

# The Europe-Compass of Wegberg

## A stone-age relief sketch of Europe versus arithmetic

Hans Grams

### Summary

*This article deals with two cartographic studies of the relief side of the "Europe-Compass of Wegberg" (with regard to the site: UNI Duisburg-Essen, Germany) and (with regard to the elevation: TU Dresden, Germany). It is stated that a sketch by scientific methods is hardly verifiable. The very imperfection and archaic awkwardness of the stone-age orientation stone prove its authenticity. Also, the easy application of the compass by simply turning over the stone after it has been orientated, which leads to a geographically correct position, should not be disregarded when assessing this stone-age orientation device.*

*The rhythm of the precession of the axis of the earth to the pole of the ecliptic, which every 25,750 years occupies the same position as it does today and points to the Pole star, the North orientation of the compass to the Pole star recognizable in the stone engravings, and the sketchy depiction of the status of Europe at that time on the relief allow the conclusion to its use in the period of the Last Glacial Maximum (LGM).*

*Comparison with the Neanderthal compass, which is amazingly similar in many details, and numerous undisputed facts, plausible uses and the refinement of its production speak for the authenticity of the "Europe-Compass of Wegberg" without verification by algorithms.*

*This little gem of a glacial compass of Europe with an integrated map requires an additional, different way of approach towards its scientific recognition.*

*The stone-age geographical relief sketch is a high-quality cultural good which the general public should not be deprived of.*

Keywords: stone-age compass, proof of authenticity, manageability, need for analysis, Europe during LGM

## 1 Geometric accuracy of a sketch

The sketch is essentially never (geometric) exact. It can be properly (visually similar to reality) or wrong (visually dissimilar to the reality). Both a proper sketch and certainly not a fake sketch the geometric accuracy can't be proved by algorithms.

For the people holistically to capture an image, however, a sketch is interpretable despite of its inaccuracy. It can be of interest and value for him when it is roughly similar to an item occurring in reality.

The following illustration shows the problem of the geometric accuracy of a sketch in a very much simple form.

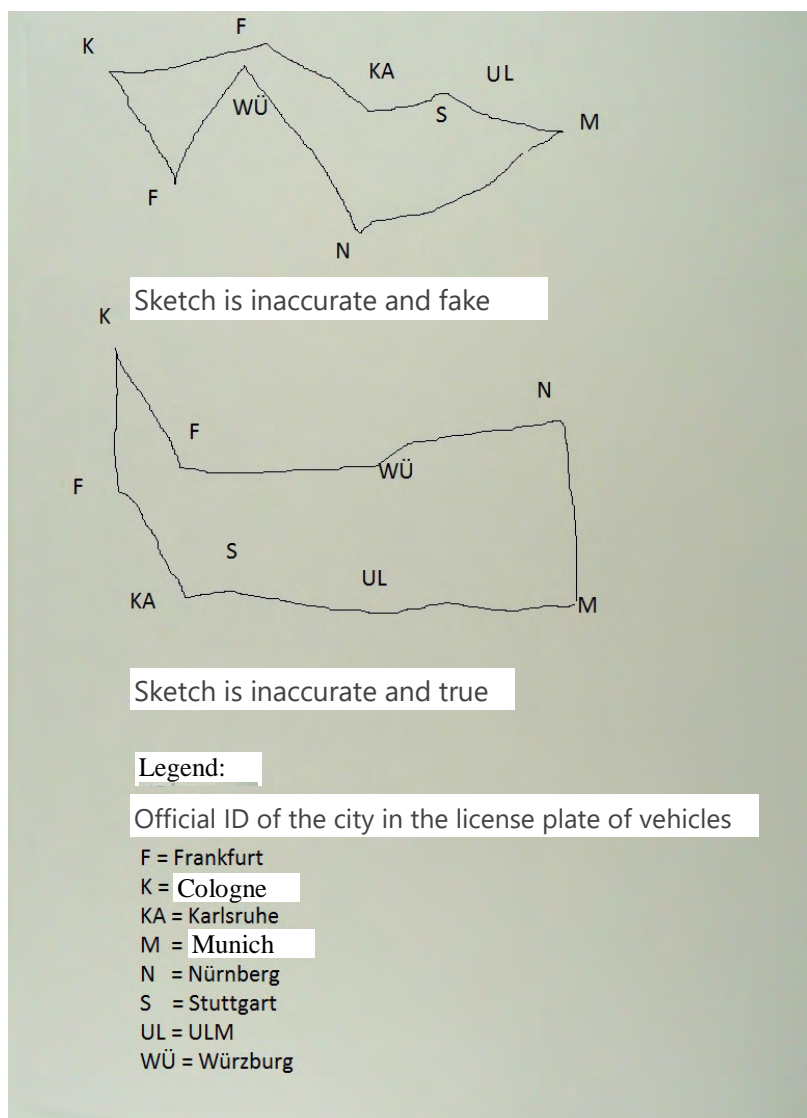


Fig. 01: Alternatives of an inaccurate false and inaccurate true sketch for the route from Cologne to Munich or vice versa

The author would like to set up here now following thesis:

**The map page of the European compass of Wegberg is an inaccurate but correct relief sketch of ice age Europe, which defies verification by algorithms - while verifying by non-algorithms-based arguments is authentic and can be used successfully.**

## 2 Status of scientific analysis



Fig. 02: maps-page of the European compass of Wegberg

The European compass of Wegberg was found at 18.03.2005 on the grounds of the Golf Club 'Schmitzhof' in D 41844 Wegberg-Merbeck and registered under finding W274S of the 'Ruf aus der Altsteinzeit – Foundation'.

The shaped as a biface stone, annotated with the Europe relief is a compass, which one is orientable by means of the Sun or the pole star. The author in Grams (2012) has described this and the overall integration of his findings in detail.

With regard to the site Hansen (2006) - and with regard to the elevation, Jaunsproge (2013) by two scientific projects the correctness of the relief sketch was investigated based on algorithms. But it could not be verified with the certainty which often guarantees the arithmetic.

The heads of the projects showed courage to tackle the investigations at all. They would have not done this, if they had not seen and had a presentiment of the value of the stone map. But they saw themselves - as on exact mathematical physical facts-building modern natural scientists having carried out the investigation - not in a position to witness the relief side of the 'Europe compass of Wegberg' as a stone map of ice age Europe.

The compass as a whole including its **manageability as an instrument** was so far **not yet scientifically analyzed**.

The editors of the stone had several year tens of thousands less technology experience as we modern people have. On the basis of our current knowledge, we see their skills and capabilities

through very opaque glasses. Here is a drastic example: would one in our days of the global positioning system (GPS) send for instance a group of researchers equipped only with the stone age Europe compass out for the walk - partly by day and partly at night - from the site Wegberg in Germany to the Bay of Genoa in Italy, so would this group hardly be able to totally strip off their current knowledge and take not off and on a modern tool into the hand. It would be however very much interesting to learn whether they would have reached their target and in which time and under what circumstances.

Anyway, the palaeolithic people had that plus, as eye-witnesses to sketch the shape of their habitat, while today's scientists can only indirectly explore how Europe looked to the presumed time of the production of the stone map.

In science is no consensus about whether the British and the Scandinavian ice sheet were linked. Despite the sketchy representation of the European compass you could consult man made living at that time, the creators of the stone map, when such a dispute occurs. The manufacturer of the compass has cleverly chosen the straight top edge of the stone for the representation of the nearly straight line from the West coast of Ireland over Scotland up to the northern coast of Norway. In relief, the stone shows how you could have seen the outlines from the Norwegian Sea. A side view on the top edge of the stone shows outlines, of which one could be in favor of a plane connection of the British and the Scandinavian ice sheet<sup>1</sup>.

Our judgment about the value of this orientation stone from the Paleolithic period should rely more on the criterion, whether he was so good that early people could draw satisfactory benefits for their own purposes from this.

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<sup>1</sup> The Institute of cartography of the TU Dresden has decided by the way because of other reasons for the appearance of a connection of the British and the Scandinavian ice sheet, Jaunsproge (2013).

### 3 Study by the University of Duisburg-Essen

In April of 2006 at the University of Duisburg-Essen, Department of Civil Engineering, in the Laboratory of Cartography under the direction of Professor Peter Mesenburg by Mr. Dipl.-Ing. David Hansen the first investigation of the finding W274S was carried out, Hansen (2006) and Grams (2006).

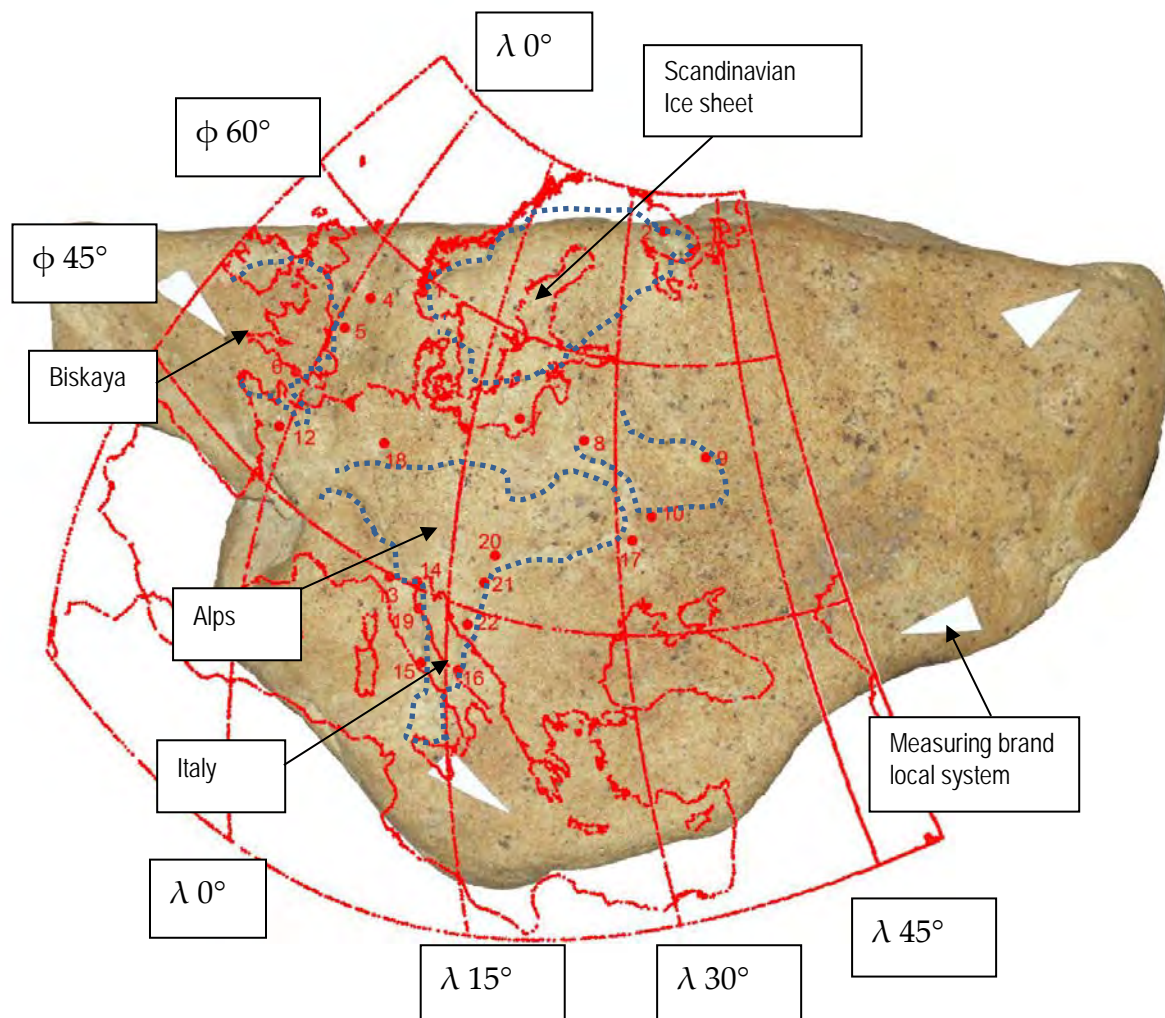


Fig. 03: Plot of Europe with the present-day coastlines, the latitudes and longitudes, the pass-points within a cylindrical projection on a photo of the map page of the European compass superimposed. Contours of the stone map are blue dotted.

The local scale of the map was determined with 1: 64.700.000.

The stone reliefs sketch the manufacturers of map stone succeeded in so far, that one quickly finds an identity of the "mental map", which one has of Europe, with its representation on the stone.

Just the very imperfection and archaic awkwardness of the stone-age orientation stone prove its authenticity. Was it polished, perfect and easily using modern algorithms to confirm, that would give place even more arguments against his emergence in the Paleolithic's.

Anyway, the recognition of Paleolithic people, to be able to sketch the continent of their habitat in stone, and their ability to perform this in parts with almost precision (boots of Italy), earns our admiration

#### 4 Study by the Technical University of Dresden

The research contract, which one in April 2010 by the 'Ruf aus der Altsteinzeit - Foundation' with the TU Dresden agreed contained first a Laserscanning of Europe compass of Wegberg and its representation in a 3D-model. In addition, he provided for the creating of a 3D-model of Europe during Last Glacial Maximum (LGM), which occurred during the Weichselian glaciation. After that the two 3D models on the basis of identical pass characteristics should be computer based compared on convergence / divergence.

The Institute of Cartography of the TU Dresden has carried out the work under the direction of Professor Manfred Buchroithner in the period 2010-2013. Doing this for the first time a complete geographic database of the LGM was created on the basis of a laborious and time consuming compilation of various research projects and complementary modeling, Jaunsproge (2013). In the Appendix 1 of the master's thesis by Ms. Mara Jaunsproge, the entire production process of the geographic database and out of it created first maps are described. Also a few statements to the "Europe Compass of Wegberg" are made and a picture of the finding W274S is represented in this master-thesis, Jaunsproge (2013:62 + 63).

The original of the Europe Compass of Wegberg remained in the custody of the Cartographic Institute of the TU Dresden during the whole period of the project.

After the completion of the digital 3D model of the 'Last Glacial Maximum' (LGM) in the form of the geographical database, the Dresden researchers the calculator assisted comparison of two 3D models no more realized. Already at a first visual comparison, even without hypsometric coloring, - said Prof. M. Buchroithner - that any geometric consistency as regards the distribution of elevations (also in "planimetric geo-referencing") was not to detect. Already when attempting to make identical 'rectify-chips', one would encounter considerable problems.

**A positive and remaining result of the research project was the first created, complete geographic database of Europe during the LGM.** The main data used and application systems are:

- Reference system: European reference system 89 (ETRS89)
- Digital terrain model (DTM): GTOPO30, a digital terrain model of the U.S. Geological Service (USGS)
- Shuttle Radar Topography Mission (SRTM): basis for the modelling of smaller ice covers
- ArcGIS, 10.1 by ESRI as interactive graphical information and database system
- Georeferencing: Using ArcMap tool
- Map projection: Lambert Azimuthal Equal-Area (LAEA)

The information stored in the database can be imported by cross-media mode as a whole or in parts for different purposes into other graphic systems and with special software elaborated. The

output can be in a scale from a paper map and going to 'real 3D lenticular sheets maps'<sup>2</sup>, whose content - regarded without special glasses – inside the looking on creates a spatial phenomenon of the map content.

The database includes where and in which one thickness and extent there has been large scale or punctual ice shields during the LGM. It not shows however, what looked like the physical surface of the Earth at that time as a whole. The coast lines were further advanced because of the more than 120 meters deeper sea level. That's why the ice sheets had stored large amounts of the global water amount in themselves. This situation and the Crescent coastline of the Bay of Biscay – covered with brash ice then - can be seen on the map page of the European Compass of Wegberg.

The wild herds grazed West of Ireland and England, in the English Channel area, and where today the North Sea laps the Doggerland. The location of finding of the stone in the Wegberg (German Rhineland) between Meuse and Rhine was central for the use and strategically located as indicated in Fig. 10. The absence of a representation of the Iberian Peninsula or from Greece was not a disadvantage for this site.

In a range of about 1,000 KM - and northeast more than that existed only fixed and pasture land. In the ice-age Tundra there spreading the stone age hunters met the wild herds of mammoths, wool rhinos, bisons, wild horses and reindeer, which one of course made a big bow around the ice shields of Scandinavia and the glacial Alps.

## 5 Orientation variants Sun / Polaris on ice age map of Europe of the TU Dresden

The following images show the easy to handle geographically **correct positioning** of the relief side of the European Compass of Wegberg, Grams (2013). It's done - days alignment southwards by the Sun or at night by alignment North to Polaris - **by simple flipping of the stone**.

From the in the period 2010-2013 at the Institute for cartography of the TU Dresden created geographic database was an ice age map (scale 1: 5,000,000, print format DIN A0) inferred. This was highlighted in the following pictures. It turns out so that the orientation of the stone always in a geographically correct position emerges after the two different won starting positions.

The approximate location of the site of the European Compass in D-41844 Wegberg (German Rhineland) was chosen for the positioning of the stone on the ice age map each. On the stone, a small square as a recognition of the wider region of the site was temporarily stuck on to better orientation in pictures of the relief page.

For more descriptive information is drawn in representations of the compass page the North-ridge too.

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<sup>2</sup> A map, which one - enabling without glasses (no Anaglyph glasses!) a 'real 3D perception' - also for multiple viewers over two or more nested images and 70 cylindrical lenses / inch from a distance of 45 to 155 cm; a process of auto-stereoscopy.



Fig. 04: South orientation to the Sun: a) distance b) close-up



Fig. 05: Europe relief after turning from South orientation on left side: a) distance b) close-up



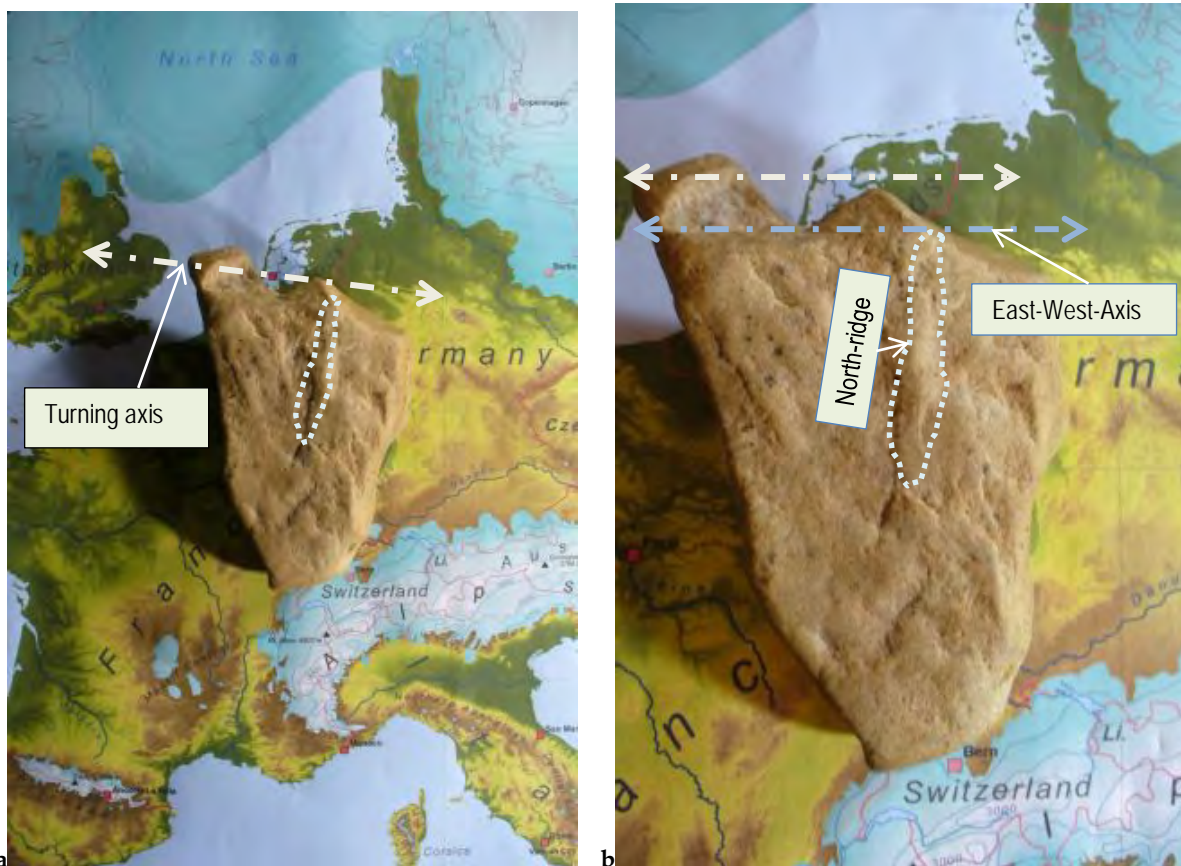


Fig. 06: North orientation on Polaris: a) distance b) close-up



Fig. 07: Europe relief after turning from North orientation across the top: a) distance b) close-up

The geographically correct position of the relief sketch after a simple turning over a stone page testifies to the intelligence of the manufacturer and is hardly a coincidence.

The arguments for the authenticity of the compass of Europe are not just about to find the geometric accuracy of dimensions 'Site' and 'Elevation' on the map page. They are based also on later listed further facts, its handling and its similarity to a different compass finding, the 'Neanderthal compass'.

## 6 The Neanderthal compass - a Paleolithic compass of same type

It was on 06.09.2005 in the valley of the Duessel in the vicinity of the Neanderthal Museum of D-40822 Mettmann picked up and registered under the [finding MET271](#) of the 'Ruf aus der Altsteinzeit - Foundation'. This orientation tool has only the compass function. Two Paleolithic compasses in parts prove almost each other by their form and functionality.

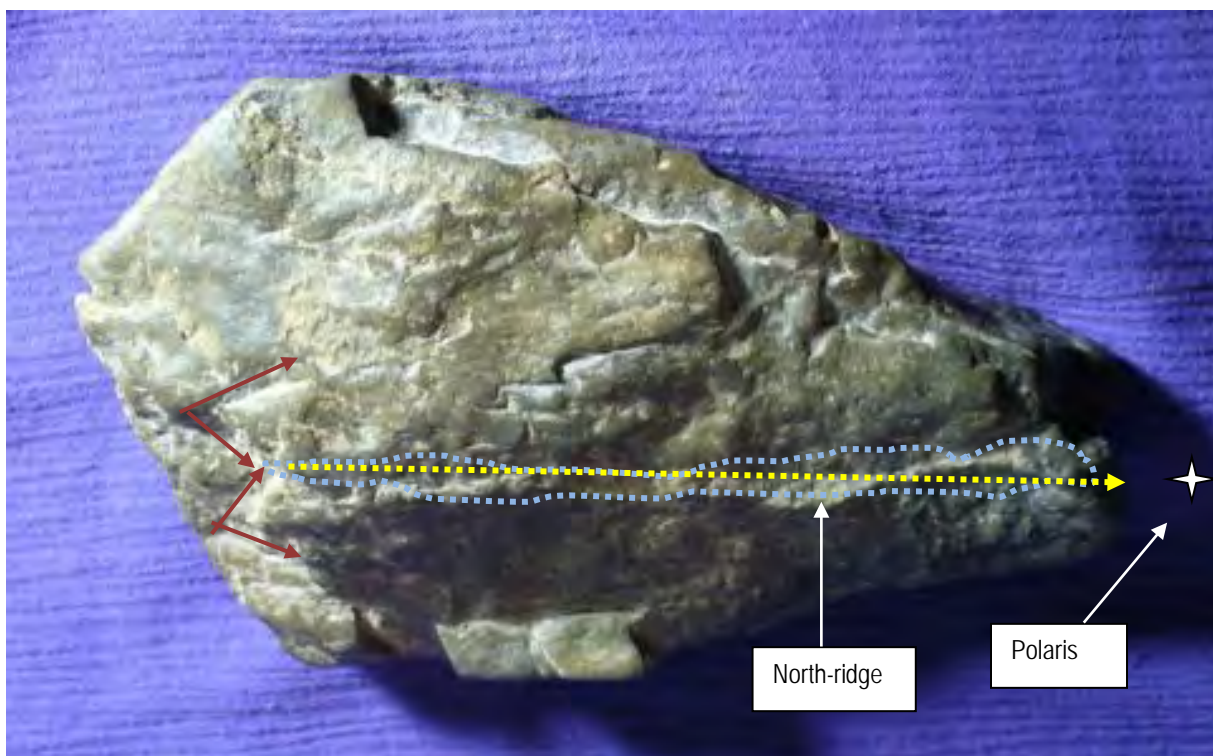


Fig. 08: Neanderthal compass with 'W'-shaped Cassiopeia and North-ridge.

The 'W'-shaped Cassiopeia is characterized by parallel offset arrows, to cover the inner top of the 'W' - here as negative engraving - not by the explanatory graphics. The North-ridge is a tactile aid to the orientation of the stone to the North at night.

Both the Neanderthal compass (weight 438 grams, size 13, 2 x 8, 1 x 3, 0 cm) as also the European compass (weight 422 grams, size 13, 3 x 8, 0 x 2, 7 cm)<sup>3</sup> were always at hand as "Pocket compasses".

A similar function we find in the [IBERIA COMPASS from MERBECK](#) too.

<sup>3</sup> Note the almost identical values!

## 7 Other highlights of the Europe-Compass of Wegberg

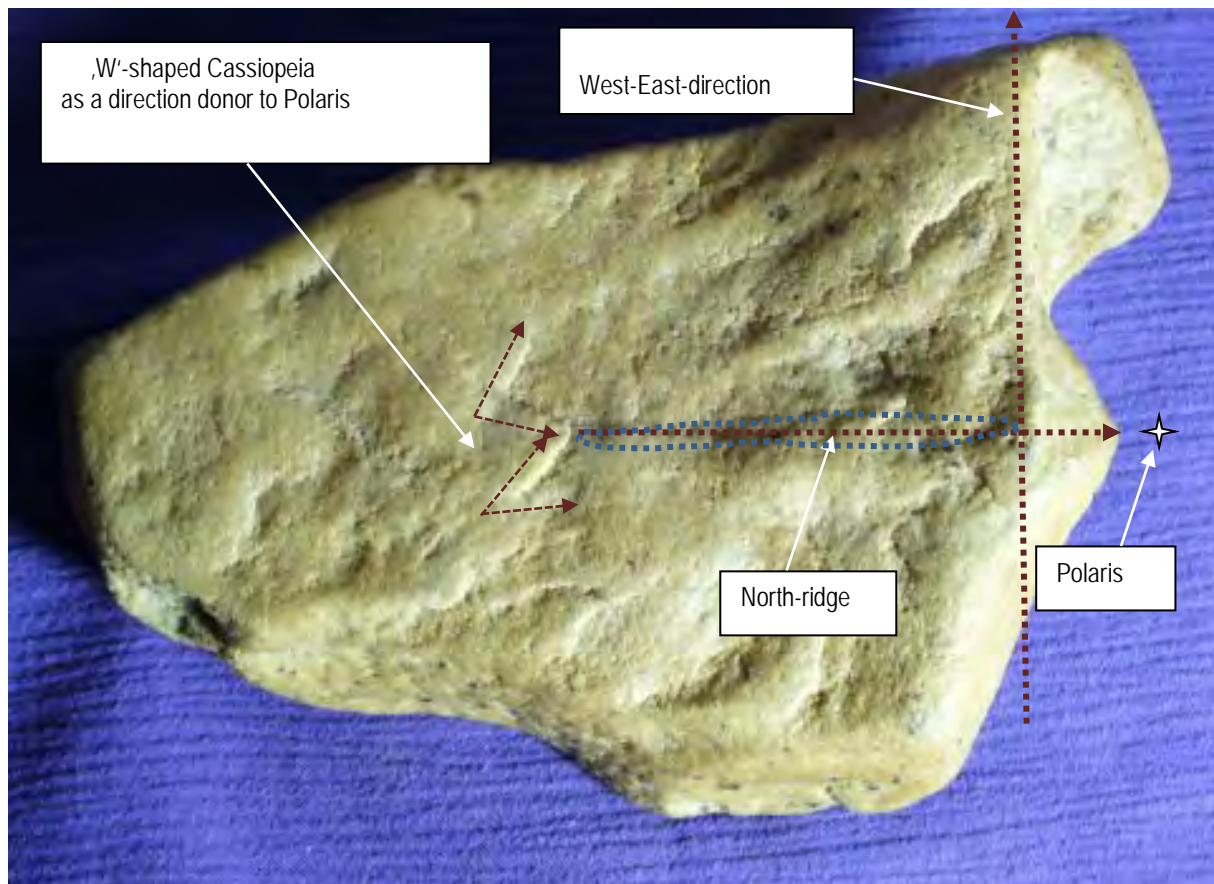


Fig. 09: Europe compass with 'W'-shaped Cassiopeia and North ridge

The 'W'-shaped Cassiopeia – here as sublime engraving - is characterized by parallel offset arrows, to cover over of the inner top of the 'W' not by the explanatory graphics.

The compasses are similar beyond to the characteristics indicated in the illustrations in fifteen other characteristics.

To which one **refinement**, the European compass is elaborated and tailored for the effective handling, still a **detail** may show: ranging over a parallel to the East-West direction this target device (**comparable to sight and front sight** for the rifle) is used a lenticular stone hack fully filled with shadow for the front sight. The upper quarter of the dark notch corresponds to a roof-like front sight<sup>4</sup>, prevents any stray light and creates optimum contrast with the V-shaped sight. You can find a photo in grams (2013:12).

It would lead too far at this point, to describe all of the facts of the European compass and its handling. Seeing Grams (2013) these are to read including a theory of the topographic surveys for the sketch map (technology of a "compass train without measurement of lengths of sides of the

<sup>4</sup> A front sight in the form of a roof is combined in modern weapons technology usually with a rear sight in V-shape too.

polygon"). The comparable properties to the Neanderthal compass are juxtaposed on the page "Compass synopsis" in a table.

The feasible with the two compasses - today and in the ice age – of North orientation on the Polaris, which the 'W'-shaped Cassiopeia indicates today as it was then, fits into the precession-rhythm of the Earth's axis to the pole of the ecliptic, which one spans a period of 25.750 years<sup>5</sup>

The sketchy image of Europe across the relief of Europe compass can be attributed to the state of Europe at that time (phase of the LGM). The approximately 500 KM wide, at that time restricting everything up and dominant corridor between the Scandinavian ice sheet in the North and the Alps in the South is concisely shown. From the stone map (scale 1: 64.700.000) a distance of ca. 450 KM can be tapped. In addition, is the status of the coasts in the course upstream to today outlined. The crescent-shaped coast of the Bay of Biscay, the mainland areas west of England, the English Channel and the North Sea (Doggerland) area speak for assignment to a physical surface, as it was during the period of the LGM.

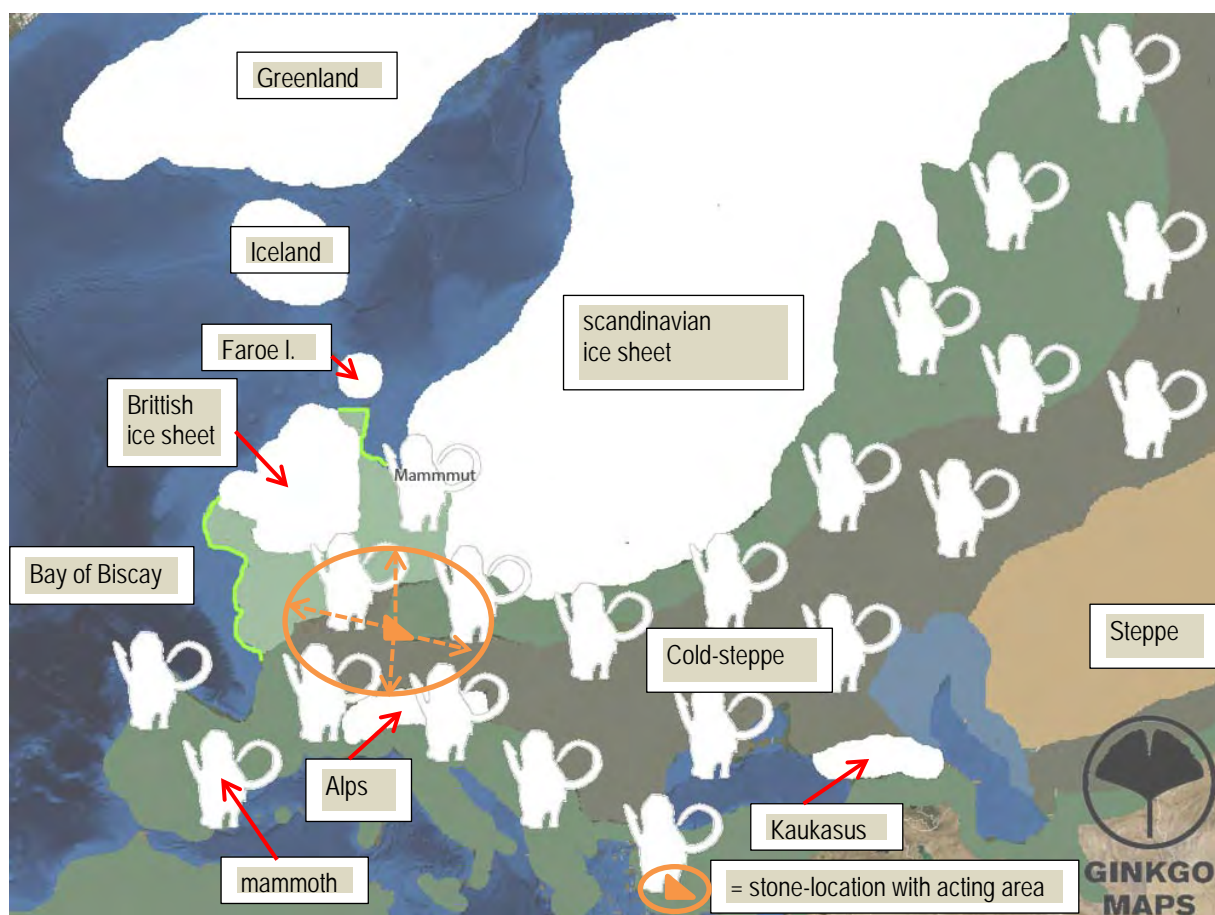


Fig. 10: The ice age Tundra in Northern Europe with mammoth-symbol

Source: [www.ginkgomaps.com](http://www.ginkgomaps.com), revised with Word text and a graphic

<sup>5</sup> This time falls in the Upper Paleolithics. The Homo sapiens created the Venus of Willendorf in this Millennium and had carved already around 10,000 years before the mammoth from the Vogelherd in the Swabian Alb in southern Germany.

## 8 Non-algorithm-based arguments for the authenticity of the European compass

For proof of authenticity of the European compass, the author at this point would like to put forward further arguments. Finally he intends therefore to animate fields of science with a non-algorithm-approach, such as about the comparative literature scholars<sup>6</sup> at the universities, exploring this gem of stone age finds with other methods as it is thankfully already done in two projects based at the focus on algorithms. He holds the Stone Age geographical relief sketch for a high-quality cultural good, which should not remain deprived of the general public. He is aware, however, that he as the finder is in a bad position to reach the general recognition of the find, which one can be obtained only by the approval of an established institution of science. Since this will maybe last still a long way off, he built the "Ruf aus der Altsteinzeit - Foundation" and gave the stone and other precious findings (like e.g. the Neanderthal compass) in their care.

It would be worth the trouble, e.g. once at the same time under foreclosure of exam conditions with the question "What do you see in this picture?" to present a photo of relief sketch 1,000 subjects - of all ages are in this respect - and to evaluate the answers (statistically/scientifically)<sup>7</sup>.

There are many undeniable facts and plausible purposes which one speaks without verification by algorithms for the authenticity of the European Compass:

- (01) The compass is made from **the material of stone** - the Stone Age in accordance with - (tertiary quartzite, brought by refined remove of fine sediment layers in its form).
- (02) With a weight of 422 grams and the masses, 13.3 x 8.0 x 2.7 cm the European compass was **always at hand** as a "Pocket compass".
- (03) The **cardinal points** are geographically **correct**.
- (04) The compass was in a geographically **correct position** in day after orientation to the Sun and at night after orientation to Polaris **by a simple turn**.
- (05) The use of an **instrument** simplified the orientation **toward a trial and error method** based on approximate knowledge.
- (06) One had a **direction sensor** (compass) **and** at the same time a **fixation of the habitat** in the hand (front and back of the finding [W274S](#)) **in one and the same stone**.
- (07) The **way from** the ancestral homeland **Africa** to the food-rich North-Western Europe **and back again** over the amazingly exactly represented boots of Italy was **fixed**.
- (08) The search direction for the main grazing areas of wild animal herds in river valleys and mountain basins could be taken safely.
- (09) The direction of **migration** to the wall **in ice**-covered areas (Scandinavia, Alps) could be **avoided**.
- (10) The then dominant, approx. 500 KM-wide corridor between the ice sheets in the North and the Alps dominated also the center of the stone-map.
- (11) In general, the status of the **coastal extent** in front at that time compared to today is **shown**.

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<sup>6</sup> Science (cross-disciplinary borders) specialized with comparing

<sup>7</sup> At the finding-situation in field the similarity with a three-dimensional image of Europe seemed by the way in the finder for the relief - guessed in the very first moment as a strange stone skeleton - after a few minutes.

- (12) The crescent-shaped edge of the Bay of Biscay is indicated.
- (13) The stone editor has elected to represent the coastline of Ireland until Norway by the straight end of the stone. The contours correspond to the views from the Atlantic / Norwegian Sea to the former ice sheets.
- (14) The Mainland in the field of Doggerland / North Sea is shown
- (15) The North orientation - as it is today on the Polaris - fits to the precession rhythm of the Earth's axis in the period of 25.750 years; because by the sketchy image of Europe across the relief of Europe compass is also the status of Europe to the LGM reflected.
- (16) The European relief's very imperfection and archaic awkwardness are as you may imagine for a time so early.
- (17) **Refinement** of editing details: A front sight formed from a small shadow element prevents any stray light and improves the contrast in the locating by this parallel to the East-West direction target device (**sight and front sight**).
- (18) The **finding location** of the stone in the German Rhineland was to use centrally and **strategically advantageously**.

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- 01 Alternatives of an inaccurate false and inaccurate true sketch  
for the route from Cologne to Munich or vice versa
- 02 maps-page of the European compass of Wegberg
- 03 Plot of Europe with the present-day coastlines, the latitudes and longitudes, the pass-  
points within a cylindrical projection on a photo of the map page of the European  
compass superimposed. Contours of the stone map are blue dotted.
- 04 South orientation to the Sun: a) distance b) close-up
- 05 Europe relief after turning from South orientation on left side: a) distance b) close-up
- 06 North orientation on Polaris: a) distance b) close-up
- 07 Europe relief after turning from North orientation across the top: a) distance b) close-up
- 08 Neanderthal-compass with 'W'-shaped Cassiopeia and North-ridge.
- 09 Europe compass with 'W'-shaped Cassiopeia and North ridge
- 10 The ice age Tundra in Northern Europe with mammoth-symbol  
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