

THE BRÚ NA BOINNE

The Great Passage Cairns and Prehistoric Art of the Boyne Valley

Ireland is uniquely endowed with an incredibly rich inventory of archaeological and historical monuments and especially those from the earlier prehistoric periods.

Sites that date to the Neolithic and Early Bronze Age periods are particularly well represented, most notably in the form of megalithic structures of many kinds. There are also areas in which the tapestry of their daily lives, their habitation sites and field systems survive, from which it can be seen that the later period of the Neolithic, roughly between six and five thousand

years ago, saw enormous developments, culturally and economically, a high point of Ireland's early cultural history.

There is much in the archaeological record to support this view but the main evidence for their being well organized and developed societies inhabiting the land during this time is the great Neolithic passage tomb complex that lies within the area known as the Boyne Valley or Brú na Boinne, Ireland's valley of the gods. For the ancient Irish, this was their most sacred ground.

Pic 1. Newgrange, Ariel View of the Reconstructed Passage Cairn. Photo: Knowth.com





Pic 2. Map of the Boyne Valley.



Pic 3. Distribution of Passage Cairns in Ireland / Passage Cairns with Megalithic Art

There are three principle monuments in this valley, the great passage tombs or passage cairns of Newgrange, Knowth and Dowth, and they sit within an landscape that contains numerous ceremonial structures, many dating to the period prior to the erection of the great passage cairns. The three great passage cairns are the most important prehistoric monuments in Ireland as well as being of great significance in the context of the broader western European megalithic tradition, described by Unesco as a World Heritage Site of 'outstanding universal value'.¹

This anciently revered site is situated in a place where the river forms a sweeping bend and the principle monuments are situated on the plateau overlooking the river valley. The site itself and the prehistoric culture that constructed the monuments here are both known by the name of this river, the Boyne or Boinne, and the name Boyne Culture has become a generic descriptive for the distinctive type of monuments they built and the megalithic art that is found in association with them.

Dates of between 5,300 and 5,500 are currently suggested for the main phase of construction of the great passage cairns but the sites on which they stand show evidence of earlier activity that may pre-date them by hundreds of years. It is as yet unclear when the tradition of building passage cairns began but dates in excess of 7,000 years have been suggested for some closely related structures in the far west, particu-

larly those found in the Sligo area². The great cairns of the Boyne Valley therefore represent the zenith of the megalith building age, the culmination of many hundreds, perhaps thousands of years of this tradition.

There are over 300 Boyne Valley type passage cairns in Ireland, mostly in the northern half but with outliers in the eastern section of the island and as far south as the Limerick – Tipperary border and at least one in the extreme southwest on the island of Cape Clear. There are also many hundreds of uninvestigated and as yet uncategorised cairns across the country, particularly in the mountainous areas, many of which are thought to be of the same tradition.

The main concentrations of passage cairns outside of the Boyne Valley are at Loughcrew, about 40km to the northeast, and in the Sligo area near the northwest coast of the island. The Loughcrew passage cairns are considered contemporary with the Boyne cairns as they contain many stones decorated with megalithic art, while those in the far west are devoid of art and are thought to be older.

The later cairns such as Newgrange are superbly constructed monuments, but the feature which elevates them above all other megalithic monuments is the extraordinary and very refined art that is found in association with them. This Boyne style megalithic art is of a unique style that is exclusive to these particular passage cairns and those

that are thought to be later monuments. While there is a distinct concentration of the later decorated passage cairns in the east and north the distribution of this type of art is actually spread right across the country with the furthest examples being found on the northeastern extremity of the island and at its southwestern extremity on the island of Cape Clear. There are also thirteen passage cairns of the Boyne style in the western coast of Wales with a concentration on the island of Anglesea, three of which have megalithic art.

Passage cairns consist of an internal structure composed of a stone passageway leading to an inner chamber. They are often narrowly built and difficult to access and have been described as artificial representations of caves. The internal passages and chambers are skillfully constructed with large capping stones so that they form something like an elongated line of dolmens, whilst the internal chambers may be covered over with huge slabs of stone or have extremely well constructed 'corbelled' roofing, the most superb example is the central chamber of Newgrange. The passage and chamber was finally covered over with a cairn of stones, which was then enclosed within a circle of closely set boulders or stones known as kerbstones. Almost all of the known passage cairns consist of massive heaps of stone and rock but when Prof George Eogan excavated Knowth the cairn was seen to consist of an alternate layering of different types of earth, clay and rock, laid down with deliberation and forethought³.

The Boyne Valley passage tombs are huge in comparison to the great majority of related passage cairns in the rest of the country. Outside of the Boyne Valley the passage cairns are almost all over 10m diameters but generally less than 30m, whereas the Boyne cairns are all between 80-90m in diameter. Not only are they impressively big but also they are also very complex and skillfully built structures, the most refined megalithic architecture of that remote age. The great project on the bend

of the Boyne must have been known about over a very large area since the stones of which they are composed have been shown to come from a variety of locations quite some distance from the site. There is very little naturally available rock and no quarries they might have used in the immediate area so few, if any, would have been found locally.

The stones of the passages and internal chambers all had to be dragged to the site from some unknown distance away and the kerbstone ring, composed of stones of many tons, were mostly sourced from 60 to 100km away. The massive amount of quartz for the exterior of Newgrange and Knowth came from the Wicklow Mountains about 60km to the south, and the granite cobbles now dotted into the impossibly vertical quartz facade of Newgrange, are all sourced from the storm beaches of Clogger Head 25km to the east. The cairn that covered all this constitutes a massive heap of stones coming from distances as yet unidentified. But many different types of stone were used in the construction of the great cairns, too many to be able to identify the original source for all of them, so it is possible that many may have come much greater distances.

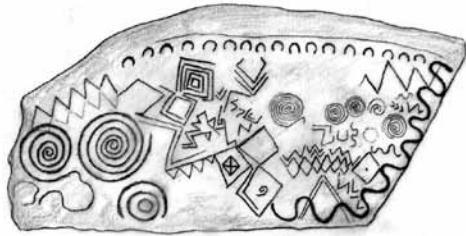
The amount of work required to construct the great cairns of the Boyne Valley is quite astounding and testifies to a large and well organised society. The Neolithic appears to have been a very peaceful period in Irish history for virtually everything that remains from that time suggests an overriding emphasis on ceremonial structures and a total lack of fortification or war-like weaponry.

Boyne Culture Megalithic Art

The very refined megalithic art found in the Boyne Valley type monuments is the most extraordinary and mystical aspect of the passage cairns. In its diversity of design and quality there is nothing quite like it anywhere in the world of prehistoric art. It is also distinctly different to the rock art



Pic 4. Kerbstone NW4, Knowth



Pic 5. Knowth, Kerbstone SE2

found carved into bedrock in various parts of the country being much more complex with a range of symbols and motifs far in excess of even the most complex panels of rock art.

Carved stones in the Boyne style are found throughout northern and eastern Ireland but, apart from one very unique example, are virtually absent in the south and west. The three great passage tombs of the Boyne Valley contain a disproportionate number of decorated stones, and are by far

Pic 6. Kerbstone SE6, Knowth

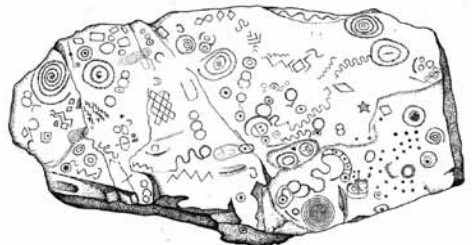


the most impressive. They are also the most well preserved, most having been protected from weathering either as internal structural components or by having been buried by the collapse of the cairns.

Over 80% of all of the megalithic art so far found in Ireland, and the very finest examples, are found within the Boyne Valley. There are 84 panels of megalithic art on the stones in and around the great cairn of Newgrange and it is thought that not all have been discovered. Dowth has somewhat less perhaps not more than about 30, but this cairn has not yet been fully examined and may contain more than is currently known. Knowth, which is a complex site consisting of a main central great cairn surrounded by twenty one smaller cairns, has over 250, about 40% of all the megalithic art in the whole of Europe. Many of the decorated stones of this site were however damaged or broken up during various periods of its long history and George Eogan has estimated that there may have originally been upwards of 300 decorated panels on the site.

Excavation has revealed that some orthostats and kerbstones, have decoration even on their hidden, inner surfaces. Kerbstone K18 on the south side of Newgrange is completely covered with a mass of geometric shapes and symbols, including the most intricate and tightly woven spiral pattern in all of megalithic art. Hidden art panels of comparable complexity were also discovered on some of the kerbstones and orthostats at Knowth. Some art panels can also be seen to continue on into the struc-

Pic 7. Kerbstone K12, Newgrange, Inner Face.



ture hiding the full extent of the art panel which shows that they were carved prior to their erection on the site.

As well as containing the most megalithic art in Europe the Boyne Valley also has the widest range of styles and largest corpus of symbols. The method most used to execute the art is pecking but there are also scratched or etched designs while some panels contain a mixture of pecked art and scratched designs that suggest they were unfinished. Perhaps most importantly there are examples of where the megalithic art appears to relate directly to the astronomical orientation of the monument.

Newgrange And The Astronomical Temples Of The Boyne Valley

Standing on a high ridge overlooking the valley Newgrange holds prime position at the centre of the Boyne Valley area. It is also the most prominently featured of the three great cairns in the mythology relating the sacred valley where it is often referred to as the Bruig or Sidhe of the sun god Aengus, or Oenghus Óg, the first born son of the primary god of the ancient world, the Dagda, the 'good god', the 'all knowing'.

Newgrange is, for many reasons, central to the discussion of the Boyne Culture monuments. Unlike Knowth and Dowth, each

of which had been badly damaged at different times, Newgrange remained virtually untouched during its long history. Local lore about the great cairn was probably one of the main factors that prevented any violation of the monument. The only significant damage occurred in 1699 when the local landowner started removing material from the south side of the cairn for road making material. This however was the beginning of the modern history of the cairn as it fortuitously revealed the hidden entrance, which caused the owner to cease from further work. Since then the only damage has been by the many visitors to the great cairn who removed any remains and artifacts from within the central chamber, and left some 18th century graffiti. When Prof. Michael O'Kelly began excavations in the 1960's he found that, apart from the natural collapse of the cairn over such a huge expanse of time, it was otherwise intact, its decorated stones all in pristine condition ⁴.

Despite the structure having collapsed, hiding the entrance and all of the kerbstones, the place retained something of its importance in the Gaelic traditional lore. Perhaps the large standing stones around the cairn, the remnants of the 'great circle' discussed below, marked the site as special but whatever the reasons it is curious that many votive offering were found in the area outside the entrance, articles from various periods including Roman coins.

Newgrange is an impressive site yet at just over 80m in diameter and about 11m

Pic 8. Newgrange Entrance



Pic 9. Stone Basin, East Recess, Newgrange

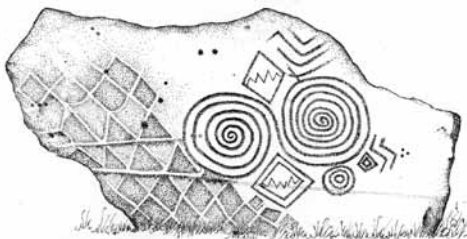


high it is the smallest of the three great cairns in the valley. Knowth is the largest at nearly 90m diameter but slightly less tall, whilst the cairn of Dowth has a diameter of approx 85m and is still over 13m high after being much reduced from its original size by removal of material from the summit during crude invasive digging in the 19th c. To date Newgrange and Knowth have been excavated and are open to the public whilst the third cairn of Dowth remains virtually uninvestigated and its chambers are permanently closed to the public.

At over 5,000 years old, Newgrange is one of the oldest surviving structures on the planet. It has an internal passage about 20 meters long leading to an internal cruciform chamber with three side chambers. This cruciform shape is common to the passage cairns around the country but some have a longer internal chamber with up to six side chambers. Within the three side chambers are large stone bowls, termed basins, and similar basin stones are found in both Knowth and Dowth as well as in some chambered cairns in other parts of the country.

The basin in the right hand recess of Newgrange was originally in the centre of the chamber and placed in its present position sometime in the 1800's. These curious basin stones are always of a substantial size and some so large that it would have been impossible to position them in the cairn after the passages had been constructed. Many are decorated, the basins in Knowth in particular are carved with impressive patterns, while the basins in Newgrange are

Pic 10. Newgrange, Kerbstone K67

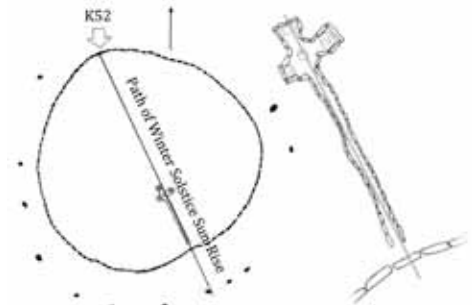


plain except for the one that was originally in the centre of the chamber which has two cup mark impressions. This was placed on top of another larger basin in the right hand recess by earlier, unknown investigators.

Settling of the cairn had pushed the kerbstones outward but that only helped preserve the carvings, and there was only very slight inward settling of a few of the orthostats in the passage. The perfectly constructed chamber with its carefully placed corbel stones, some of which had run off channels cut in them, had kept it completely dry. Newgrange was very skillfully built and obviously meant to last forever.

The outside of Newgrange as it is currently reconstructed displays a tall revetment wall of quartz stones interspersed with water rolled stones. When Michael O'Kelly excavated the site a large amount of quartz appeared below the slippage from the cairn and he presumed it to have been laid up on the cairn in some way. He decided to build the quartz into a tall almost perpendicular wall studded with the water rolled stones that were found interspersed with the collapsed material. This reconstruction has been much criticized and the at later excavation of Knowth, where quartz and water rolled stones were also found around the cairn, Eogan thought that it appeared more likely that they may have been laid like a quartz paving around the cairn, and this is how they are left today on the site.

Pic 11. Newgrange Plan / Internal Passage and Chamber





Pic 12. Entrance and Roofbox, Newgrange



Pic 13. Section View of the Passage and Chamber Showing Path of the Sun Beam

Newgrange is a monument that celebrates the winter solstice sun-rise, its overall plan is oriented in that direction and its passage is regarded as the most accurate solar orientation yet discovered in a megalithic monument. It is constructed in such a way that at the precise moment when the sun rises above the horizon a beam of light enters through a small aperture known as the 'roof box' above the entrance illuminates the cruciform chamber over 22 meters deep within the cairn.

The roofbox is an important feature since it concentrates the beam of sunlight

Pic 14. Triple Spiral, End Recess, Newgrange.



up the passage and combined with the arrangement of the passage stones, which narrows the beam, provides an accurate marker for the solstice. The capping stone of the roofbox is carved with a triangular pattern and O'Kelly noted scratch marks that suggested a stone was inserted and perhaps occasionally removed. Only one other passage cairn in Ireland has been found with a roof box, but many of the passage cairns have been badly damaged and are lacking in the structural components of their original entrances.

A unique feature of Newgrange is that the passage is built on a slight gradient. Both of the passages in the cairn of Knowth are virtually level and this is true of almost every one of the known passage cairns throughout the country. Because of this gradient the sun beam, penetrating in an horizontal line when it appears over the hills to the south, shines straight into the back chamber rather than illuminating the passageway itself.

Stone R21, at the entrance to the chamber, juts into the passage almost interrupting the light beam and is carved with six horizontal grooves.

Precession has caused the sun to change its position on the horizon a small but significant distance so that instead of lighting up the farthest back chamber as it would have when the monument was built it now shines on the stone with the triple spiral engraved on it on the right/east side of the chamber.

Outside of the cairn the entrance to the passage at Newgrange is marked by the large entrance stone with its superb and intricately carved outer surface. This is one of 97 stones that form a close set circle around the cairn that appear to be forming a retaining kerb and as such are termed 'kerbstones'. These are all massive stones each weighing between 2 and 4 tons, 35 of which have been carved with megalithic art. If it were a circle standing alone in its own right it would be an astounding monument yet with the cairn towering above it this



Pic 15. Kerbstone 52, North Side Opposite the Entrance

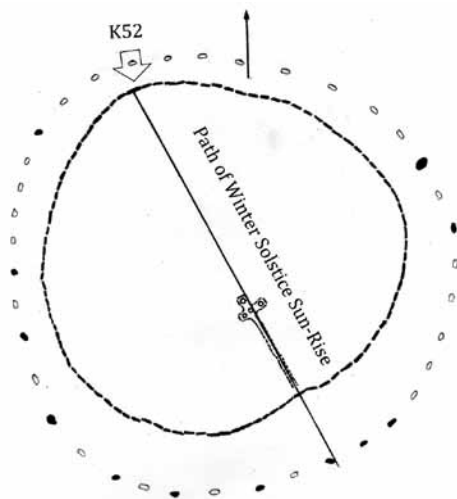
massive circle seems dwarfed and robbed somewhat of its actual grandeur.

Slippage from the cairn actually hid these stones for several millennia until O'Kelly's excavation in the 1960's and even now only the southern side of the monument has been restored in such a way that they are clearly visible. Around the rest of the cairn they have been exposed but sit within a ditch carved out of the cairn slippage.

The kerbstone directly opposite the entrance on its north west side, known as Kerbstone 52, also has a line carved in its centre similar to the entrance stone suggesting a similar alignment as the entrance stone. This line in its carved surface suggested the possibility that the cairn might contain a second passage but excavations revealed no trace of there ever being one

After the passage cairn was built at Newgrange it is not really clear how long it remained in use or for how long people might have gone inside to check on the mid-winter sunbeam. The entrance to the passage originally had a door, a large stone slab that is now propped up to the side of the entrance, and the roofbox has scratch marks that suggest it was also blocked up and possibly on occasion removed.

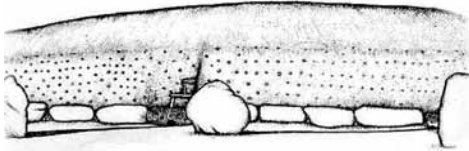
After some centuries it appears as if activity started to decline at Newgrange and the cairn began to collapse covering the kerbstones. But the Newgrange story did not end there for after a relatively short, but as yet undetermined, a further phase of activity took place outside the cairn and very close by. Large enclosures formed by banks and ditches were dug and



Pic 16. The Proposed Great Circle, Existing Stones in Black

a large avenue or cursus is clearly visible in aerial photographs. Within 10 meters of Newgrange a large 'woodhenge' was constructed with a circumference of probably about 50 meters across. Posts now mark excavated sections of where this circle once stood. David Sweetman, the archaeologist who uncovered the circle, thought that it was built after Newgrange, but this is not entirely certain.

Several big standing stones can be seen around the great cairn, the five on the south being the most noticeable while other are still buried under slippage from the cairn. Altogether twelve stones can be seen around Newgrange standing between 6 and 9 meters from the cairn. Several of these outer stones are in a curved line and look as if spaced out equidistantly so from this it has been estimated that there might have been between 35 and 39 stones forming a circle. If so it would be over 110 meters across, the biggest stone circle in the British Isles. This circle is still only a theoretical concept and it is also a matter of debate whether or not the stones that are now standing around Newgrange are contemporary with the great cairn. So far only the south side of Newgrange has been fully excavated so for the time being the great circle will remain a mystery.



Pic 17. *Shadows at Winter Solstice Sun Rise*, Art by Martin Brennan

Geraldine and Mathew Stout noticed that one standing stone outside the entrance is set up in a direct line with the passage and realised that it directly interacts with the main axis of the monument by casting a shadow on the entrance stone at the mid-winter sunrise.

This shadow play between the outer stones and the cairn was first noted by Martin Brennan and captured in a photograph taken by the present author in 1981⁵. His illustration also shows that the shadow cast from the neighbouring stone also cast a shadow which falls onto the fifth kerbstone to the east of the entrance stone. This stone is the most heavily carved of the kerbstones on this section of the cairn with the stones either side having no visible carvings on them. However the shadow from this stone falling onto the entrance stone is not as precise as it would have been when the stone was first erected. Originally the shadow lined up closer to a line at the centre of the entrance stone but in the present day it falls on the spiral pattern to the right of the line.

There is also the question of what happened to the second stone outside the entrance. Two reliable researchers in the 1770's, the architectural artist Edward Ledwich and the military surveyor Charles Val-

Pic 18. Charles Vallancey's 1776. *Drawing of the Entrance to Newgrange*.



lancey, recorded another stone in between the outer standing stones and the entrance. Both were good draughtsmen and each depicted it as being triangular shaped with a pointed tip. This stone would completely change the way the shadow is cast on the outer stone and might even have affected the sun beam, perhaps narrowing it and increasing its effectiveness as an astronomical marker beam. No socket was found that might suggest its exact position but at least one of the existing standing stones, stone CG1, is freestanding and the triangular shape of the missing stone suggests it also may not have been set into a socket hole like most standing stones.

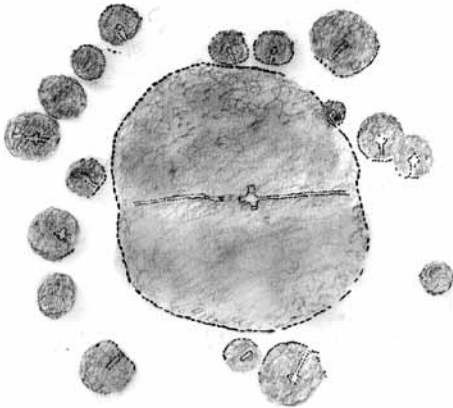
Knowth, The Great Cairn Of Cnocbó

Knowth is the most westerly of the three great cairns in the sacred valley. It is similar in size to Newgrange yet in sheer wonder it is possibly the most supreme of the three great Boyne structures. It is surrounded by twenty one smaller 'satellite' passage cairns, seventeen of which are clustered around to the main cairn and the others are set away from the main concentration up to 100m away. Three are so close the main cairn that they even impeach upon its perimeter. This is the largest number of passage cairns to be found in any of the so called 'passage grave cemeteries' in Ireland. Such a concentration of significant megalithic monuments standing within the space of about an acre is quite unique.

Knowth presented the archaeologist George Eogan with an extraordinary challenge when he began excavating the site in the 1960's and it has been called, 'the

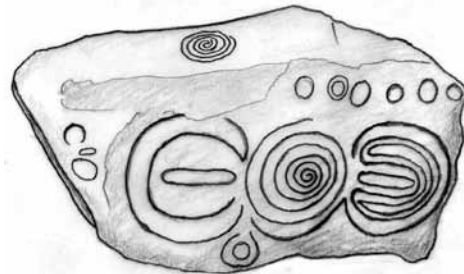
Pic 19. *Aerial Photograph of Knowth and Satellite Cairns*





Pic 20. Plan of Knowth and its Satellite Cairns.

mother of all sites' ⁶. Being conveniently located overlooking the river valley at its western end has made it an attractive and strategic place to build a fortification and the first layer of activity that Eogan had to deal with was the medieval period when it was used as a fortification and as a habitation site. Vandalism of the site appears to have begun several centuries earlier in the



Pics 21 & 22. Kerbstone NE6



Iron Age when a trench was dug around the cairn and deep tunnels or souterrains were excavated in the cairn disturbing the structure and in some instances destroying the decorated stones.

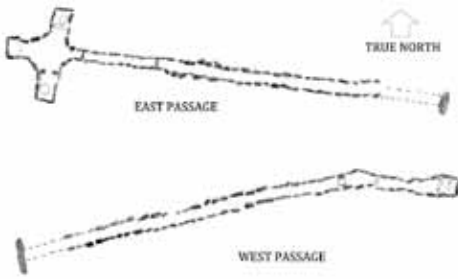
There are a total of 250 stones decorated with megalithic art at Knowth. Of the 123 kerbstones around the great central cairn 90 are carved with megalithic art and there are 105 more carved stones within the passages and chambers, 35 in the western passage and 70 in the east facing passage and chamber. The remainder are found in or on the satellite cairns, twelve of which have megalithic art in their construction. Eleven of the kerbstones of the great cairn also have decoration on the inner face and there are two stones of the satellite cairns with engraved inner faces that are equally complex to the carvings on the hidden surface of kerbstone K22 at Newgrange.

There are also a number decorated stones that were badly damaged from earlier use of the site one some missing stones that may have been decorated. Eogan has suggested that the total number of decorated stones may have been in excess of 300. Altogether the carved stones in the Knowth complex constitute not only the largest concentration of this type of prehistoric art in the whole of Europe but also the biggest variety of styles and symbols to be found on a single site.

Knowth has two passages facing east and west and ending within a couple of

Pic 23. Kerbstone NE4, Knowth





Pic 24. Kerbstone NE4, Knowth

meters of each other near the centre of the cairn. The internal passages and chambers are not open to the public being too narrow and cramped for general access. The entrances to both passages were badly damaged by the excavation of a ditch around the cairn during the Iron Age occupation of the site. The view from the eastern passage is also blocked by nearby housing and its orientation cannot therefore be established through direct observation.

The eastern passage is approximately 36m in length and leads to a cruciform chamber similar to that at Newgrange. There are stone basins in each of the internal side chambers and the northern one contains a huge ornately carved stone basin weighing about a third of a ton.

Pic 25. Carved Basin Stone, East Passage, Knowth



The right hand recess of the cruciform chambers seems to have been of particular importance and have contained the most significant finds. Not only does the right side/northern chamber of Knowth contain the most ornate of all the basin stone in the Boyne Valley but excavation also revealed a beautifully carved quartz mace head which is regarded as the most refined artefact ever found in the Boyne Valley.

The western passage is about 30m in length and is straight for about 24m then simply ends with a slight bend in which position is a stone basin and a stone set into the floor, a common feature of the entrances to the side chambers known as a sill stone. Fortunately this passage is clear of obstructions and has been the subject of on site observation and a detailed survey by several people. A survey carried out by Frank Prendergast and Tom Ray showed clearly that the astronomy of Knowth is more complex and obscure than that of Newgrange⁷. Both passages were formerly regarded as marking the equinox sun rise/set positions were on closer examination found to be slightly skewed from the due east-west equinox positions.

This of course opens up many possibilities and since the passages are longer by nearly 10m than Newgrange and more tightly set the target astronomical feature might well be something other than solar. Anthony Murphy and Gillies McBain have both theorised a lunar orientation and further suggested that there may have been a need to calculate the lunations over the equinox period in the same way that the Christian religion had need to decide the days of Easter⁸. Unfortunately such theories cannot be tested without on site observation over a considerable time period.

Although it is unclear what astronomical position or event the passages at Knowth are aligned towards there is one element of the great cairn at Knowth that is clearly comparable to Newgrange. Outside the entrance to the west passage are two large

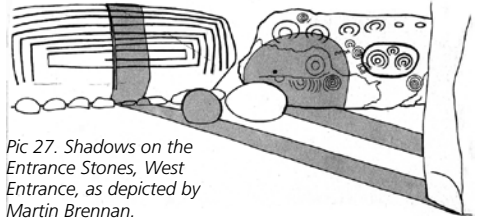


Pic 26. Entrance to the Western Passage

stones, a tall slender standing stone and a rather squat boulder standing side by side. The standing stone is in direct line with the entrance on the western side and at the equinox sun-set a shadow is cast from this stone onto the entrance stone which has, like at Newgrange, a clearly defined vertical line running down the centre of its decorated surface.

The stone at the back of the end chamber is also carved in a similar rectilinear style, as is the low sill stone at the entrance. The predominance of carvings on the passage stones also increases at the point where the passage bends and is predominantly rectilinear in design. The stone designated as OR49 is particularly striking as it

Pic 28. Orthostat OR49, western passage Knowth.



Pic 27. Shadows on the Entrance Stones, West Entrance, as depicted by Martin Brennan.

is decorated with a particularly significant carving known as the 'face spiral' by those who, erroneously, consider it to be representational.

On the the eastern entrance is also carved in a similar style and has a comparable arrangement of a smaller standing stone standing in front of the entrance stone. Unfortunately this entrance was destroyed in the Iron Age period and the damaged area is now used to access the passage via a walkway.

It is curious that almost all of the satellite cairns of which we can ascertain an orientation have passages aligned inwards, towards the great central cairn, which supports the general understanding of them as being earlier constructions to the great central mound. Eogan also found evidence that suggests that the great cairn was built in two phases beginning with a smaller cairn

Pic 29. Eastern Entrance, Knowth



less than half the size of the monument, which was expanded after an unknown period of time.

Dubad, Dowth The House Of Darkness

Little light has so far been shed onto the most easterly of the great passage cairns for, apart from some minimal clearance work, there has been little investigation of the site. So far the great cairn of Dowth continues to live up to its ancient name of Dubad, the 'house of darkness', and in many ways it remains perhaps the most mysterious.

Dowth was originally the tallest of the three great cairns but grave robbing of the most wilful kind has reduced it from its original height and has left a large crater on its summit. A watercolour by the noted architectural artist Gabriel Beranger in 1775 depicts it as considerably higher than it is today. The little gazebo on its summit was built for the local landowner who, it is said,



Pic 30. Entrance to South Passage, Dowth.

Pic 31. Beranger's watercolour, circa 1775

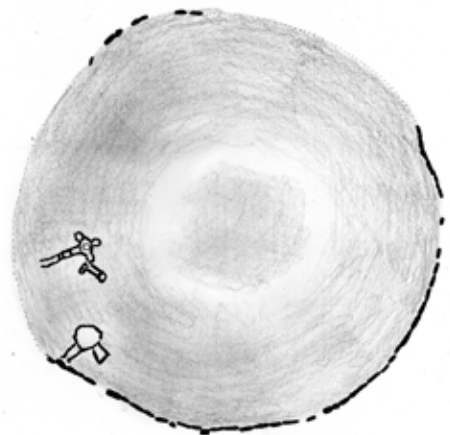


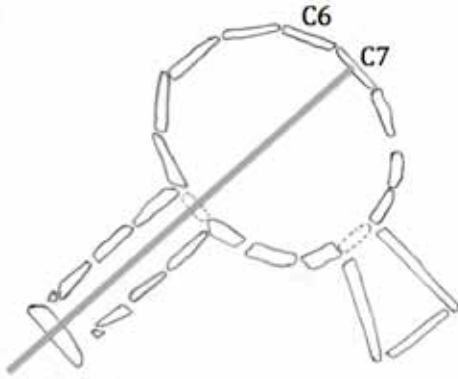
used it on Sundays as a retreat from the interminable sermons in the nearby church.

The damage wrought in those days of grave robbing actually helped conceal the very thing they were looking for, the inner chambers. So far two short passages have been found, both on the southwest side of the cairn. The northern most the two passages still remains blocked and can only be accessed through a shaft that drops down through a broken capstone into the passage 3 or 4m from the actual entrance. This access is the result of a trench that was dug in the latter part of the 19th c across the southwest side of the cairn, which exposed both passages. The northern passage is about 15m long and leads to a complex inner chamber that is basically cruciform in shape but with an unusual arrangement of an extension chamber added on to the southern recess.

The southern passage is quite short and leads to a large broad chamber with one large side recess. As yet no other passages have been found. The view from the southern passage is currently obscured by a dense block of evergreen trees but it is known to have an orientation towards the mid-winter sun-set. This was recorded during a brief period when the view from the site was clear of obstructions over three decades ago by

Pic 32. Plan of Dowth





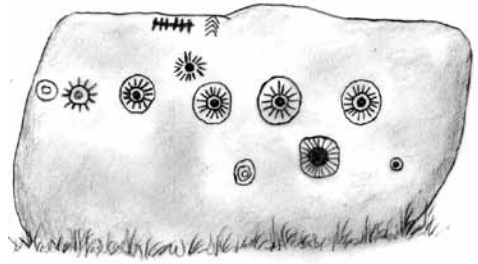
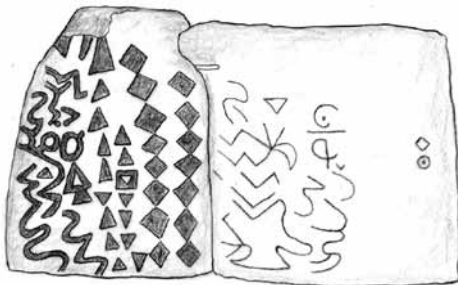
Pic 33. Plan of the Southern Passage and Chamber.

Martin Brennan and myself when it was observed that the sun set as viewed from here lands on the southern edge of Newgrange. Fitting symbolism for the cairn known as the 'house of darkness' to have a chamber oriented towards the time when the sun dies into the western horizon.

Only two orthostats in the chamber are engraved with any discernable carvings and they are at the back where the sun beam lands at the solstice. Stone C7, in direct line with the sun, is carved with rather faint wavy lines and next to it stone C6 is clearly engraved with an interesting mix of pecked symbols, triangular and lozenge shapes, and undulating lines.

There are 100 kerbstones around Dowth, fifteen of which have engravings. None of the art panels are very extensive and they are more worn than at Newgrange

Pic 34. Stones C6 & C7, South Chamber, Dowth



Pic 35. Kerbstone K51, the 'Stone of the Seven Suns'.

or Knowth. Cup marks and circles with extending lines, the so called 'sun symbols' predominate. Kerbstone K51 on the eastern side of the cairn, known locally as the 'stone of the seven suns', has seven such symbols on it with the addition of some plain circles and a horizontal line cross hatched with six vertical lines.

Mythology

It is not possible to relate to the ancient monuments in Ireland without some reference to ancient mythology and this is particularly true of the Brú na Boinne. One of the unique features of Ireland is the great quantity of history and mythology that has survived and there are few of those early books, compilations or annals, in which some mention cannot be found of the ancient sacred valley.

The records that relate directly to the monuments are known as the Dindscheanacas, meaning the lore or history of places, and they are found in most of the ancient books and manuscripts dealing with Ireland's history and mythology. Although the Brú na Boinne frequently appears in the hero tales and sagas there are also the stories of the gods and goddesses who dwell there, and of how they were created.

Brú na Boinne is the burial place, or the 'abode', of the primary prehistoric deities and is named in honor of the earth goddess Bó or Boande, mother of the gods after whom the Boyne River is named. Bó, or Boinne, is known as the cow goddess, bo meaning cattle in Irish, an image that many

see as closely related to Isis or Hathor in Egyptian tradition

Amongst those many references to the sacred valley Newgrange features most prominently of the three great cairns and it is referred to by many evocative names such as, the 'wonder house', where the goddess gave birth to the 'lords of light', the principle deity of which is the god Aonghus,

Mythology may not hold all the answers about the great cairns of the Brú na Boinne but it is surprising how often the ancient stories relate to the reality of the monuments.

Aonghus is the progeny of the two primary deities in the ancient pantheon, the Good God, the Dagda and Boanne, the eponymous river / earth goddess. Their union is consummated over the river, symbolising the fecundity of the earth, and the birthing place of the god Aonghus is the egg shaped Newgrange with its womb-like passages and chamber.

The goddesses and gods are all members of the divine race the Tuatha Dé Dannan, who in folk memory are the fairy people who had gone to ground sometime deep in the past. They are also known as the Sídhe, which means a fairy or a supernatural being, but this is also a term used to describe the megalithic cairns so that Newgrange may be called the Brú of Aonghus or the Sídhe of Aonghus.

Although there are no precise astronomical details in the ancient texts there are many allusions to the heavens and to time. Aonghus becomes the resident of Newgrange by playing a series of tricks of time played on its former inhabitant Ealcmhar who is the original husband of Bó. Firstly she conceals her illicit union with the Dagda and the birth of Aenghus by stopping the sun for nine months then Aenghus steals the cairn for himself by outwitting Ealcmhar with another trick of time.

The Brú na Boinne is also called, Bealach Bó Fionn, the 'pass of the white cow god-

dess', a name which Anthony Murphy suggests refers to the river as it passes in a bend through the sacred valley as symbolic of the milky way passing through the heavens⁹. In mythology Bó is even given names that relate her to the phases of the moon: Bó Orann, the dark cow goddess for the new moon, Bó Ruad, the red cow goddess for the waxing moon, Bó Finn, the white cow goddess for the full moon and Bó Donn, the brown cow goddess for the waning moon¹⁰

In mythology the passage cairns are also sometimes referred to as caves, an Uaimh in Irish, which relates the cairns to earlier very archaic belief in caves as entrances to the otherworld. The cave known as Uaimh na gCait, the cave of the cat or Oweynagat, which is at the heart of the huge ceremonial centre of Cruachain in county Roscommon, has a similarly prominent place in mythology as the passage cairns of the Brú na Boinne.

It is a testament to the ancient bards, and the Early Christian scribes, that long after the great cairns had collapsed, the entrances to their mysterious passages hidden and their magical megalithic art lost to view, the former importance of the Brú na Boinne remained alive in the collective memory.

The Astronomical Orientation Of The Cairns

The archaeologist Carleton Jones is one of many who have suggested that the passage 'tombs' should be re-classified as 'temple cairns', or something that more clearly reflects their true nature, since it is clear that their function was far more complex than being merely graves¹¹. He is also one of a growing number of archaeologists who are beginning to see astronomy as a significant aspect of many ancient monuments, particularly the passage cairns.

This growing awareness of the relevance of archae-astronomy can in no small measure be attributed to the discovery of the winter solstice sun rise orientation of Newgrange. The accuracy of this alignment is still regarded as the primary example of

astronomical orientation yet found in any megalithic monument while the winter solstice sunset orientation of the southern chamber at Dowth would probably be regarded as more valid if the sight line from the chamber was not obscured by a thick growth of trees.

Alignments between the cairns and significant solar alignments have also been proposed but the astronomical orientation of the Boyne Valley monuments does however remain problematic. Knowth is more complex than simply being oriented on the equinox so the intended alignment of its two passages remains unclear while its satellite cairns have orientations that are widely variant, encompassing a broad stretch of the horizon in all directions. Within this scenario of Knowth and its satellites lies the whole problem of archaeoastronomy. On the one hand we have the very precise and deliberate solar alignment at Newgrange, a very clear and unambiguous declaration that astronomy was a central aspect of structure, whilst on the other we have a great many monuments whose orientation cannot be so readily comprehended.

The opportunities to carry out archaeoastronomical research in the Boyne Valley are, for many reasons limited so consequently most field research has been carried out amongst passage cairns in other areas. A period of field research was carried out amongst the next largest concentration of Boyne style passage cairns, on a range of hills about 40km to the northwest of the Boyne Valley known as the Loughcrew Mountains, or Slieve na Cailleach, which revealed that at least four cairns have orientations towards significant solar or calendrical positions. This is a closely related group of cairns that, because they also contain many stone decorated with Boyne style megalithic art, are thought to have been built around the same time as the great cairns of the Brú na Boinne. The principle aim was to discover orientations that would correspond to the known solar/calendar dates; the solstices, equinoxes and the cross quarter dates

but there was also some evidence of lunar alignments at one of the cairns.

There are 28 cairns distributed across three main peaks of this range of hills but most are in a degenerate state with many being identified from a few stones or from the records of earlier antiquarians, several of whom noted the destruction of sites going on in the area. Many are now merely a skeletal outline but with sufficient stones still in situ to enable identification of the basic orientation of the structure. Only two of the passage cairns are in a nearly intact state while less than ten are sufficiently complete that their orientation can be identified with any certainty. Of these four have orientations towards those significant solar positions and at least one more that might fit into the calendrical construct of a sixteen month solar year as proposed by several archaeoastronomical researchers such as Douglas Heggie ¹².

The most well known of these is the passage cairn known as Cairn T which is

Pic 36. Back stone of chamber, Cairn T, Loughcrew

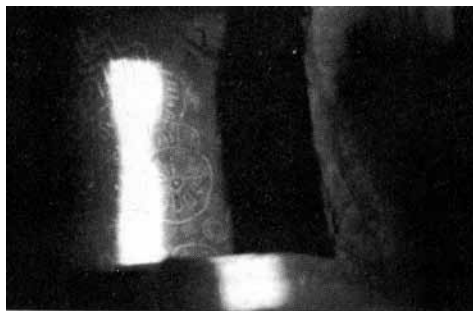


situated on the summit of the highest of the hills and has an orientation towards the equinox sun rise. The orientation of the monument was discovered by Martin Brennan and myself in 1980 and has become, like Newgrange, a popular event at each equinox when the cairn is opened by the Heritage staff at dawn for several days for people to witness the sunrise entering the chamber.

The special feature of this alignment is that the sun sends a shaft of light into the passage and illuminates a remarkable decorated stone at the back of the chamber that is heavily decorated with an unusual scenario of geometric designs, 'sun symbols' and linear designs, notches and zig zags. At sunrise the sun beam lands on the upper left of the stone and travels across the stone illuminating the symbols progressively across the panel for over 15 minutes. The equinox is a complicated solar orientation since at those times of the year its daily movement across the horizon is at its most rapid and, unlike the solstices, never seeming to rise from exactly the same position on any day. Earlier antiquarian visitors to the cairn noted a stone outside of the entrance, possibly similarly positioned as at Knowth, which may have concentrated the light beam in some way and helped delineate the equinox position.

The other relatively well preserved cairn is Cairn L situated on a neighbouring hilltop to the west and this has been observed to have an orientation towards the cross quarter position. Cairn V, which stands close to Cairn T, is much denuded but its orientation towards the winter solstice sunrise can be clearly ascertained, and on Patrickstown hill to the east the best preserved of the four cairns also has a winter solstice sunrise alignment.

A few cairns in other parts of the country have also been found to have significant solar orientations. On the summit of the hill at, about 20km to the southwest of the Boyne Valley, is a passage cairn known as the 'cairn of the hostages' which has a very



Pic 37. Sunbeam Striking the Backstone of Cairn T. Equinox Sunrise. March, 1980. Photo, the Author.

precise orientation on the cross quarter sun rise. In northern Ireland the cairn on the hill of Sess Kilgreen in County Tyrone is oriented on the summer solstice sunrise and far to the south, on the very southwestern tip of Ireland on the island of Cape Clear, are the remains of a passage cairn, much denuded but particularly important as the last outpost of the Boyne style monuments, with a passage that can be seen to be oriented on the summer solstice sunrise ¹³.

Aubrey Burl, the British archaeologist who is widely considered a leading expert in the study of stone circles, regards lunar orientation as an valid explanation for the orientation of many circles ¹⁴. If this could also be considered valid for the passage cairns it expands the possibility of their astronomical orientation considerably. Clive Ruggles, the highly acclaimed and perhaps most critical researcher of archaeo-astronomy has criticised the assumption that solar orientations such as the solstices, equinoxes

and cross quarters were of any real significance to the megalith builders. In his opinion he suggests that we examine groups of monuments with an open mind as to the variety of ways in which astronomical alignments could have been encapsulated within them. He also suggested that research should not be confined to, '.... alignments upon actual rising and setting, to particular stations of the sun, or indeed the sun as opposed to the moon or other astronomical bodies' ¹⁵.

In the ancient Irish tract known as the *Seanchus Mor*, there is a description of the 'seven firmaments of the sky', as, the sun, moon, Venus, Mars, Jupiter, Saturn and Mercury. Beyond them lay 'the firmament' and there is a reference to the twelve constellations and that the sun runs through them every year. The medieval scribes who wrote down these words considered this to be ancient knowledge. Anthony Murphy has pointed out that the winter solstice sunrise orientation of Newgrange is also an orientation on Venus rising once every eight years ¹⁶. This would also be true of course for other monuments with that same orientation, or conversely that those oriented in the winter solstice sunset are also oriented on the last phase of the Venus setting every eight years. For all we know that stone blocking the roofbox at Newgrange may have been removed every eight years for this Venus rising event rather than the annual solar sunrise. Understanding the astronomical relationship of the passage cairns is however still in its infancy and a lot more on-site observational research will need to be conducted to come to any valid conclusions.

Interpreting Megalithic Art

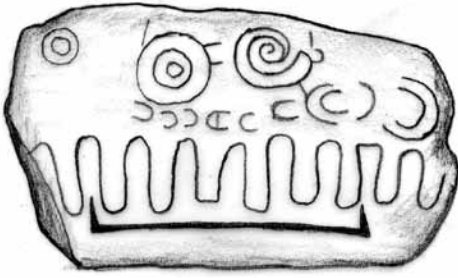
Boyne culture megalithic art is quite different to the rock art that is found all over the country on bedrock, boulders and some dolmens yet it contains many of the same elements. The simpler rock art forms such as cup marks and circles are used in the Boyne style art but within a much wider and more developed repertoire of designs. The

rounded depressions known as 'cup marks' so common to rock art is still an important element of many of the megalithic art panels, as is the simple circle either forming the 'cup and ring marks' or expanded to form concentric circles.

Alexander Marshack considered that the origin of prehistoric art was a, 'desire to represent the meaningful' and suggested that by the late Stone Age it had developed into, 'an alphabet of the metaphysical' ¹⁷. He also promoted the view that astronomy played a significant role in the development of prehistoric art and suggested that archaeologists should 'look up as well as down' when examining sites. The great cairns of the *Brú na Boinne* were clearly built by a society that was very spiritual in nature and the megalithic art that is found carved on them is primarily that 'alphabet of the metaphysical'. In this context, and in relation to the passage cairns, it is an alphabet specifically used to describe that which is most metaphysical in the ancient mind, time and that which commands it, the movement of the heavens.

Although the serpentine image is universally regarded as a water symbol Marshack considered it to be, 'in context a symbol of periodicity', the measure of time. This is particularly relevant to the Boyne style art in which the serpentine wavy lines and zig zag, triangular or lozenge designs, are such a prominent element. They are a particularly common feature of the megalithic art at Knowth.

There have been many attempts to decipher the patterns on some of the carved stones and some attempts at interpreting them as calendars of one sort another. Certainly the designs of some panels at Knowth suggest a calibration system or record keeping of some kind. Kerbstone NW18 for instance, has a deeply etched horizontal line with two upward facing arrows pointing towards the first and seventh bend in the wave pattern above it. This is surely more likely to be the record of an astronomical feature rather than just some arbitrary or abstract decoration.

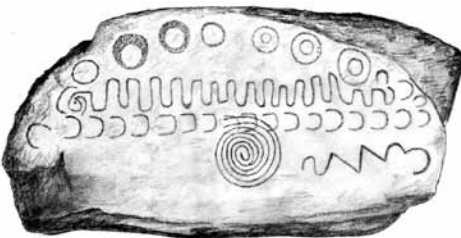


Pic 38. Kerbstone NW18

Brennan proposed that one of the kerbstones in the southwest quadrant of Knowth, known as SW22, was calendrical in nature. He suggested that the seven circles and twenty two crescent shapes merging with a spiral at the centre represented the lunar cycle in its full and partial phases whilst the wavy line corresponds to the solar cycle. According to Brennan the whole panel was meant to harmonize the solar and lunar year. Starting with the spiral at the centre the crescents going left represent the waxing moon and proceeding through its fuller phases represented by the circles at the upper part of the stone, then returning to its waning phase and back into the spiral. Each lunation is then counted through the wavy line that represents the solar year¹⁸.

Another kerbstone at Knowth that has been interpreted as calendrical is the one known as SE4, which is situated a short way south of the eastern entrance to the cairn. It has two deep cup marks at the centre of the design which suggest a hole in which could be placed a gnomon from which are radiating lines strike an immediate comparison to a traditional sundial. Brennan con-

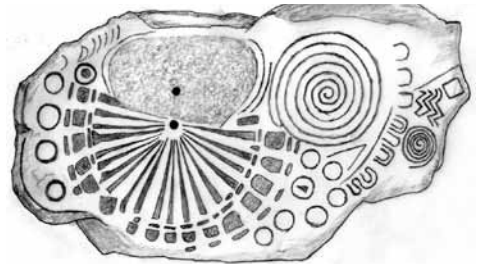
Pic 39. Kerbstone SW22



fined his interpretation of the carvings to the possibility that it represented the solar cycles but N.L. Thomas later expanded on this and gave a complicated interpretation proposing that, like SW22, it was meant to represent the unification of the solar and lunar year¹⁹.

Two more simplified carvings with the appearance of a sundial can be seen in Newgrange, one on a corbel stone of the chamber and another on one of the corbels above the roofbox. The sundial design can also be found amongst the passage cairns of the Loughcrew complex.

Rock art is contemporary with the Boyne style art and symbols such as cup marks or cups and rings are found on monuments



Pic 40. Kerbstone SE4.

such as stone circles and standing stones that are generally thought to be later as well as dolmens of various kinds that are considered earlier. It is therefore most probable that the people carving the stones in the Brú na Boinne were using these symbols in the same context as it was being used in rock art panels elsewhere, but with the addition of a larger and more developed 'alphabet of the metaphysical'.

Cup marks are a common element of the carved stones in the Boyne Valley and on kerbstone K52, the stone opposite the entrance, a number of very pronounced cup marks seem to hold a prominent position as if forming the basic focus upon which the rest of the geometric design is developed. The whole panel of art on this stone is split into two halves by a vertical line running down the centre and the most prominent features of the design on the right hand



Pic 41. Sundials at Newgrange.

half of the panel are three sets of three cup marks set within oval patterns or elongated circles. It might be fanciful to compare this design to the Egyptian cartouche, the oval which encloses royal names in the hieroglyphic system, but here it appears to be similarly used to highlight the groups of three cup marks.

The only other similar example of this enclosing of the symbols within an oval is a group of three crescent designs set within surrounded by this cartouche enclosure on Kerbstone 73, the stone adjacent to the entrance stone on the west side of Kowth, and is also present at Loughcrew where it used to enclose the linear cross-hatching on some stones at Loughcrew such as the backstone of the end chamber at Cairn T.

In Irish mythology three is regarded as the mystic number, all the gods and goddesses have a triple aspect and usually three names. Ireland itself has three names, Eriu, Bánba and Fódla. Three times three is the number that represents the key to the

Pic 42. Detail of Kerbstone K52, Newgrange.



'otherworld', also called Tir na nOge, which lies in the west and can only be reached by 'crossing over the ninth wave', to where the sun descends into darkness at the solstice sunset. At the latitude of Newgrange the direction of the alignment through the cairn towards the summer solstice sun set, towards which K52 is facing.

Conclusion

It does not seem appropriate to try and draw any conclusions when writing about the Brú na Boinne for there is a great deal more to the subject, both archaeologically and mythologically, that could be included and much that has yet to be revealed. The great passage cairns of the Boyne Valley are truly 'wonder houses' encapsulating many mysterious features, most of which are uniquely to these remarkable structures, and the enigma that is the ancient Brú na Boinne continues to deepen. There is so much to the mystery of the Boyne culture and their monumental passage cairns and this has been of necessity only a very brief outline.

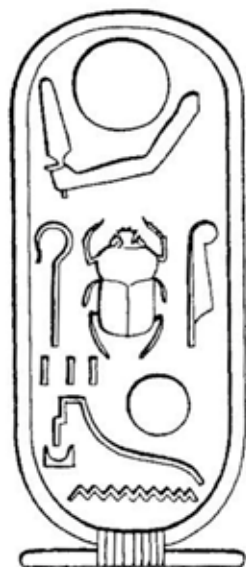
Much archaeo-astronomical research is still needed to try and understand the astronomical relationship of the monuments and that which has been carried out so far is insufficient for a true assessment of their orientations. But even the limited research detailed in this article has been hard won with many journeys to try and catch a sun rise or a dawn, so often thwarted by Ireland's usual rapid changes in the weather. But on-site observation is necessary since it gives a grounding to any theoretical or analytical research and is always instructive of details that are unexpected or easily overlooked by any other surveying methods. It may be many years before we can start to understand this astronomical aspect of the passage mounds but then it is sobering to think that the great mystery they represent, having lain forgotten for so long, will likely not easily reveal their true nature within just a couple of short decades.

Research is on-going in the Boyne valley and at other passage cairn sites and each year some new nuance of interest is discovered whilst there is still much work to be done before the full extent of the sacred valley is fully revealed. Dowth remains virtually untouched and the immense earthwork structure to the east of the cairn is as yet uninvestigated. While on the plateau around the great cairns and in the river valley below there are many mounds, cairns and earthworks whose place in the greater scheme of the sacred centre has yet to be revealed.

In the last two or three decades since the great passage cairns have been excavated revealing the splendor of their complexity and the wonder of their artwork they have become very important National Monuments. This is not just that Brú na Boinne has won the status of Unesco World Heritage Site and attracts many thousands of visitors annually, but it has also come to hold a special place in the hearts and minds of people of Ireland.

Ireland is known as, ‘the land of saints and scholars’, and the work of its Early Christian monks and scribes are well known

throughout the whole of Europe. It’s religious history is especially important since it remained attached to its ancient past into early Christian times so that the new religion was free to integrate many aspects of the pagan world in a way



Pic. 43. Cartouche of Horemheb

that was not possible in most of the rest of Europe. It was these early Christian scribes who ensured that the ancient pagan culture of Ireland was not lost and who are responsible for keeping alive the memory of the great Brú na Boinne and reminding us of the place the sacred valley held in the prehistoric world. With the excavation and reconstruction of two of the great passage mounds the Brú na Boinne has regained the position it once held in Irish traditional culture and now represents an emblem of a spiritual heritage that can be seen to reach back to the very dawn of Irish history.

I refer anyone interested in the sacred valley and its immensely important passage cairns to the following on-line resources:

<http://www.newgrange.com>
The official Brú na Boinne Visitors Centre site with details of the monuments as well as relevant visitor information.

<http://www.archaeology.ie>
This is a site of immense value which details all known archaeological and historical sites in the Republic of Ireland in a map format.

<http://www.mythicalireland.com>
The author/researcher Anthony Murphy’s official site containing much up-to date information on the Boyne Valley and related sites.

<http://www.carrowkeel.com>
A site that illustrates a wide variety of early sites throughout Ireland including the Boyne Valley

<http://www.heritageireland.ie>
The official site of the Department

Jack Roberts
bandiadesign@fastmail.fm

Endnotes

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