Placing the Hunebedden
How Dutch megaliths are situated in their landscape

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Introduction
In our surroundings today, human presence is visible everywhere. We see human statements in the shape of extravagant architecture and the construction of large monuments. This was no different in prehistory. From the Neolithic, megalithic and none-megalithic monuments were built throughout Atlantic Europe (Cunliffe, 2008:159; Oswald et al., 2001: x).

The Netherlands was part of this Atlantic network of monuments as well. Around 3400 B.C. the people of the Funnelbeaker culture (FBC) started to build megalithic monuments in the northern Netherlands, where stones were available. This culture used them as grave monuments until 2850 B.C. (Bakker, 1992: 144; Brindley, 1986: 105).

The FBC spread all the way across northern Europe, between the Ukraine and Sweden, this culture is divided into several groups based on the ornamentation on pottery (figure 1). The Netherlands and western Germany, belong to the West-Group of the FBC. In the Netherlands it is known that the settlements of the FBC are mostly situated on higher dry sandy soils with a low degree of loam. This was a fertile surface and therefore suitable for farming (Spek, 2004: 129). Depositions, for instance of stone axes, were made in the lower wet areas (Wiersma & Raemaekers, 2011: 34). These areas were peaty and thus not easily accessible. Therefore they presumably had a mysterious and sacred character (Wiersma & Raemaekers, 2011: 33).

How did the megalithic grave monuments fit in this landscape? Answers to this question may be found on several spatial scales. First, most Dutch megaliths are found on the Dutch Hondsrug. This is a glacial ridge in the north east of the Netherlands, running from the north to the south (Spek, 2004: 129; figure 2). Secondly, it is known that most Dutch megaliths are situated no further than 350 m from ‘stonefields’

Fig. 1. Map of FBC groups (from: Midgley, 1992: figure 10).
These are areas where the fine boulder clay has eroded away, leaving the large boulders behind. Even after the boulders were covered again by sand, they were probably still visible and available for the construction of megalithic grave monuments.

This article is focussed on an even smaller spatial scale, where every Dutch megalith has been looked at individually. The Dutch megaliths were plotted on elevation maps of their surrounding area. This will, of course, provide the information of how the megaliths are situated on an elevation map. When this is established, patterns may occur. After this, the megaliths can be viewed in relation to other activities from the FBC and we can learn more about the purpose and meaning of the Dutch megaliths.

Looking abroad

The Netherlands is just one part of Europe where prehistoric monuments were constructed. The Early Neolithic partly defines itself in Europe by the construction of (megalithic) monuments (Whittle, 1996: 151). Trigger (1990: 119) states that a principal defining feature of a monument is ‘that its scale and elaboration exceed the requirements of any practical functions that a building is intended to perform’. His example is of a palace, which may have to be large because of the need of many storerooms and accounting offices to serve the needs of the king. Yet archaeologists have no problem defining it as a palace because of its size and quality of construction, which greatly exceed practical need (Trigger, 1990: 120). The same is true for the Dutch megaliths. Large boulders under a great earthen mound are certainly not necessary to bury your dead, still the effort was put in to do so.

Concerning the location and architecture of monuments, the Dutch megaliths share certain characteristics with other megalithic structures in Europe. Firstly, the visibility of certain parts of the landscape from the monumental structure. Oswald et al. (2001) performed a study on the relation between causewayed enclosures on the British Isles and surrounding water. A division is made between the location of causewayed enclosures on slight rises in the valley floor and the location on valley sides (Oswald et al., 2001: 91). The latter can be further divided on the basis of their orientation, with one group from which the lower ground is visible, and the other from which the higher ground is visible (Oswald et al., 2001: 91). These locations and orientations were deliberately chosen by the humans who built them. Visibility seems to be a central topic, either low or high places.

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(Bakker & Groenman van Waateringe, 1988: 153).

Fig. 2. locations of the Dutch megaliths. 1) megaliths still visible today, 2) megaliths no longer visible, 3) sandy soil around ca. 3000 B.C., 4) peat and sea deposits, Dotted lines: province borders. In the east megaliths lie along the Hondsrug (from: Van Ginkel et al, 2005: 88).
were visible and in this way the monuments were linked to specific sectors in the landscape (Oswald et al., 2001: 106).

Secondly, monuments change the surroundings of the location in which they are built and add a layer of symbolism to it. Bradley (2000: 104) asks the question ‘what do monuments do to the places where they are built?’ The first is that the construction of a monument on a place already significant, changes the entire experience of a location (Bradley, 2000: 104). A construction creates restriction and boundaries and thus creates zones for activities (Bradley, 2000: 105). A second way in which monuments change places is the scale on which they were built (Bradley, 2000: 106). Many people were drawn in the construction monuments and therefore they gained a close relationship with these locations. Not only were monuments dominating through their location, but while under construction, they also dominated daily life (Bradley, 2000: 106). A third characteristic of monuments, is that they add additional layers of symbolism to the natural landscape (Bradley, 2000: 107). A natural place already loaded with symbolism, for example a peak sanctuary, is made even more special by, for instance, a building with ornamentation (Bradley, 2000: 107). These three characteristics show that monuments can be used to order the natural landscape and the lives of the people building and using the monuments.

Thirdly, the landscape is ordered by the presence of monuments. Richards (1996a; 1996b) discusses henge monuments and the relation with their surrounding landscape. He explains that humans have the tendency to order their world (Richards, 1996a: 315). Because the natural landscape is part of that world, it takes part in the ordering system. The Stones of Stenness and the Ring of Brodgar are used as examples of monuments that order the landscape (Richards, 1996b: 205). Both monuments represent their surrounding topography and are therefore a method to order nature (Richards, 1996b: 205, 193).

And finally, monuments serve as means of transformation. This is discussed by Fowler and Cummings (2003) in their study on Neolithic megaliths in the Irish Sea area and their relation to stone and water. They suggest that there was a metaphorical association between water and stone in the Neolithic of the Irish Sea area. This association was centred on practices of transformation (Fowler & Cummings, 2003: 2). Most megalithic sites in the eastern Irish Sea area have views on the sea. They argue that the megalithic chambers created a connection between the sea and stone structures, like the mountains (Fowler & Cummings, 2003: 2-3). They also state that apart from the megaliths along the Irish Sea area, megalithic monuments throughout Europe were involved in rites transforming the human body after death (Fowler & Cummings, 2003: 8). An indication for these rites is the presence of partial human remains, which are found in the Dutch megaliths as well.

The landscape setting of Dutch megaliths

Methods

Each of the Dutch megaliths was plotted on an elevation map of the Netherlands: the AHN1. The AHN1 was chosen, instead of the AHN2 which is more precise, because it gives a more general overview of the relief in the landscape.

Each megalith was plotted on its own elevation map of approximately 3300x2000 metres, with a scale of 5 metres above and 5 metres below the height of the location of the megalith. Thus, each map has a different minimum and maximum height, but maintain the same vertical scale. This was done to enhance height differences and improve recognisability of differences in elevation. Megaliths are marked with a spot in the middle of each map and an arrow to indicate the direction in which the entrance of the megalith is facing. These directions were duplicated from an overview of megalith orientation made by Bom (1978: 10). Groups of megaliths are plotted on the same map, and megaliths which are not the subject of the map, but still lie within the map borders, are shown as well.

Fig. 3. Examples of megaliths located on north, east, south and west flank.
The megaliths were then classified. After it became apparent that all megaliths are situated on flanks, four groups were made: north, east, south and west flank (figure 3). After allocating a megalith in one of these four groups, a further distinction was made: whether the entrance is facing an elevation ('high') or a depression ('low'). Because some of the entrances are facing parallel to the ridge, another category was added called 'parallel'.

If the megaliths were not intentionally placed with the entrance facing a certain way, every direction would take up 25% (figure 4). This means the category 'parallel' would take up 50%, because the entrance can face two ways parallel to the ridge.

### Results

When all Dutch megaliths were plotted on elevation maps, 38 maps were produced (appendix 1). Their location and orientation are presented in table 1. The difference between the compass directions of the flanks is not striking (figure 5). A $\chi^2$– test was executed to calculate if the observed values differ significantly from the expected values. The outcome, 2.547, indicates there is no statistical evidence for a preferred orientation in relation to the landscape setting. The differences in entrance direction seem more outspoken (figure 6).

1 The $\chi^2$ was calculated using Yates’ correction (Yates, 1934) on account of the small number of observations (less than 30 per cell):

$$\chi^2 = \sum \frac{(observed - expected - 0.5)^2}{expected}$$

This calculation resulted in a $\chi^2$ of 2.547. At 3 degrees of freedom (n rows - 1: 4-1=2), the value of the $\chi^2$ had to be at least 7.815 to pass the $\alpha$ of 0.05. Instead, the $\alpha$ lies between 0.1 and 0.9, which means there is a significant chance that the location of the megaliths is random.

For these results a $\chi^2$– test was executed as well. The outcome of 27.028 means that there is a chance of less than 0.5% that the placement of the entrance of the megaliths is due to chance. In other words, there is a preference for certain parts of the landscape. Referring back to figure 4, almost half of the Dutch megaliths are facing the lower areas, the landscape part associated with deposition. Still, the percentage of Dutch megaliths facing the higher parts, associated with settlements, is considerable as well.

### Discussion

It was researched whether the scale and size of the map influenced the classification. When more of the
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surroundings are visible on the map, classification is based on the landscape visible on the map. To determine how much of an influence the map size was, overlays were made with different sizes: 100x100 metres, 300x300 metres and 1000x1000 metres. Every megalith was placed in the centre of the smaller frame and classified again (table 2). With a scale of 1000x1000 results do not differ much from the results of this research. If anything, the differences are more extreme. In the smaller map sizes the class ‘Parallel’ is much higher than in the larger sizes. This is mainly because with a small map it is difficult to assess the course of a ridge.

Despite the small differences in results with the other map sizes, a larger map size gives a more reliable result. This way it is possible to see the general flow of the landscape and to see extremes in the

Table 1. Dutch megaliths and their location on a ridge and in which direction the entrance is facing.

<table>
<thead>
<tr>
<th>Flank Direction</th>
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<th>Flank Direction</th>
<th>Entrance Direc.</th>
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</thead>
<tbody>
<tr>
<td>Megalith</td>
<td>North</td>
<td>East</td>
<td>South</td>
</tr>
<tr>
<td>D1</td>
<td>x</td>
<td>x</td>
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<tr>
<td>D2</td>
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<td>D26</td>
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<tr>
<td>D27</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Table 2. percentage of megaliths per classification. In the columns different map sizes are shown in metres.

<table>
<thead>
<tr>
<th>Scale</th>
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<tr>
<td></td>
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<td>Flank</td>
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<tr>
<td>North</td>
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<td>36</td>
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<tr>
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</tr>
<tr>
<td>High</td>
<td>34</td>
</tr>
<tr>
<td>Parallel</td>
<td>25</td>
</tr>
<tr>
<td>Low</td>
<td>42</td>
</tr>
</tbody>
</table>
Conclusion
The Dutch megalithic monuments were part of a landscape created by nature and humans. The natural environment was a significant influence on the choices people made in the organisation of the landscape. They are built on a place in the landscape, which is already special: the flanks of ridges. By building a megalithic grave monument on this location, an additional layer of symbolism was added and the experience of the location changed. With the construction of the megaliths on flanks of ridges, a border between high and low, dry and wet, living and divine was created and the landscape was ordered. In figure 7 the ordering of the FBC landscape is depicted. In the high and dry area, settlements are located. The settlements are either restricted or connected from the lower deposition area. The megalithic monument orders the landscape and could have a role of transformation between the place of the living (the settlement area) and the place of the divine (the deposition area).

References


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Appendix 1

Megalith Map

D1

D2

D3 - D4 (left to right)
Placing the Hunebedden

D8

D9

D10
Placing the Hunebedden

D15

D16 (top) - D18 (bottom)
D19 – D20
(left to right)

D21-D25
(left to right)

D26
Placing the Hunebedden

D27 (left)
D28 (middle)
D29 (right)

D28 (middle)
D29 (right)
D27 (left)

D30
D35

D36 - D37 (left to right)

D38 – D40 (top to bottom)
Placing the Hunbedden

D44 (bottom)
D42 (top)
D43 (middle)

D45 (bottom)
D41 (top)
D43 (middle)

D46 – D47 (top to bottom)
Placing the Hunebedden

DS3 – DS4 (left to right)

G1