

# Magdalenenberg: an examination of archaeological and archaeoastronomical interpretations of a Hallstatt period burial mound

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Using the example case of the Hallstatt period burial mound of Magdalenenberg in Villingen, Germany, this essay contrasts the results from state and academic archaeological research with the contested archaeoastronomical hypotheses of the archaeologist Allard Mees. Drawing on the published research, personal interviews with Mees and with the archaeologist and media scholar Stefanie Samida, one of the authors of a booklet refuting his interpretation, as well as the symposium and panel discussion in May 2014, I argue that in the case of Magdalenenberg reservations against archaeoastronomy by archaeologists are due to obvious methodological and argumentative weaknesses of Mees' work on the one hand and a general lack of academic level discussions about archaeoastronomy on the other. These two causes are mutually dependent.

## Introduction

The burial mound of Magdalenenberg is situated at the eastern periphery of the Black Forest near the town of Villingen-Schwenningen in Germany (Figures 1 and 2).<sup>1</sup> It has been fully excavated from 1970-1973 and with its diameter of 102m is one of the largest known burial mounds from the Hallstatt period in Central Europe.<sup>2</sup> This essay will contrast the results from state and academic archaeological research on the site of Magdalenenberg with the archaeoastronomical interpretation of the provincial Roman archaeologist Allard Mees from the Römisch-Germanisches Zentralmuseum (RGZM) in Mainz, Germany. When Mees published results of his follow-up examinations, claiming

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<sup>1</sup> Konrad Spindler, 'Magdalenenberg. Der hallstattzeitliche Fürstengrabhügel bei Villingen im Schwarzwald', Vol. I-VI (Villingen-Schwenningen, 1971-1980) [hereafter Spindler, I-VI, 1971-1980].

<sup>2</sup> Konrad Spindler, 'Die Ausgrabung des Magdalenenbergs und seine Funde', in *Der Magdalenenberg bei Villingen, Führer zu archäologischen Denkmälern in Baden-Württemberg*, Vol. 5 (Konrad Theiss Verlag, Stuttgart, 1999), back of book cover.

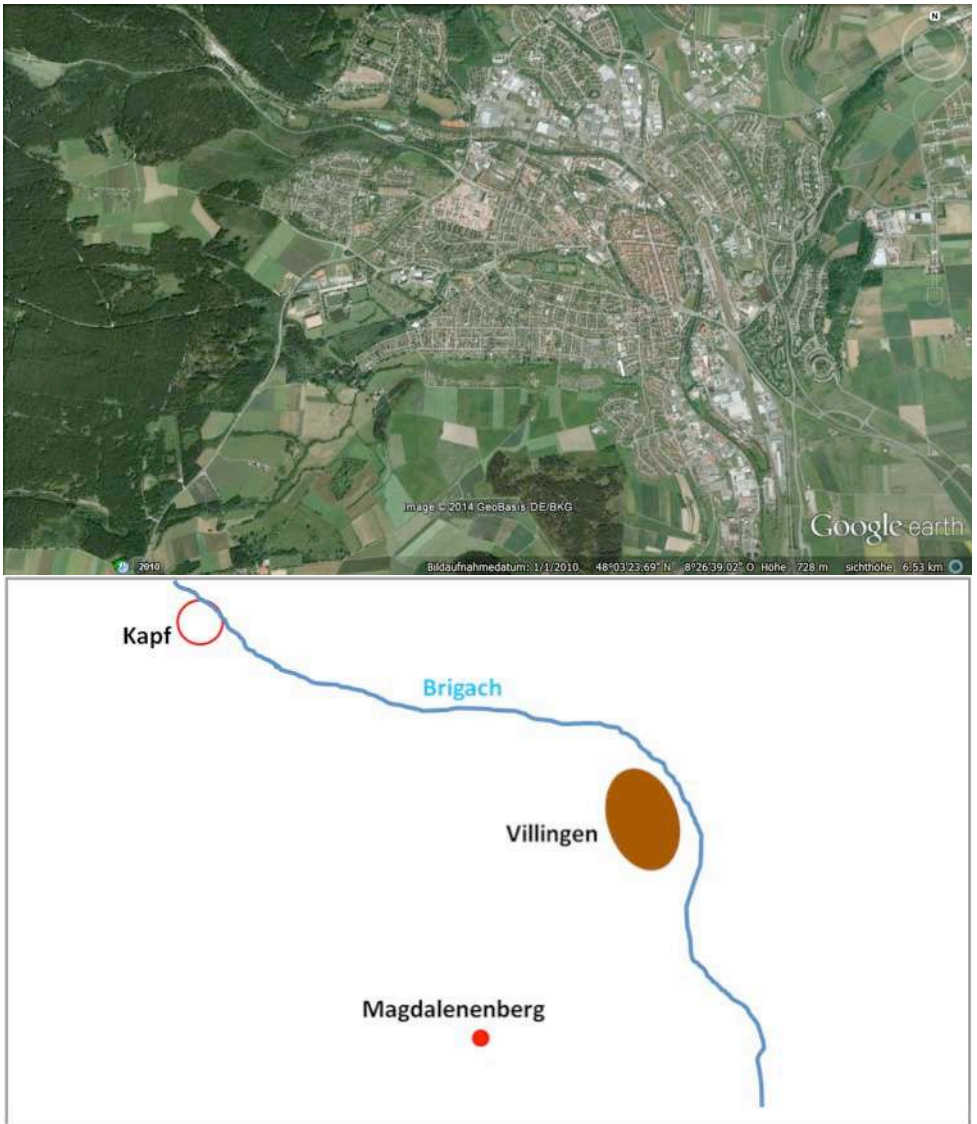


Figure 1. Capture from Google Earth with sketch below showing the city of Villingen, the river Brigach, the burial mound of Magdalenenberg and the location of the settlement Kapf. an alignment towards lunar standstills, a function as a calendar and an arrangement of the burials such as to depict constellations of the northern hemisphere sky, he received widespread and positive public media attention. However, within German-language prehistoric archaeology he caused the

ongoing debate on the validity of archaeoastronomical methodology as a whole to reach a climax.<sup>3</sup> On the basis of published research and opinions, personal interviews with Mees and one of the archaeologists refuting his interpretation, the first academic symposium on the topic which took place in Villingen on 23 May 2014 and my own impressions from the site, I will argue that the opposition against the archaeoastronomical interpretation of Magdalenenberg by prehistoric archaeology has largely two reasons which are mutually dependent: methodological and argumentative weaknesses of this interpretation and the lack, in the German-speaking countries, of academic level research and teaching of archaeoastronomy in general.

In the English-speaking world, scholars like Clive Ruggles and more recently Fabio Silva in Great Britain and Anthony Aveni in the United States have added much to the academic debate on the role of archaeoastronomy within the field of archaeology.<sup>4</sup> As astronomers or astrophysicists they know about, in Ruggles words, ‘the need to be scientifically rigorous in assessing [one’s hypotheses] against the actual evidence’ but as archaeoastronomers they are also aware that alignment measurements alone remain completely meaningless without ‘humanistic influences [and the ] context with local cultures and landscape’, as the astronomer Daniel Brown said recently.<sup>5</sup> Or as Silva argues, ‘archaeoastronomy should become more of a “skyscape archaeology”’, incorporating the phenomenological approach of landscape archaeology into its alignment-based framework.<sup>6</sup> Such an integrative approach was not created

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<sup>3</sup> Allard Mees, ‘Der Sternenhimmel vom Magdalenenberg: Das Fürstengrab bei Villingen-Schwenningen – ein Kalenderwerk der Hallstattzeit’, *Jahrbuch des Römisch-Germanischen Zentralmuseums*, Vol. 54 (Mainz, 2007), p. 217-264 [hereafter Mees, 2007].

<sup>4</sup> Clive L.N. Ruggles, ‘Pushing back the frontiers or still running around the same circles? “Interpretative archaeoastronomy” thirty years on’, in Clive L.N. Ruggles (ed), *Archaeoastronomy and Ethnoastronomy: Building Bridges between Cultures* (Proceedings of the 278<sup>th</sup> Symposium of the International Astronomical Union and ‘Oxford IX’ International Symposium on Archaeoastronomy, Cambridge University Press, Cambridge, 2011), pp. 1-18 [hereafter Ruggles, 2011]; Fabio Silva, ‘A Tomb with a View: New Methods for Bridging the Gap between Land and Sky in Megalithic Archaeology’, *Advances in Archaeological Practice: A Journal of the Society for American Archaeology*, Vol. 2, No. 1 (February 2014).

[hereafter Silva, 2014a); Anthony Aveni (ed), *Foundations of New World Cultural Astronomy* (University Press of Colorado, Boulder, 2008) [hereafter Aveni, 2008].

<sup>5</sup> Ruggles, 2011, p. 15; ‘Archaeo-astronomy Steps out from Shadows of the Past’, press release from the Royal Astronomical Society, 20 June 2014, published on <http://www.ras.org.uk/news-and-press/news-archive/254-news-2014/2468-archaeo> (last accessed on 24 June 2014).

<sup>6</sup> Silva, 2014a, p. 4.

overnight but has been achieved after decades of contentions, as both Ruggles and Aveni provide evidence for.<sup>7</sup>



Figure 2. The burial mound of Magdalenberg on 23 March 2014 (photograph by the author)

### Methodology

Using the site of Magdalenberg as a case in point to evaluate the state of affairs between archaeology and archaeoastronomy in Germany, I did not want to solely rely on the published literature. My motivation for conducting interviews for this project was to be able to ask specific questions with regard to the

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<sup>7</sup> Ruggles, 2011; Clive Ruggles, *Astronomy in Prehistoric Britain and Ireland* (Yale University Press, New Haven and London, 1999), pp. 1-11; W. James Judge, 'Archaeology and Astronomy: A view from the Southwest', in Anthony Aveni (ed), *Foundations of New World Cultural Astronomy* (University Press of Colorado, Boulder, 2008), pp. 793-801; Keith W. Kintigh, 'I wasn't going to say anything, but since you asked: Archaeoastronomy and Archaeology', in Aveni, 2008, pp. 803-806; Anthony Aveni, 'Nobody asked, but I couldn't resist: a response to Keith Kintigh on Archaeoastronomy and Archaeology', in Aveni, 2008, pp. 806-808.

published literature but also to get to know the opponents personally. The interviews took place about one month prior to the symposium.

I met Mees at his working place in Mainz where we talked for two hours. The archaeologist Manfred Eggert, professor emeritus at the University of Tübingen and together with the archaeologist and media scholar Stefanie Samida co-author of a polemic paper refuting amongst other things, Mees' theses, had declined my request for an interview, stating that in his opinion 'people working in [archaeoastronomy] are mostly fantasists' and that he is not interested in the subject anymore.<sup>8</sup> Samida for her part agreed for an interview and we met for forty-five minutes in a café in Berlin. Martin Bartelheim, professor for prehistoric archaeology in Tübingen and whom, as the person moderating the panel discussion at the symposium, I had also contacted beforehand, did not answer my request. Concerning my own position as interviewer I decided on as much neutrality towards the personal opinions of my interview partners about each other as possible, being aware of the impossibility to do research 'in a totally objective manner, devoid of presuppositions', as sociologist Alan Bryman paraphrased Egon Bittner.<sup>9</sup> My own attitude, shaped by reading the published work, influenced my choice of questions and the semi-structured interview style which provided space for expansion of responses or digression from questions: my questions to Mees focused on the methodology and argumentation used by him whereas my questions to Samida were intended to illuminate her general motivation to write a polemic paper instead of a research article.<sup>10</sup> Both interviews were fully transcribed and the transcription sent to Mees and Samida, respectively, for their approval.

### **Konrad Spindler's excavation and the interpretation by Renate Meyer-Orlac**

The excavation report, published in six volumes by Konrad Spindler between 1971 and 1980, documented meticulously the location of each single burial and wooden post with regard to its position in relation to the tumulus centre (Figure 3 shows the later, slightly adapted site plan by Renate Meyer-Orlac).<sup>11</sup> Regarding the arrangement and orientation of the 136 secondary burials

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<sup>8</sup> Manfred Eggert, personal e-mail from 7 April 2014 [original text: 'dieses in starkem Maße von Phantasten bearbeitete Feld'; my translation].

<sup>9</sup> Alan Bryman, *Quantity and Quality in Social Research*, Routledge, London, 1988, p. 76.

<sup>10</sup> Charlotte Aull Davies, *Reflexive Ethnography – A Guide to Researching Selves and Others*, 2nd edition (Routledge, London and New York, 2008 (1998)), p. 106.

<sup>11</sup> Spindler, I-VI, 1971-1980; Renate Meyer-Orlac, 'Einige Erwägungen zu den Stangensetzungen im Magdalenenberg', *Archäologische Nachrichten Baden* (1983), pp. 12-21.

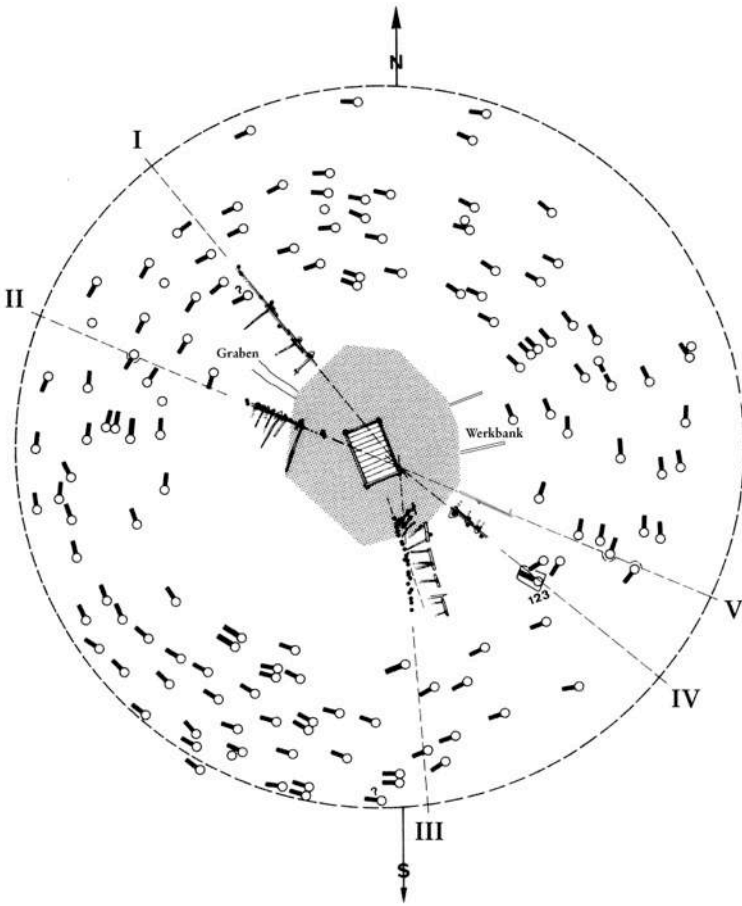


Figure 3. Site plan as published in Meyer-Orlac, 1983 (used with permission).

forming two semicircles around the so-called 'Fürstengrab' (a contested term<sup>12</sup> which can be translated as either princely or chieftain's grave) in the centre, with the burials' heads clockwise in the northern and eastern part of the tumulus and counter-clockwise in the southern and western part, Spindler writes: '[A]ll burials are oriented strictly tangential within the tumulus. Therefore, the dead were not buried in alignment with any cardinal direction but with respect to the

<sup>12</sup> Heiko Steuer, 'Fürstengräber, Adelsgräber, Elitegräber: Methodisches zur Anthropologie der Prunkgräber', in Claus Carnap-Bornheim (ed.): *Herrschaft, Tod, Bestattung: zu den vor- und frühgeschichtlichen Prunkgräbern als archäologisch-historische Quelle*, Internationale Fachkonferenz Kiel 16 - 19 Oktober 2003 (Habelt, Bonn, 2003), pp. 11-25.

construction of the mound orthogonal to the radius.<sup>13</sup> Spindler was convinced that between ten and thirty burials in the central part of the mound had been destroyed before his excavation, mainly by erosion processes, an assumption he attests by a detailed description of the mound's profile.<sup>14</sup>

The five rows of wooden poles, arranged in a radial fashion and numbered I to V, are described by Spindler as 'particularly enigmatic findings' for which 'no meaningful function for the building of the mound [can be] allotted'.<sup>15</sup> While pole rows I, II, IV and V share the same construction type and are made from fir, spruce and beech trunks, pole row III looks completely different.<sup>16</sup> It is the only pole row made from oak trunks, oak other than that only used for the building of the central burial chamber.<sup>17</sup> The excavators assumed a connection between pole row III and a feature they termed 'processional way', a way parallel to pole row III, marked by timber and leading from the south of the tumulus towards its centre and suggested that this might have been the way along which the deceased ruler was brought into the burial chamber.<sup>18</sup> Since the wooden poles had only been preserved underneath the surface of the mound, in later archaeological publications there is some controversy around their original length. Matthias Jung for example doubts their visibility above ground based on his obviously very subjective opinion that such poles would be 'irritating and disturbing to the symmetry of the mound' but at the same time states his inability to provide any 'convincing functional explanation'.<sup>19</sup> The only article aiming at an interpretation of both the orientation of the burials and the rows of wooden poles in a coherent functional relation was published in 1983 by Renate Meyer-Orlac.<sup>20</sup> Meyer-Orlac concludes a height of the wooden poles above ground up to several metres, based on their diameter and, for rows I and II, a construction type which suggests stabilisation against some pressure from a Western direction, in her opinion most likely the wind.<sup>21</sup> Meyer-Orlac observed that extended lines from pole rows I and II would meet in the southeastern corner of the central burial chamber and that an

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<sup>13</sup> Spindler, III, 1973, p. 17 ['alle Bestattungen [sind] streng tangential im Hügel ausgerichtet. Die Toten wurden also nicht etwa in Bezug auf eine Himmelsrichtung, sondern im Hinblick auf die Hügelkonstruktion rechtwinklig zum Radius bestattet.']; my translation].

<sup>14</sup> Spindler, IV, 1976, pp. 12-13; Spindler, VI, 1980, pp. 130-133.

<sup>15</sup> Spindler, VI, 1980, p. 144-147.

<sup>16</sup> Spindler, VI, 1980, p. 171-186.

<sup>17</sup> Spindler, VI, 1980, p. 174, 134-136.

<sup>18</sup> Spindler, VI, 1980, p. 174, 156.

<sup>19</sup> Matthias Jung, 'Überlegungen zur Ausrichtung der Nachbestattungen im Magdalenenberg bei Villingen', *Archäologisches Korrespondenzblatt*, Vol. 33 (2003), pp. 359.

<sup>20</sup> Meyer-Orlac, 1983.

<sup>21</sup> Meyer-Orlac, 1983, pp. 13-14.

extended line from pole row IV would provide the bisector of the angle between pole rows I and II.<sup>22</sup> In addition she noted that pole row II in the northwestern part of the mound and its extended line in the southeastern part mark the division between the two semi-circles of secondary burials, whereas pole row I points towards the settlement site Kapf, dated as being contemporary with the building of Magdalenenberg.<sup>23</sup> All in all Meyer-Orlac interprets the arrangement of burials as a 'compromise solution [between] two focal points, one being the central burial, the other the northwestern horizon, land of the dead, deity, sanctuary of the living, whatever.'<sup>24</sup> For the next twenty years no research seems to have been published extending these ideas, although they clearly point beyond Spindler's merely descriptive work.

### **The archaeoastronomical interpretation by Allard Mees**

When Mees' article was published in 2011 in the RGZM *Jahrbuch 2007* and in parallel as a special reprint and accompanied by a RGZM press release, it received widespread media attention and within German-language archaeology opened a heated debate about the justification of archaeoastronomical methodology within archaeological research.<sup>25</sup> Mees postulates two hypothesis which he combines to propose a calendrical function of the site: first, an arrangement of the burials such as to depict the starry sky, and second, an alignment towards lunar standstills, formed by an imaginary line separating the two semicircles of burials underground and the five pole rows above ground (Figure 4).<sup>26</sup> Mees recognizes the following constellations: Ursa minor, Draco, Ursa major, Bootes, Corona Borealis, Serpens Caput, Hercules, Lyra, Sagitta, Cygnus, Delphinus, Cepheus and Cassiopeia, all depicted in an 'astronomically correct relation' and as they, in his opinion, could have been observed in the sky in the year 618 BCE around winter solstice before sunrise and around summer solstice after sunset.<sup>27</sup> Mees refutes Spindler's conviction that there must have

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<sup>22</sup> Meyer-Orlac, 1983, pp. 15.

<sup>23</sup> Meyer-Orlac, 1983, pp. 15-16.

<sup>24</sup> Meyer-Orlac, 1983, pp. 16 [‘So wäre vielleicht in der Anlage des Bestattungsplans eine Kompromisslösung zu erkennen: Die Orientierung der Bestattungen wäre gewissermassen eine Art Resultante zwischen zwei Magnetfeldern, dem einen des zentral bestatteten Toten und dem anderen im Nordwesten, Totenland, Gottheit, Heiligtum der Lebenden, was auch immer.’ My translation]

<sup>25</sup> ‘Ein frühkeltisches “Stonehenge” in Schwarzwald entdeckt’, press release by the Römisch-Germanisches Zentralmuseum, Mainz / Germany, 15 June 2011.

<sup>26</sup> Mees, 2007.

<sup>27</sup> Mees, 2007, p. 220-222 [‘Die Zahl der Gräber stimmt nicht mit der heute offiziellen Zahl der Sterne eines einzelnen Sternbildes überein’, ‘einen astronomisch korrekten, relativen Bezug zueinander’; my translation].

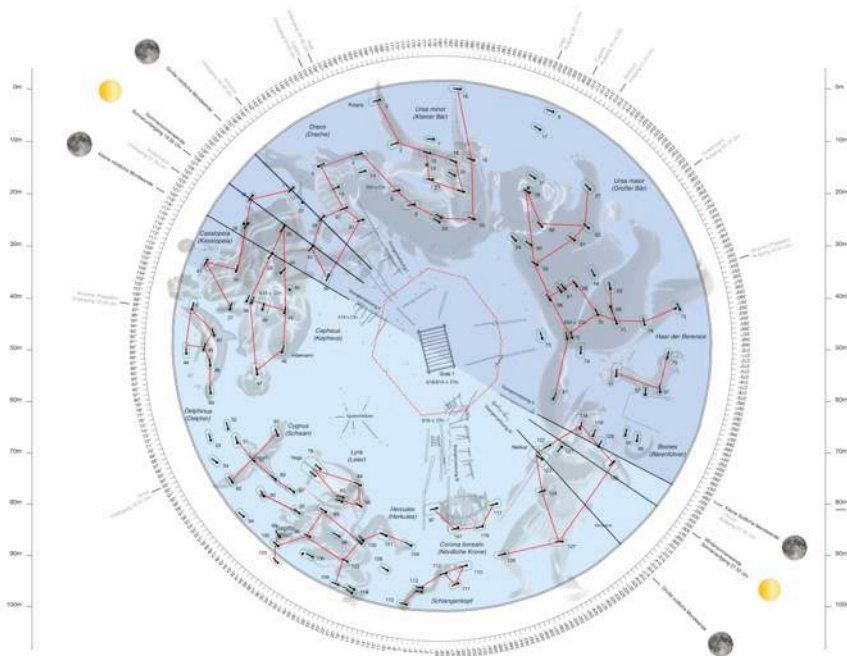


Figure 4. Site plan with alignments and constellations as published in Mees, 2007 (used with permission).

been more burials in the centre by stating: ‘Since all at the time of summer solstice visible constellations are represented [...] it is not to be assumed that there had been more burials in the centre’.<sup>28</sup> As an explanation for the depiction of exactly these constellations Mees assumes intellectual influences from Mediterranean (specifically Greek) culture, calling it ‘a starry sky in Greek tradition’.<sup>29</sup>

Mees’ argumentation is highly problematic for several reasons: Firstly, the argumentation is circular; that which needed to be demonstrated is used as evidence. Secondly, the question of how and by what means people could have followed through on such a plan for an assumed period of usage between 20 and 70 years – depending on the method used for dating - is not even posed.<sup>30</sup> Thirdly, Mees tries to support his hypothesis by the connection with Greek culture. However, celtic star myths might have existed in the Hallstatt period unrecorded and constellations like Ursa major or Draco are likely to be much older and were

<sup>28</sup> Mees, 2007, p. 222.

<sup>29</sup> Mees, 2007, p. 222.

<sup>30</sup> Julia Koch, presentation at the Magdalenenberg-Symposium, Villingen, 23 May 2014.

known in both Eurasia and North America possibly as long as 10 000 BCE in the case of Ursa Major, as Bradley Schaefer argues.<sup>31</sup> Therefore, with Mees' hypothesis, the ultimate question is not so much if people considered stars and constellations as important *in the sky* but if they *depicted* the stars or constellations *on earth* and in which form and why they would have done so. To this end, Mees can provide no evidence. In two later publications Mees essentially repeats his starry sky hypothesis, adding that the depiction needs to be interpreted symbolically.<sup>32</sup> As an example he mentions the constellations of Draco and Ursa minor which in his opinion, with regard to their actual position in the sky, intentionally had been moved towards the edge of the mound, in order 'to provide the chieftain in the middle with an unobstructed view into the sky'.<sup>33</sup> When asked about this point in the interview, Mees answered that he would consider it 'presumptuous to be buried atop a chieftain'.<sup>34</sup> The argumentation aims at countering criticism supported by Spindler's erosion theory but since it is only based on Mees' subjective opinion it cannot be called more than pure speculation. Nevertheless I would like to add one observation which Mees does not mention: provided that stars or constellations are indeed depicted – which at this point remains speculative – a division into two groups corresponding to the two semi-circles of secondary burials can be noticed: the stars and constellations of the northeastern half would be circumpolar whereas the ones of the southwestern half could be seen rising and setting with respect to the horizon. Though at the recent symposium the starry sky hypothesis has remained decidedly refuted by the attendant archaeologists based on a lack of material evidence and the absence of a statistical approach for deviation measurements, one should also bear in mind that nonconformance to our modern Western requirements for accurate depiction would not necessarily disprove the hypothesis.<sup>35</sup>

In addition to the starry sky hypothesis Mees also claims a lunar standstill alignment of the secondary burials and wooden pole rows. In a footnote he points

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<sup>31</sup> Bradley Schaefer, 'The latitude and epoch for the formation of the southern Greek constellations', *Journal for the History of Astronomy*, Vol. 33 (2002), p. 334.

<sup>32</sup> Allard Mees, 'Die Kelten und der Mond: Neue Forschungen am Magdalenenberg', *Antike Welt*, Vol. 6 (2012), p. 52 [hereafter Mees, 2012]; Allard Mees and Bruno Deiss, 'Keltische Sternenforscher', *Spektrum der Wissenschaft*, Vol. 9 (2013), pp. 82-83 [hereafter Mees and Deiss, 2013].

<sup>33</sup> Mees, 2012, p. 52 [original text: 'so dass der Fürst in der Mitte einen freien Blick in den Himmel hatte'; my translation]

<sup>34</sup> Interview with Allard Mees on 24 April 2014 [original text: 'ich halte es auch für vermessen, wenn ich mich selbst oberhalb eines Fürsten bestatte'].

<sup>35</sup> Ruggles, 2011, p. 5.

out that ‘unfortunately gross measuring errors can be observed in the excavation plans’, leading to an uncertainty of up to seven degrees with respect to the orientation of true north.<sup>36</sup> Mees follows the orientation used by Meyer-Orlac in 1983.<sup>37</sup> He says:

‘Pole row I itself aims at azimuth 150°, the ditch between pole row I and II [...] aims at the major lunar standstill at azimuth 136°, and pole row II is connected to the minor northern lunar standstill. Pole rows IV and V are oriented towards the minor southern lunar standstill at azimuth 299° and the major southern lunar standstill at azimuth 317°, respectively. Calculations show that the bisector between pole rows IV and V are oriented towards winter solstice at azimuth 306°.’<sup>38</sup>

According to Mees pole row III was used as a line of sight to capture the full moon at its highest position after summer solstice in the major lunar standstill year 618 BCE, ‘an indication that people at the time were not yet able to measure astronomical lunar standstills correctly in a modern sense’ and the other pole rows as sight lines for the moon’s rising and setting.<sup>39</sup> Apart from the fact that a dating to 618 BCE contradicts the dendrochronological dating which assumes a building start late in the year 616 BCE (one of the wooden poles of row II indeed had been dated to 618 BCE but the authors made clear in the same publication that this piece of data is ambiguous and therefore settled on 616 BCE as the building start date) Mees indiscriminately mixes rising and setting of the moon, major and minor lunar standstills, winter solstice, pole rows and the ditch to illustrate alignments which for him seem already to be obvious.<sup>40</sup> Concerning the dating, Mees in a later publication corrected himself, pointing out that he assumes

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<sup>36</sup> Mees, 2007, p. 225 [original text: ‘Unglücklicherweise sind in den publizierten Grabungsplänen grobe Vermessungsfehler feststellbar’; my translation].

<sup>37</sup> Mees, 2007, p. 225; note: Mees is using a south azimuth, therefore true north equals 180° in his publications.

<sup>38</sup> Mees, 2007, p. 225 [original text: ‘Die Stangensetzung I selbst zielt auf Azimuth 150°, der Graben zwischen Stangensetzung I und II [...] zielt auf die Grosse Mondwende bei Azimuth 136°, und die Stangensetzung II ist mit der Kleinen Nördlichen Mondwende verbunden. Stangensetzungen IV und V sind mit der Kleinen Südlichen Mondwende an Azimuth 299° sowie der Grossen Südlichen Mondwende an Azimuth 317° orientiert. Die Berechnungen zeigen, dass sich die mittlere Achse zwischen den Stangensetzungen IV und V an der Wintersonnenwende beim Azimuthwert 306° orientiert’; my translation].

<sup>39</sup> Mees, 2007, p. 230 [original text: ‘Das Vorhandensein einer Visierlinie in Richtung Süden ist ein deutliches Indiz dafür, dass man damals noch nicht in der Lage war, die astronomische Mondwende im modernen Sinn korrekt zu erfassen.’; my translation].

<sup>40</sup> André Billamboz and Mechthild Neyeses, ‘Das Fürstengrab von Villingen-Magdalenenberg im Jahrringkalender der Hallstattzeit’, in *Der Magdalenenberg bei Villingen, Führer zu archäologischen Denkmälern in Baden-Württemberg*, Vol. 5 (Konrad Theiss Verlag, Stuttgart, 1999), pp. 104-105.

an alignment towards lunar standstills in general rather than one specific lunar standstill.<sup>41</sup> As with the starry sky hypothesis, he does not distinguish properly between facts and interpretation, that is orientation of the pole rows expressed as azimuth values and postulated alignments with astronomical observations. Also, without a clear definition of the term, Mees defines Magdalenenberg as a 'Kalenderwerk', that is an object or building with a calendrical purpose; in fact he uses this term for almost any other archaeological site displaying an astronomical orientation and dating from the Neolithic to Classical Greece.<sup>42</sup> In his conclusion and also a later article Mees speculates about a sacral function of the ruler buried in the centre of the mound and that 'the entire complex as calendar defines the yearly structure for his people'.<sup>43</sup> It remains obscure however in which way this might be related to the material findings as well as the astronomical alignments.

### **Objections against the archaeoastronomical interpretation**

The calendar hypothesis, not only with regard to Magdalenenberg but also to other prehistoric sites and findings, became the focus for the archaeological master's thesis by Claudia Rohde in 2012, done under the supervision of Christoph Huth of the University of Freiburg, and, as Huth states in the preface, aiming at starting a scholarly debate on 'calendars in prehistory' and correcting 'the public image of [prehistoric archaeology], which is increasingly influenced by archaeoastronomy'.<sup>44</sup> Restricting her examination to a selection of German-language articles – Rohde distinguishes articles published by archaeologists, astronomers and individuals with other or unknown professional background – Rohde observes an increasing tendency to search for calendars in prehistory in order to prove cultural progressiveness and scientific sophistication and to sensationalise research findings. Her impression of the usage of the term 'calendar' in the publications examined shapes her definition of the term: a calendar is an 'exact measuring instrument for the precise determination of a day within the course of a year'.<sup>45</sup> Rohde then demonstrates the implausibility of the

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<sup>41</sup> Allard Mees, 'Die Kelten und der Mond: Neue Forschungen am Magdalenenberg', *Antike Welt*, Vol. 6 (2012), pp. 52-54 [hereafter Mees, 2012].

<sup>42</sup> Mees, 2007, pp. 243-249.

<sup>43</sup> Mees, 2007, p. 257 [original text: 'Die Gesamtanlage als Kalenderwerk bestimmt die Jahresabläufe seines Volkes'; my translation]; Mees, 2012, pp. 47-54.

<sup>44</sup> Claudia Rohde, 'Kalender in der Urgeschichte – Fakten und Fiktion', *Archäologie und Moderne Gesellschaft*, Vol. 3 (Verlag Marie Leidorf GmbH, Rahden/Westfalen, 2012), p. 5 [original text: 'Das gilt einerseits für die postulierten Kalender selbst, die nur selten ernsthaft diskutiert werden, andererseits für das Bild des Faches in der Öffentlichkeit, das zunehmend von der Archäoastronomie geprägt wird,...'; my translation]; [hereafter Rohde, 2012].

<sup>45</sup> Rohde, 2012, p. 12.

burial mound of Magdalenberg ever being used as a calendar. She demands: 'Alternative interpretations for all the objects mentioned must not be made since further meaning cannot be constructed from the archaeological record. The proper meaning of certain objects is and remains hidden'.<sup>46</sup> At the same time she agrees that consideration of astronomical phenomena with regard to archaeology might be useful to gain insight into the 'mythic-religious' belief systems of ancient peoples – if it is done 'using very strict standards and great caution'.<sup>47</sup>

With these somewhat contradictory statements the intention of Rohde's thesis remains unclear. Her thesis title promises to separate 'facts' from 'fiction' but her sometimes justified criticism of archaeoastronomical research falls short against a general impression that her main interest is not so much a discussion about definition and usage of the term calendar but a refutation of archaeoastronomy as 'fiction'. When Rohde declares that 'interest [of prehistoric people] in determining annual cycles likely was not scientific-astronomical but mythic-religious, that is, astrological' she fails to notice that this kind of mutually exclusive categorisation was not present in prehistory.<sup>48</sup> As Colin Renfrew and Iain Morley recently stated: 'The measurement of time, in particular, involving astronomical observation and systematic contemplation of the cosmos, often became involved with formulations conceiving of the universe and of the spiritual or religious forces postulated as motivating it'.<sup>49</sup> Simply put, one might also say that historically science and spirituality / religion share the same root: observation and contemplation of nature and the cosmos. Accordingly, usage of a calendar might be motivated by both at the same time.

While Rohde's work can still be called a scholarly contribution to an academic debate, regardless of its weaknesses and whether one agrees with it or not, Samida and Eggert's booklet is polemic by design, as Samida freely admitted during the interview.<sup>50</sup> This is so much the more surprising as the authors

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<sup>46</sup> Rohde, 2012, p. 50 [original text: 'Eine alternative Deutung zu allen genannten Objekten muss ausbleiben, da weitreichende Deutungen aus den archäologischen Fakten nicht zu erschliessen sind. Der eigentliche Sinn bestimmter Objekte ist und bleibt uns verborgen'; my translation].

<sup>47</sup> Rohde, 2012, p. 55.

<sup>48</sup> Rohde, 2012, p. 54 [original text: 'Das Interesse an der Bestimmung der Jahreszyklen war vermutlich nicht wissenschaftlich-astronomisch, sondern mythisch-religiös – also eher astrologisch'; my translation].

<sup>49</sup> Colin Renfrew and Iain Morley, 'Measure: Towards the construction of our world', in Iain Morley and Colin Renfrew (ed.), *The Archaeology of Measurement – Comprehending Heaven, Earth and Time in Ancient Societies* (Cambridge University Press, 2010), p. 3.

<sup>50</sup> Stefanie Samida und Manfred K. H Eggert, 'Archäologie als Naturwissenschaft? Eine Streitschrift', Reihe Pamphletliteratur, Vol. 5 (Vergangenheitsverlag, 2013), [hereafter Samida and Eggert, 2013]; Interview with Stefanie Samida on 3 May 2014.

elsewhere argue objectively and based on evidence, and Eggert in the last twenty to thirty years has been leading in contributing an immense amount to the theoretical debates in prehistoric archaeology in Germany, especially with regard to the English-language discussions in the field.<sup>51</sup> Nonetheless, in the polemic paper the authors champion two theses: a new 'positivistic-scientistic paradigm' within archaeology, as well as 'disturbing tendencies towards pseudo-religious and esoteric interpretations' of prehistory.<sup>52</sup> Positivism and scientism have been reproaches addressed to the so-called 'New Archaeology' or 'Processual Archaeology' which in the 1960s first introduced scientific methodologies, for instance acquisition of quantitative data and requirement for testability of hypotheses, into archaeology which before that time had solely relied on the descriptive methods of history.<sup>53</sup>

When asked in the interview to better explain why, in her polemic, she on the one hand stresses the importance and benefit of scientific methodology for archaeology and even calls for more interdisciplinary research but on the other hand criticises the same methodology as being positivistic and scientistic, Samida, after again emphasising the importance of science for archaeology, said 'it cannot be that the data delivered [by scientists] is just blindly accepted. I need to understand how one arrived at the results, what kind of problems exist within the methodology [...], things I might not be aware of as an archaeologist'.<sup>54</sup> She continued: 'but often, in my impression, the perception is that we receive the data and that these are as good as "safe". They are true, and correct, and we can rely on them one hundred percent, everything is perfect. And I think this is a

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<sup>51</sup> As latest example: Manfred K. H Eggert and Ulrich Veith, *Theorie in der Archäologie: Zur jüngeren Diskussion in Deutschland*, Tübinger Archäologische Taschenbücher, Vol. 10 (Waxmann, 2013).

<sup>52</sup> Samida and Eggert, 2013, Summary on back.

<sup>53</sup> Colin Renfrew and Paul Bahn, *Archaeology- Theories, Methods and Practice*, 6th edition (Thames and Hudson, London, 2012 (1991)), pp. 40-41; Jeremy Sabloff, 'Processual Archaeology', in Colin Renfrew and Paul Bahn (ed.), *Archaeology – The Key Concepts* (Routledge, Oxon, 2005), pp. 212-219.

<sup>54</sup> Interview with Stefanie Samida on 3 May 2014 [original text: 'dass es nicht so sein darf, dass man diese Daten, die uns dann geliefert werden, einfach blind übernimmt. Ja, ich muss ja auch verstehen, wie ist das Ergebnis zustande gekommen, welche Probleme gibt es innerhalb der naturwissenschaftlichen Methodik, ja ...mmh ... die ich vielleicht gar nicht als Archäologe wissen kann'; my translation].

problem'.<sup>55</sup> Samida's answer indicates that a general feeling of inadequacy towards scientific methodology and the inability to interpret scientific results by themselves contributed to the authors having resorted to pettishness and polemics instead of initiating an academic debate on the topic. It is true that without knowledge of scientific approaches and methodology it is not possible to critically evaluate and comment on the results obtained by such methodology. Methods like DNA and isotope analysis however, can only be performed in specialised laboratories by professional experts in their field which might make results appear irrefutable to people from other disciplines, including many archaeologists. In contrast to this, archaeoastronomy lacks the formal status of an established academic discipline and attracts people of diverse educational and professional backgrounds – as has been shown for Germany by Rohde.<sup>56</sup> Therefore it constitutes a much easier target for criticism. In addition, archaeoastronomers themselves quite often seem not to be aware that their discipline is a hybrid in need of knowledge and methodology of both its mother-disciplines archaeology and astronomy, with the consequence of methodological shortcomings leading to research being completely refuted.

With regard to Mees' interpretation of Magdalenenberg Samida and Eggert's main criticism focuses on the RGZM press release with its unprofessional and misleading headline (in the authors' opinion) 'Early Celtic "Stonehenge" discovered in Black Forest' and 'methodological weaknesses' as Mees' use of the term calendar and the lack of discussion of alternative interpretations.<sup>57</sup> Whereas archaeology's use of and relationship with the media and the public would need a more in-depth examination, this essay clearly shows that the second charge is a valid point of criticism which indeed should be discussed. It seems at first surprising why then there is no practical examination of the astronomical alignments claimed by Mees though these are at the bottom of his thesis. In light of what has been said above, this omission becomes more understandable: most likely Samida and Eggert, together with the majority of archaeologists, lack the astronomical knowledge which would have enabled them to critically evaluate Mees' thesis on the basis of factual evidence.

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<sup>55</sup> Interview with Stefanie Samida on 3 May 2014 [original text: 'aber häufig, ist mein Eindruck, wird es so wahrgenommen, wir bekommen die Daten geliefert und die Daten sind dann 'safe', sozusagen. Die sind richtig, und korrekt, und da können wir uns hundertprozentig drauf verlassen, und alles ist gut. Und da denke ich, ist halt ein Problem'; my translation].

<sup>56</sup> Rohde, 2012, pp. 83-84.

<sup>57</sup> Samida and Eggert, 2013, pp. 78-87; RGZM press release, 15 June 2011 [original text: 'Ein frühkeltisches "Stonehenge" im Schwarzwald entdeckt'; my translation].

## The Magdalenenberg-Symposium in May 2014

The recent symposium 'Archaeoastronomy and Archaeology – Pros and Cons' which took place in Villingen on 23 May 2014 and was organised by the State Office for Cultural Heritage Baden-Wuerttemberg and the Franziskanermuseum Villingen-Schwenningen, brought together archaeologists and archaeoastronomers in discussion for the first time.<sup>58</sup> Two archaeologists presented recent research findings: Julia Koch on the societal structure of the people buried on Magdalenenberg as it can be interpreted from a comparison of isotope analysis of the burials, revealing their geographical background, with a typology of funerary goods; and Thomas Knopf on a settlement analysis of the larger geographical area during the Hallstatt period leading to, in his words, a 'relativisation' of the site.<sup>59</sup>

In his presentation Mees concentrated on the division of the secondary burials into two semi-circles which, as he said, can also be found in other tumuli from the same period in France, Germany and also Slovenia and which in his opinion can best be explained by an orientation towards lunar standstills, whereas Bruno Deiss, an astrophysicist who in 2006 provided evidence of a major lunar standstill orientation of the site of Glauberg near Frankfurt (Main), a hypothesis since accepted among archaeologists, exercised self-criticism with regard to the interpretation of sacral structures as calendars in the sense they are used today which Mees at the later discussion round agreed on.<sup>60</sup> At the same time Deiss pointed to archaeologists' unreflected use of the term 'observatory' in advertising the site of Goseck in Saxony-Anhalt and the apparent lack of awareness of the importance of accurate documentation of north referencing during excavations.<sup>61</sup> In the last presentation, archaeologist Ines Balzer from the museum and research center 'Keltenwelt am Glauberg' illuminated the area of

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<sup>58</sup> <http://www.villingen-schwenningen.de/kultur/staedtische-museen/magdalenenberg-symposium.html> (accessed on 26 March 2014); Press release by Städtische Museen Villingen-Schwenningen und RP Stuttgart, 9 May 2014.

<sup>59</sup> For example: Vicky M. Oelze, Julia K. Koch, Katharina Kupke, Olaf Nehlich, Steve Zäuner, Joachim Wahl, Stephan M. Weise, Sabine Rieckhoff, and Michael P. Richards, 'Multi-Isotopic Analysis Reveals Individual Mobility and Diet at the Early Iron Age Monumental Tumulus of Magdalenenberg, Germany', *American Journal of Physical Anthropology*, Vol. 148, pp. 406–421 (2012); Magdalenenberg-Symposium on 23 May 2014, my notes.

<sup>60</sup> Bruno Deiss, 'Zur Struktur und astronomischen Orientierung der Grabensysteme um die Fürstengrabhügel am Glauberg', in *Der Glauberg in keltischer Zeit. Zum neusten Stand der Forschung*, Symposium Darmstadt, 14-16 September 2006, *Fundberichte Hessen*, Vol. 6 (Wiesbaden, 2008), pp. 279-294; Magdalenenberg-Symposium on 23 May 2014, my notes.

<sup>61</sup> Magdalenenberg-Symposium on 23 May 2014, my notes; [http://www.lda-lsa.de/nc/de/himmelswege/?sword\\_list\[0\]=goseck](http://www.lda-lsa.de/nc/de/himmelswege/?sword_list[0]=goseck) (last accessed 4 June 2014).



Figure 5. Wooden pole row erected on Magdalenenberg in September 2014 (photograph by the author).

conflict between archaeological research findings and their public presentation for touristic purposes, a topic of discussion also in Villingen where the opening of an educational trail around the site of Magdalenenberg was decided on in 2013.<sup>62</sup> In his summary, Dirk Krausse who as the representative of the State Office for Cultural Heritage chaired the event, stressed that criticism of archaeoastronomy by archaeologists pertains to methodological issues and that there is no general objection against interpretations based on alignments towards astronomical events like solstices or lunar standstills.<sup>63</sup> The educational trail with seven information boards and one row of wooden poles as illustration was officially inaugurated on 14 September 2014 (Figure 5).<sup>64</sup> One of the boards shows the site

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<sup>62</sup> Magdalenenberg-Symposium on 23 May 2014, my notes; <http://www.schwarzwaelder-bote.de/inhalt.villingen-schwenningen-breite-zustimmung-fuer-den-keltenpfad.d255d17e-762d-4999-9a40-5373ab08eff1.html> (last accessed 4 June 2014).

<sup>63</sup> Magdalenenberg-Symposium on 23 May 2014, my notes.

<sup>64</sup> <http://www.villingen-schwenningen.de/kultur/staedtische-museen/keltenpfad-magdalenenberg.html> (last accesses on 26 Oct 2014).

plan published by Meyer-Orlac and also mentions in one sentence that ‘a new thesis claims alignment of the wooden constructions towards lunar standstills’.<sup>65</sup>

### **Impressions from visiting Magdalenenberg**

What is important therefore and apparently has not been done up since the publication of Meyer-Orlac, is a discussion of alternative explanations for the observed southeast-northwest orientation. In his 2011 publication Mees mentions the view of the Alps which ‘might have figured in choosing this location’ but instead of providing an account of the landscape as visible from Magdalenenberg he immediately focuses on the sky and designates the location ‘ideal for observing celestial phenomena on the southeastern horizon’.<sup>66</sup> In the interview he confirmed this statement and with regard to pole row I which cannot be explained with his hypothesis he added, contradicting Meyer-Orlac, that ‘the northwestern direction is of no interest at all’, for which reason in his view an accurate alignment had not been considered important.<sup>67</sup> Here again it seems that personal bias influenced Mees’ interpretation.

I first visited the site myself on 23 March 2014, a cold day with grey clouds hanging rather low, and a second time on 24 June 2014. The Alps, 120km distant, could not be seen on both days, as they probably cannot on many days during the year due to meteorological conditions. Still, it was the southeastern horizon that caught my interest immediately: while there is no view towards the east because the burial mound is situated on the western end of a ridge, at azimuth 135° the silhouette of the 845m high Wartenberg, the most northern of the Hegau volcanoes, can be seen, and at azimuth 153° the Fürstenberg with 910m elevation, a mountain of the southwest-german escarpment landform (Figure 6).<sup>68</sup> The distance to both mountains is only about 20 km and on Fürstenberg a celtic hilltop

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<sup>65</sup> Visit of Magdalenenberg on 16 Oct 2014 [original text: ‘Eine neue These will die Holzkonstruktionen auf die Mondwenden ausgerichtet sehen’; my translation].

<sup>66</sup> Mees, 2007, p. 220 [original text: ‘Bei der Wahl des Ortes hat wohl auch der weiträumige Blick auf die Alpen eine Rolle gespielt [...], der Ort war daher vor allem für die Beobachtung von Himmelserscheinungen am südöstlichen Horizont geeignet’; my translation].

<sup>67</sup> Interview with Allard Mees on 24 April 2014 [original text: ‘nicht in Richtung Nordwesten, das ist völlig uninteressant [...] es ist nicht so relevant, dass es da nicht stimmt’; my translation].

<sup>68</sup> Position measured with a hand held GPS: latitude 48.044367 N, longitude 8.4436 E, elevation 771m; azimuth values given in the text are measured with a Suunto compass; names of mountains confirmed with the website [www.peakfinder.org](http://www.peakfinder.org).

settlement had been located.<sup>69</sup> In about the same distance towards the northwest, approximately at azimuth 306°, the source of the Brigach is located, one of the source rivers of the Danube. There, in the 19th century during reconstruction work at a farmhouse, a stone relief was found which later has been dated to the Celtic-Roman period and is interpreted as indicating a spring sanctuary at this place.<sup>70</sup> Past the confluence of the rivers Brigach and Breg, the Danube winds eastward in between Wartenberg and Fürstenberg and in about 70 km linear distance on a hill above its bank the Hallstatt period city Heuneburg was located, according to Krausse 'the oldest city north of the Alps' and possibly identical to the city of Pyrene mentioned by Herodotus.<sup>71</sup>

Of course a further literature review is needed about the putative importance of the two mountains in the southeast, the source of the Danube in the northwest and the Danube in general during the Hallstatt period as well as research into how celestial phenomena, the sun, moon and stars, at the time might have related to the landscape surrounding Magdalenenberg. Also, to confirm or disprove the lunar standstill hypothesis convincingly the exact metric coordinates from the excavation would be essential; according to Krausse these should be available somewhere or else it might be possible to reconstruct the orientation with the help of aerial photographs done during the excavation.<sup>72</sup> It is interesting that the Danube and its source river as seen from Magdalenenberg indicate a northwest - southeast orientation, therewith providing a possible context for the interpretation of astronomical alignments. As Silva, speaking about skyscape archaeology, put it: 'archaeoastronomy looks up, whereas landscape archaeology [...] looks down and around, although they always meet at the horizon'.<sup>73</sup>

## Conclusion

Using the example case of the burial mound of Magdalenenberg in Villingen, Germany this essay contrasts its conventional archaeological interpretation with the contested archaeoastronomical hypotheses of Allard Mees.

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<sup>69</sup> Heiko Wagner and Bertram Jenisch, 'Der Fürstenberg – keltische Siedlung, Grafensitz, Kleinstadt: Hüfingen-Fürstenberg, Schwarzwald-Baar-Kreis', *Archäologische Ausgrabungen in Baden-Württemberg*, 2011, pp. 49-53.

<sup>70</sup> Ferdinand Maier, 'Der Bildstein von der Brigachquelle St. Georgen (Schwarzwald-Baar-Kreis)', *Germania*, Vol. 84/2 (2006), pp. 415-429.

<sup>71</sup> Dirk Krausse and Manuel-Fernandez-Götz, 'Die Heuneburg – Neue Forschungen zur Entwicklung einer späthallstattzeitlichen Stadt', in *Die Welt der Kelten. Zentren der Macht - Kostbarkeiten der Kunst* (Thorbecke, 2012), pp. 116-123.

<sup>72</sup> Magdalenenberg-Symposium on 23 May 2014, my notes.

<sup>73</sup> Fabio Silva, 'The role and importance of the sky in archaeology: an introduction', in Fabio Silva and Nicholas Campion (ed.), *Skyscapes in Archaeology: The Role and Importance of the Sky*, (Oxbow, Oxford, 2014) [hereafter Silva, 2014b].

Drawing on the published research, personal interviews with Mees and one of the authors of a booklet refuting his interpretation, and the recent symposium and panel discussion, I argue that in the case of Magdalenenberg reservations against archaeoastronomy by archaeologists are due to obvious methodological and argumentative weaknesses of Mees' work on the one hand and a general lack of academic level discussions about archaeoastronomy on the other. These two causes are mutually dependent. My own impressions from visiting the burial mound indicates the importance of including the surrounding landscape and horizon in discussion and interpretation of the site. Silva remarked that in the English-speaking world 'archaeoastronomy has become an academic discipline [...], but in the process of (re)defining itself to withstand scientific scrutiny it lost its link to the wider archaeological and anthropological communities'.<sup>74</sup> Taking the archaeological and archaeoastronomical interpretations of the burial mound of Magdalenenberg as a case in point, German-language archaeoastronomy can rather be seen at the point of struggling for academic recognition. To take this step, development of a methodology and concept living up to the expectations of both academic astrophysicists and prehistoric archaeologists seems to be absolutely essential and much work remains to be done. Events like the Magdalenenberg-Symposium in Villingen are first steps in the direction of an academic level discussion also in German language research: as an outcome of the research on Magdalenenberg the RGZM is going to include research on 'orientation in space and time' into its official strategy, providing room for consideration of astronomy within archaeological research.<sup>75</sup>

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<sup>74</sup> Silva, 2014b, p. 3.

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