars also known as the ‘Seven Sisters’. In the mythology of ancient Greece, the seven sisters (Alcyone, Electra, Maia, Merope, Taygeta, Celaeno and Asterope) were the daughters of Atlas (the primordial Titan) and his wife Pleione. All nine stars, including Atlas and Pleione, thus complete the visible cluster (Illus. 4.12, left). They are easily located in the winter sky by using the three prominent and almost co-linear stars of the so-called belt in the constellation—Orion—as a pointer. The cluster lies above, and on the alignment of the belt, and Sirius lies below it. The diameter of the circle shown in Illus. 4.12 (left) is 100 arc minutes which is about three times the apparent size of the moon.



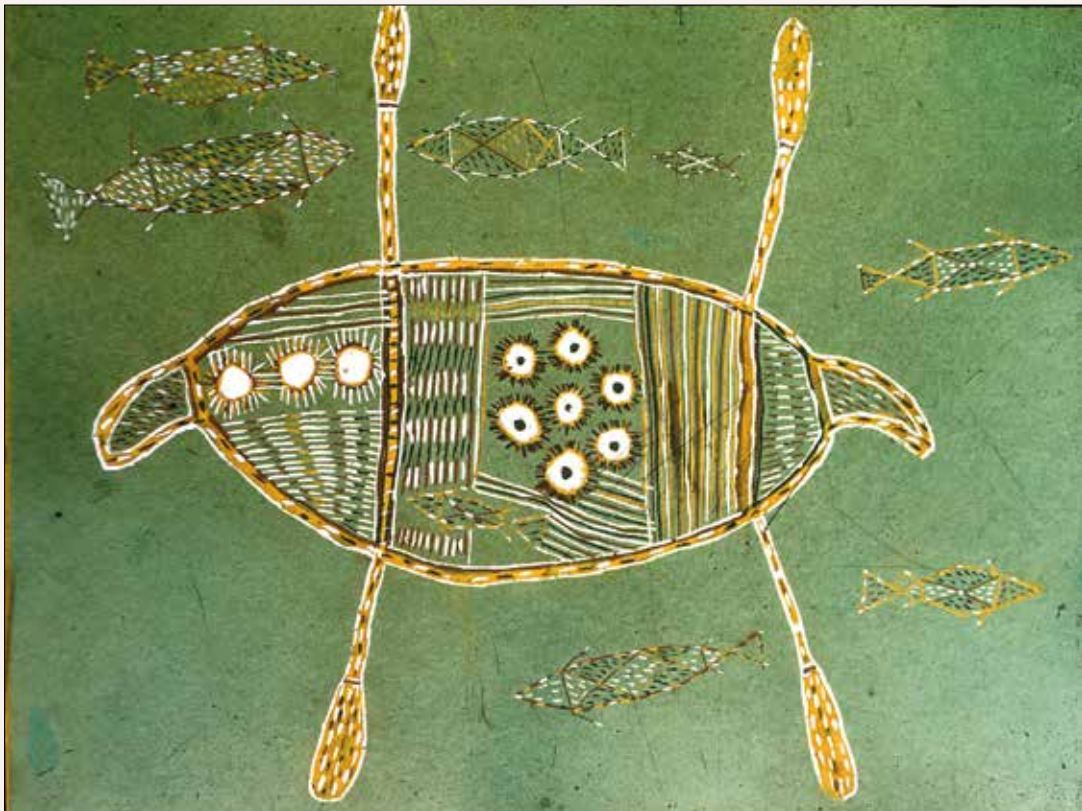
Illus. 4.12—The Pleiades star cluster: the principal stars of the cluster (left) (Frank Prendergast); an enhanced magnified image of the cluster (right) (courtesy Robert Gendler ©).

In an astronomical sense, there can be some confusion between clusters and constellations. Constellations named in ancient times were patterns of stars perceived by humans and intended to represent mythological gods, animals or monsters as celestial stick-like figures. Different cultures recognised different patterns in the heavens and, as such, we now require ethnographical or other evidence to interpret their meaning and cultural significance. Clusters, on the other hand, are roughly circular groupings of stars, noticeable through their apparent density and degree of separation from other surrounding but fainter stars (Illus. 4.12, right). These are few in number, obvious and unique. The Hyades and Beehive clusters are the only other examples that are visible to the naked eye. These characteristics would have made them conspicuous and thus significant to sky-watchers throughout the world.

The individual stars of the Pleiades are sized by their relative brightness. This is measured in an astronomical scale of magnitude (logarithmic), where a larger number indicates a fainter

object. The most prominent star in the cluster is Alcyone (magnitude +2.9) while Asterope (magnitude +5.8) is 7.3 times fainter. This is at the limit of what can be resolved by the human eye, situated in a standard state of atmospheric transparency free from the effects of artificial light pollution. For comparison, a full moon (magnitude -12.9) is 40 times brighter than Alcyone while Sirius (magnitude -1.4), the brightest star in the heavens, is 11 times brighter.

The prominence of this particular star cluster in the sky, as well as its recurring seasonal reappearance, has brought the Pleiades to the attention of many cultures in more recent times, as well as in the prehistoric past. In one example of a bark painting (Illus. 4.13) by an unknown indigenous Australian artist, the Pleiades and the three stars in Orion that act as pointers to it are depicted in the composition. These are coloured white and placed inside a boat shown against a dark background that represents the sky. In the oral tradition of indigenous Australians (known as ‘The Dreaming’), these two star patterns are linked with human voyages.



Illus. 4.13—Depiction of the Pleiades on a bark painting by an unknown indigenous Australian artist (Mountford-Sheard collection of the State Library of Australia with the permission of the Yirrkala Community).

Many North American Indian tribes are also known to have observed the Pleiades, albeit attaching different meanings and legends according to their tribal group. Roe (1993)

describes numerous traditions and myths connecting the Pleiades, Hyades and Orion with the astronomical knowledge of past civilisations in Mesoamerica and South America. At some temple sites in the Hawaiian Islands, orientation and other contextual evidence shows these were linked with the rising sun and the rising Pleiades (Kirch 2004).

In Europe, cult worship of the goddess Artemis Orthia at a sanctuary temple in Sparta, Greece, from c. 700–400 BC, has been shown to be associated with the heliacal (close to the sun) rising of the Pleiades and clearly demonstrates ‘the role of astronomy in Greek religious practice and perceptions of the cosmos’ at that time (Boutsikas & Ruggles 2011). Oldham (2006) suggests that the passages of some chambered megalithic tombs (*Antas*) in south-central Portugal were aligned on the rising Pleiades. Hoskin (2001, 30–6) has found similar evidence for the alignment of part of the great temple complex of Mnajdra in Malta, which dates to c. 3600 BC. Closer to home, the surveyor and archaeoastronomer Boyle Somerville proposed that the alignment of a megalithic tomb on the Isle of Lewis, Scotland (Somerville 1912; 1923, 202–3) may have been linked with the heliacal rising of the Pleiades. He further discusses the role of that cluster in the agricultural calendar of early Northern European farmers (Somerville 1927, 34). Importantly, the astronomer Krupp (1997, 86) states:

Nothing in the sky is quite like the Pleiades. They are recognized by nearly everyone as something special. Worldwide, they are seasonal heralds and their coming and goings have been used to regulate calendars, festivals, and rituals.

The discovery of a potential link between the Iron Age enclosure at Lismullin and the Pleiades is probably significant and could partly explain the likely ceremonial role of the site.

Age estimates for the construction and use of the enclosure were derived from all three models (Marshall et al., Appendix 1). Ultimately, the overall chronology of the monument, as deduced from each of the three models, was broadly similar. However, Model 1 was the preferred version. It was seen to be more objective than Models 2 and 3, both of which imposed preconceived ideas on the sequence. Details of radiocarbon dating (including calibration and Bayesian modelling of individual radiocarbon dates) are provided in Radiocarbon dates 4.3. Bayesian analysis of all the combined date ranges allowed for a deduction of the overall chronology of the monument and suggested that:

- the inner ring of the outer enclosure was constructed in the period 455–400 BC (68 % probability)
- the outer ring was constructed in the period 415–385 BC (68 % probability)
- the inner enclosure was built in the period 405–365 BC (56 % probability) or 285–265 BC (12 % probability).

Use of the monument was estimated to cease c. 370–330 BC (38 % probability) or 270–220 BC (32 % probability). This suggested duration of use ranged from 45–115 years (36 % probability) or 140–225 years (32 % probability; Marshall et al., Appendix 1).

The fundamental trend suggested by the Bayesian analysis is that the monument’s main structural components were constructed separately, in distinct phases, but over a relatively short period of time