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THE GEOMAGNETIC POLES
WILL NOT SWAP PLACES

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Table of contents:

Abstract	5
1. The common origin of rites and religions	6
2. Mesh structure exploration using earth-inductor measurement	12
3. Goseck	22
4. The poles will not swap places	37
5. Excursion	46
6. References	49
. Appendix- The list of publications on the topic of geomagnetism and orientation between 2005 and 20200	51

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Abstract

Ancient cultic structures and millions of tombs that have preserved their orientations for thousands of years are generators of a spiritual resurrection. Through them, we can recognise the directions of the changing geomagnetic field, to which life on Earth is still attuned. As a result of our human perception, a multitude of cults were born. The former practice of sensing direction has long been forgotten. Regaining this ability does not just mean a spiritual resurrection. The invisible phenomenon, once thought to be omnipotent – now called the geomagnetic field – has been and will continue to be the backbone of the cultural structures of human communities. Shamans and priests set the directions of an invisible but palpable phenomenon according to the rules of ancient cults.

It is only for a few decades that we have had the tools to explore the relationship between cultic orientations before compasses were used and the direction of the geomagnetic field. Research results highlight the geomagnetic nature of this invisible chief agent of ancient cults. Based on the directions of cultic orientation, a spatial mesh can be modelled. As the mesh is changing its shape, the geomagnetic effects also change at the intersection of the mesh directions. In the northern or the southern hemisphere they may also exhibit a different polarity than the dominant characteristic. However, this does not mean that the geomagnetic poles would reverse.

Today's instruments for geomagnetic measurements summarize the effects near to and far from the point of measurement into one direction and effect size. *However, humans and other living organisms do not perceive such a concentration of effects.* The invisible *omnipotent* phenomenon is constructed from the geomagnetic effects operating between the intersections in the spatial mesh. Today's measuring instruments can only detect a fraction of the geomagnetic effects that are still operating in different directions and also restrict each other.

We used the term “geomagnetic texture element” to describe the invisible phenomenon observed in the framework of the ancient cults. The description of the geomagnetic phenomenon in terms of the texture element vector mesh requires the introduction of new terms. In order to avoid misunderstandings, we dispensed with the word “component,” commonly used in the descriptions of the geomagnetic field.

The texture elements lined side by side and above each other in three different directions in space are crossing each other without touching, thus forming mesh structures. ***The horizontal characteristics of the texture element directions are preserved by the directions of the cultic orientations.***

Keywords: cultic orientation, geomagnetic poles, texture element

1.THE COMMON ORIGIN OF RITES AND RELIGIONS

*The reconstruction of former geomagnetic fields
are essential for the reconstruction of ancient orientations*

For thousands of years, in the ancient cults of shamans and priests, the invisible effects observed by human perception in some directions were considered as a world-sustaining, omnipotent manifestation. These are now interpreted as components of the geomagnetic field. With the use of compasses becoming widespread, the practice and interpretation of human geomagnetism has been forgotten.

It was only a hundred years ago that a process of proper foundation in natural sciences was born that is suitable for the reconstruction of the characteristics of the ancient geomagnetic field. In the absence of this knowledge, the link between cultic orientations and the then prevailing geomagnetic field directions could not be revealed.

Today's instruments for geomagnetic measurements summarize the effects near to and far from the point of measurement in one direction and effect size. *However, humans and other living organisms do not perceive such a concentration of effects.*

The invisible *omnipotent* phenomenon is constructed from the geomagnetic effects operating between the intersections in the spatial mesh. Today's measuring instruments can only detect a fraction of the geomagnetic effects that are still operating in different directions and also restrict each other.

Texture elements

Some new terms in our modelling experiment, with new meanings

In the analysis of cultic structure orientations, we assumed that for thousands of years the invisible effects perceived by human perception took shape in the main transcendental phenomenon of cults and religions. We used the term "geomagnetic texture element" to describe the invisible phenomenon observed in the framework of the ancient cults. The description of the geomagnetic phenomenon in terms of the texture element vector mesh requires the introduction of new terms. In order to avoid misunderstandings, we dispensed with word "component," commonly used in the descriptions of the geomagnetic field.

In three different directions in the space, texture elements lined side by side and above each other do not touch each other, thus forming a mesh structure. ***The horizontal characteristics of the texture element directions are preserved by the directions of the cultic orientations.***

The direction of texture elements is constantly changing. We have compared the directions of ancient cult structures – as texture element directions – with the geomagnetic fields that were typical at the time of the setting. ***We have observed a correlation between the texture elements and the directions indicated by today's instruments, and shown the characteristics on a diagram.*** The change in texture element directions is six to eight times greater than the change in the direction of the geomagnetic field measured by the instrument. On our diagram, the directions of the cultic orientation and the reconstructed geomagnetic north appear side by side. In today's instrumental measurements, the deviation from the geographical north at the horizontal plane – the declination – is given by the measure of an included angle.

The texture elements intersect at different distances in space. Texture elements arranged along vertical lines, leaning obliquely downwards and upwards, cannot be included in a spherical shape. This is what Plato, emphasising the importance of geometry, who considered as the primary shapes, before visible forms, four regular bodies that can be enclosed in a sphere, and also mentioned a fifth one, the elliptical shape (ellipsoid), *constituting the universe*.¹

We consider the weakening of light waves as a function of distance a natural phenomenon. In a way that is characteristic of waves, we find an inverse quadratic variation in the effects between intersections in the mesh relative to the distances between the intersections.

The hypothesis that texture elements are magnetic phenomena becomes apparent when a functional relationship can be modelled between the effects of varying size and nature assumed to exist in the spatial, invisible mesh phenomenon, on the one hand, and the magnetic field direction and effect characteristics identified or reconstructed by modern magnetism measuring instruments, on the other hand. This became possible by comparing the directions of a large number of ancient tombs and cultic structures with the magnetic north of the reconstructed geomagnetic field in the same period.

Based on geometrical characteristics, we have formulated a multiplicity of magnetic effects. These are compared against a relative unit length, without specifying the unit of measurement. Based on the vector unit of the total instrumental effect of

¹ In *Timaeus*, attributed to Plato, according to the words of Cratylus. in: Attila Kőszeghy:
PLATON HÁROMSZÖGEI Feljegyzések egy építészeti formatan elé.
Disputa, 2005./ 106-111

PLATON'S TRIANGLES Notes in front of an architectural shaping

today, we can derive the size of the texture elements of the three-directional human perception of geomagnetism.

The horizontal characteristics of the texture element directions are preserved by the directions of the cultic orientations. *Many experiments have been conducted aimed at the exploration of the direct link between orientations and the directions of the geomagnetic field. However, an indirect link has not been assumed.* Thus, it did not become clear that the still unobserved directional changes in the actual structure of the geomagnetic field surrounding the Earth, as perceived by humans, are several times bigger than the changes in the field direction observed by the today's instrumental measurements. In the course of the analysis of cultic orientations, it has become clear that the minimal structure of this highly variable phenomenon, which ensures spatial stability along with the rotation of the Earth, can be formulated in three spatial directions and in one direction perpendicular to the horizontal surface of the Earth. In the cosmos, there are a number of rotating shapes surrounded by magnetic fields in which similar mesh structures may operate. The whole of the Earth's geomagnetic field can be understood through the operation of texture elements operating in the mesh directions. It is necessary to clarify the relationship between gravity and the lines of the mesh structure, nearly perpendicular to the Earth's surface, which structure is organised in layers on top of each other. However, this requires a gravitational model aligned with the mesh magnetic field models.

At the points of intersection of the geomagnetic field mesh, the texture elements have a direction and an effect. From the three vectors closest to the observer a "local" total vector may be generated, with vector sizes characterised by inverse quadratic differences relative to the longitudinal difference between intersections. The texture elements located obliquely down and up in space do not touch each other. There is a distance between them at such a distance they can exercise a twisting torque effect on each other. *The twisting effect between the texture elements in a direction perpendicular to the horizontal plane may constitute the elementary source of magnetism.* We derive magnetism from the spatial mesh structure. It is possible that similar mesh structures may also exist in quantum and cosmic dimensions. The vertical alignment of the intersections suggests that gravity can function in a structure that is inseparable from magnetism.

If the mesh intersection is far from the observer, the magnitude of the effect of the texture element in the "local total vector" of the texture element is decreased by inverse quadratic variation relative to the distance change. The effects reduced to the observation site are created by creating torques. The weak texture element effects are to be multiplied by the distance between the observation site and the intersection, acting as the "torque arm." Such torques of the multitude of texture elements appear in modern

geomagnetic measuring instruments in a swirling, vortexial manner, combined with a force vector.

The geometric shape of the geomagnetic mesh structure may stretch or compress. With a slight deformation, a significant change occurs in the mesh directions. The vector size of texture elements hardly changes, but they may significantly limit each other's impact during the changes in relative direction. In instrument measurements, this may appear as a field weakening.

When the size of the members of the three vectors closest to the observer near to north and south increases, due to the compression of the geometric shape of the mesh structure close to the vertical, the resultant direction of the three vectors, the local total vector direction, may turn from the observation site toward the southern hemisphere. The total vector size, however, is significantly smaller than the total vector in the northern hemisphere, near to the north. In case of a mesh structure distortion, i.e. the compression of the mesh, the number of mesh intersections in the sensitivity range of the measurement instrument may increase, but in the field zone, which is limited due to the sensitivity of the measuring instrument, the instrumental measurement shows a strongly weakening field intensity.

The misconception may arise that the geomagnetic poles would soon swap places. While some of the researchers analysing the progress of field weakening in the past century do not expect a polar reversal in the near future, they do not exclude the existence of this phenomenon.²

Based on the surviving illustrations of ceremonies, we can assume a clear ancient knowledge behind the orientation practice before compass use. Going deeper into the world of observations and interpretations, we get a confuse, soft-contoured image of perpetuating beliefs. However, it is not realistic that our ancestors were wrong more than a few tenths of degrees when determining the direction of cultic structures.

In the case of an 8-to-10° change of direction found during instrumental measurements, the cultic orientation may have changed by nearly 90°. This means that perhaps not only two, but three instrumentally determined field direction changes of such extent may have occurred in just one century. An example for this in Europe is the directional change of more than 200° between 800 and 1000 AD, accompanied by a change in the direction of the geomagnetic field reaching 30°. In the age of Christianity, the change of the directions detectable by human perception was of such significant extent that the invisible phenomenon offering the eastern direction by way of human perception moved out from the loosely interpreted eastern orientation zone, and one of

² Brown, M., Korte, M., Holme, R. T., Wardinski, I., & Gunnarson, S. Earth's magnetic field is probably not reversing. *Proceedings of the National Academy of Sciences of USA*, 115(20), 5111-5116. doi:10.1073/pnas.1722110115(2018).

the effects operating in the other two perceived directions present entered into the zone near east, offering the cultic direction instead.

For thousands of years since the Stone Age, the invisible phenomenon, constantly present in changing directions, was a disembodied being constructing or/and sustaining the visible world. The experiences of geographically distant communities were identical in terms of the nature, detection and continuous presence of the phenomenon we have identified as geomagnetism.

Through the reconstruction of the relationship between orientations and geomagnetism, it becomes clear that there were no divine revelations, only writings manipulating the masses. The supposedly sacred texts were only casual garments veiling the exercise of earthly power.

Mesh geometric characteristics, near and remote effects³

The directions of the invisible effects form triangles when projected onto a horizontal plane. When viewed in space, the perception is a multitude of effects that do not come into contact with each other. The mesh shape around the Earth forms a long-standing minimum mesh structure. The spatial mesh structure constructed on the basis of the observations is a phenomenon around our rotating Earth. What mesh structures are formed in the vicinity of artificially produced magnetic fields, weak interactions, and the space of cosmos with celestial bodies indicating high magnetic intensity falls outside the scope of our inquiry.

The summation of magnetic effects close to the observation site and generated only in instrumentally discernible intersections results in a vector direction and magnitude, corresponding to the geomagnetic field vector direction found by way of modern instrumental measurements, with its horizontal projection being the direction of geomagnetic north. The sensitivity of magnetism-measuring instruments constitutes a constraint of accuracy. The intensity value determined by the instrument is only a fraction of the actual effects in the geomagnetic field. This is because in case we calculate with the texture element vectors operating opposite to the direction determined by the instrumental measurements in the scope of the near and remote effects, then it will be obvious that *the current instrument-measured values do not reflect the vector size of the texture elements that actually operate in the field.*

³ Attila Kőszeghy, Csanád Ábel Kőszeghy, Flóra Kőszeghy: *Geomagnetic Orientation of Cultic Structures* 2016 T4Terv ISBN 978-963-87550-9-4

Attila Kőszeghy: Mágneses hálók, ősi tájolások, [Magnetic meshes, ancient orientations]. T4TERV 2020

Each of the three texture elements closest to the observation site often have a greater geomagnetic effect than the sum of these three effects obtained by the instrumental measurement approach.

The geomagnetic texture elements of opposite direction on living organisms, whether they are near or far, exercise their effects individually, and they are not organized into a combined effect – as can be observed in case of using a compass – while limiting each other. However, in order to be able to claim more than this assumption about the functioning of the effects on humans and living organisms in general, we must first present, by way of a method suitable suitable for measuring texture elements, that the total vector of today's instrumentally measured geomagnetic field direction is closely related to the phenomenon observed with human perception.

A significant body of past experience not only shows that in Celtic and Scythian triad representations, the three texture elements can differ by 105 to 135°, but also that one of the three elements acts in a direction opposite to the other two. Perhaps the best-known reference to this is the invisible whirlwind tree of the Celtic-Teutonic cult, the place of the self-sacrifice of Odin/Wotan to himself. This is a place referring to an intersection where two branches/roots are going obliquely downwards and one upwards. The geometric characteristics of the texture element mesh structure, as well as the vector directions of the the vortextial effect vector are identical at the intersections that are nearest to and remote from the observation site.

2. MESH STRUCTURAL EXPLORATION USING EARTH INDUCTOR MEASUREMENT

For centuries, the human perception of turns aimed invisible phenomena, with the use wands, bishop's or shepherd's crooks or rods, were associates with concepts of a liquid fluid aether. Significant attention has been paid to the vorticity of the magnetic field in connection with the instrumental measurement of the turn of wire frame with an electric current passing through it. The source of the vorticity of the magnetic field, the torque of effects operating externally in relation to the place and direction of observation reduced to the place of observation can only be explained rationally by effects from remote mesh intersections, in a mesh structural model.

The existence of the relationship between directions of cultic orientation and the concurrent reconstructed geomagnetic field directions is supported by a statistical approach. However, the correctness of findings based on theoretical hypotheses must be confirmed by instrumental measurement data. To this end, we carried out experimental measurements using a modified design of inclination-measuring earth inductors. We can avoid the typical problem of today's instrumental measurements, i.e. the inseparability of remote and close effects, if we narrows down the detection ability of the inductor to the zone of the closest effects.

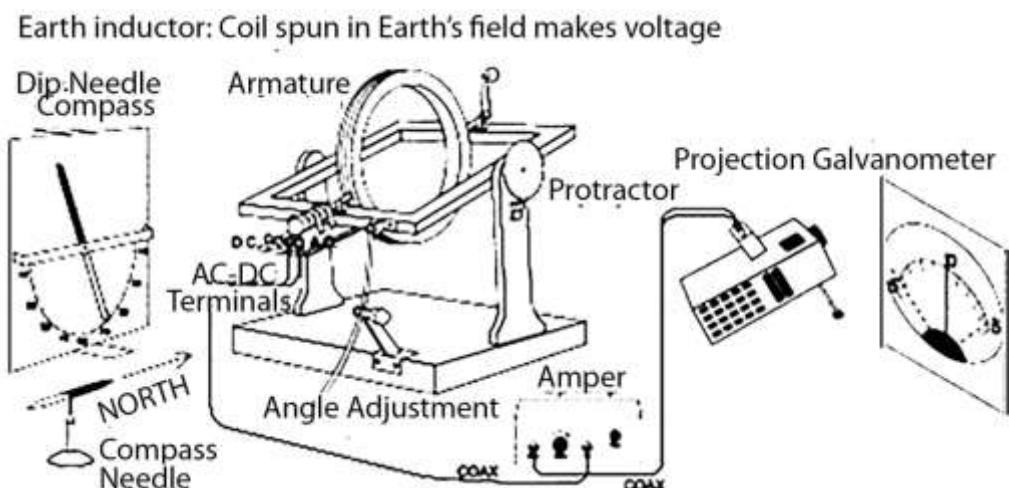


Figure 1: Earth inductor with adjustable coil direction. The measurement of the generated voltage requires a sensitive voltmeter. The coil direction where the voltage ceases is the direction of inclination.

<http://berkeleyphysicsdemos.net/node/437> *Earth inductor: Coil spun in Earth's field makes voltage.*

According to our estimate, the three closest texture elements within the range of human perception form in intersections of less than one meter, and create a local total

vector as a result of the electricity operating with coil movement surrounding it, which can be detected by an earth conductor generated with a small wire circuit. The experimental measurements can be realised within a short time.

We can interconnect the direction and intensity data of today's instruments measuring geomagnetic field characteristics and the direction and intensity data from thousand or hundred years ago, which were very similar to those of today. These are data to which the set-out directions cultic structures of the same age can be connected. In the past decades, directional data for several hundreds of cultic structures before the use of the compass have been connected to the geomagnetic (archaeomagnetic) field data characteristic at the time of their set-out. Several age data were connected to each set-out direction, and we were able to assign threefold directions, or triads to each direction of the geomagnetic north. The inaccuracy of the reconstructed former geomagnetic field data resulted in uncertainty in the interconnection model. In recent years, we attempted to build a more accurate model by comparing the data and set-out dates of many hundreds of cultic structures.

It has become necessary to formulate an interconnection model that surpasses the formulation of the relationship – mutual, calculated to a relative unit – of effect sizes arising from the perception of geomagnetism by humans (and animals). The relationship to the field characteristics determined with the units of measurement applied during today's instrumental measurements must also be clarified. In other words, we must know that in addition to the relative magnetic effects operating in the invisible directions in human perception what role the multitude of remote effects plays, as detected by today's sensitivity of instruments. *As far as the magnetic phenomena characterised by flux number – assumed to be passing through the frame in a parallel way – are concerned, it is unclear from what field zone in the geomagnetic field part not yet reaching the frame passing through by electricity of today's instruments they develop.*

In the course of the perception of geomagnetism, we observe a phenomenon that simultaneously contains a characteristic of force in the traditional sense present in spatial directions, and at the same time a torque which, coupled with the force vector, results in a vortex.

The relative value of the geometric dimension of the texture element vectors detected by human perception can be expressed in relation to the baseline value determined by some kind of absolute measurement. It is now a scientifically based physicist's view that the absolute value of the total field strength vector of the magnetic field can be determined using a proton precession magnetometer. Instruments indicating relative values measure the variations or changes of the magnetic field in relation to the baseline value of the magnetic field determined by an absolute measurement. The device for measuring relative values, which is based on an

electrically charged wire coil, detects the swirling effect concentrated in one direction at the measuring site. *Both in the procedure determining the absolute value and in case of the devices measuring relative values have a common unit of measurement, which cannot be interpreted without the involvement of electricity. In the magnetic field image appearing in the direction of the electric current, geomagnetic forces and torques of different or opposite directions remain hidden.*

Texture elements operating in a spatial mesh structure can only be interpreted in terms of present-day units of measurement if the effects in different directions are summarised at each intersection, and therefore, the instrument measurements are already displayed with the resulting twisting torque and vector direction. The modified earth inductor is the instrument with which the triad of texture elements perceptible by humans can be accessed and decoded.

The solar system model, which has been accepted for centuries, is being replaced these days by a model of planetary motion aligned for movement on solar orbit with the vortextial movement. In the course of the modelling of geomagnetic phenomena, we must also calculate with model changes of similar weight.

On inclination measured by earth inductor

If we create a triangle in the intersection formed by geomagnetic texture elements – as at the place of observation – in horizontal plane based on the three effect perception directions, it formulates the horizontal shape of elementary unit of the geomagnetic mesh structure. Considering the shortest length as a relative unit, the length of the other two sides are obtained in relation to this. The magnitude of effects operating in specific directions can be calculated on the basis of the relative unit as a unit of effect by the inverse quadratic variation in the distance deviation of magnetic effect. The three-directional effect is vectored, and can be therefore summed. The direction of the total vector arises from the starting point of the elementary unit, the site of observation. This is the vector's directional characteristic (in the absence of disturbing effects) obtained from the summing determined at the place of observation in the multitude of intersections far from the place of observation. The effects can be summed up in the vector size multitude directions that diminish inverse quadratically over distance. (These effects can be force and torque conjuncts reduced to a local place.)

When distant effects are summed with distances as effect arms, torque vectors can be formed by multiplying the remote effects regarded as simple vectors and the distance. If torques also are present in each of remote effects, i.e. they are vortextial, we obtain a torque by multiplying the distance, which is a torque of torques. As torques possible for remote effects can be reduced to the place of observation, the reduction of remote torques can be realised, too, in addition to the vectorial summing up of remote

effects. This way, at the place of observation, either the simple force and torque are reduced to a point, or the reduced torque is extended by the torque of remote vorticity. The latter is more probable if the vorticity of the geomagnetic field is valid in each intersection.

In the instrumental measurements, the vortextial nature of the magnetic phenomenon across the frame charged by electricity is implied partly by its sensitivity to turn. Earth inductor mechanisms produce voltage without external electricity that appears in the coils when the multi-wire coils are moved. The effect of magnetic field on electrical phenomena is well illustrated by the generation of voltage. The coil has a varied angle at the parallel direction of the magnetic field. We get an idea of the performance of effects of the magnetic field. If the number of coil wires is reduced, the magnetic field effect is weakened. It can be achieved that the weakest effect show the performance of texture elements closest to the instrument.

At present, there is no instrument to indicate distances that refer to the layers of intersections getting farther off the instrument. In our assumption, slowly increasing the number of coil wires draws the distances at which the voltage increases sharply. At intersections close to the instrument, our experience of human perception shows a rapid change at every 30-35 cm towards the vector sum of the three closest effects. However, the distance of change can blur after the third layer.

If we achieve for the inductor to provide data about the total vector of the direction triad in human perception restricted to the closest effects, the vector magnitude of the three texture elements can be reversed in the three orientation directions assigned to the current value of geomagnetic north direction connected to the triads of ancient orientations.

The sensitivity of the voltmeter plays a significant role in our ability to detect the weakest signals and those indicating a sharp change in voltage.

We assumed in the past years that the total vector direction obtained based on texture element magnitudes closest to the place of measurement and the direction of far effect multitude result in data that can be brought in line with instrumental geomagnetic field measurements. A more detailed analysis clarified that the total vector direction of the closest triad is very probably identical at the farther intersections in the instrumental detection zone, but the magnitude of texture element vector changes. The change in the geometric structure is minimal. However, based on distances, the size of summed up torques reduced to the observation site alters significantly if the geometric structure changes slightly.

The north-south directional compression of the mesh structure in the triad structure can easily result in a total vector pointing in the direction of Southern hemisphere. In such a case, the effects at remote intersections strengthen this direction.

The geomagnetic texture of Earth

We formulated an interconnection between orientation and former geomagnetic field data and presented it by the name *transmission circle diagram*. It can be seen in the diagram that the change in orientation directions (in the northern hemisphere) is five times larger in the northeast-southwest zone and eight times in the east-west direction than the magnetic (characterised by declination) north directional change (as interpreted from today's instrumental measurement data). It turned out gradually during the formulation of the interconnection that three (according to human perception) significantly differing orientation directions are linked to each instrumentally determined geomagnetic field strength direction (direction concentrate within a frame passing through by electricity).

In ancient cults, three invisible directions were perceived. This triad acquired great significance in a multitude of trinity-based cults. The three intersecting invisible directions develop repeated triangles. The side lengths of the triangles are different. It has been known since William Clifford (1870), and commonly known since Einstein, that the geometrical characteristics of space may be connected with magnitudes of effect. We named the effects operating along the interconnecting lines between the intersections of geomagnetic mesh as *texture elements*. The texture elements and their totals are vectors as they have a direction and a magnitude of effect.

The magnitude size of texture elements operating in the geomagnetic mesh directions and at the intersections changes continuously – sometimes sharply. During the compression of the mesh in approximately northern-southern direction, a part of the texture elements grows until a total effect direction can form, which is pointing in opposite direction to the total effect measured earlier, slightly towards the south. This only means that the (vector) size of the texture elements in our mesh model detected in the detection zone of the instrument diminishes, what's more, the total effect points in the opposite direction to the earlier one. Those conducting instrumental measurements envision a pole swap at such times.

There is a tradition and market for news predicting coming disasters. One of the sources of false predictions, which may seem scientifically established, is the current physics of magnetism. A good example is an article by Fiona Macdonald, published in NATURE on 11 May 2016, titled “New Study Shows How Rapidly Earth’s Magnetic Field is Changing”⁴, in which she writes: “One of the most likely explanations for what we’re seeing is that our magnetic poles are getting ready to flip – something that

⁴ Macdonald, Fiona: New Study Shows How Rapidly Earth’s Magnetic Field Is Changing
NATURE 11.05.2016.

happens once every 100,000 years or so, and that sounds a lot scarier than it really is. There's no evidence that life on Earth suffered when this happened in the past – the most likely impact is that our compasses would eventually point south instead of north.”

The model of the link between cultic orientation directions and the geomagnetic north in the same period and its adjustment after 2018

The reconstructed magnetic field data were formulated with the currently adopted assumptions related to the geomagnetic field. Consequently, only a minor part of effects operating in the directions observed during ancient rituals appear in the reconstructed instrumentally measurement data.

The geomagnetic instrument frame in which electric current operates only passes through effects that move parallel to each other. It is not the real geomagnetic field that is measured by today's instruments, but merely an indication of the relationship of geomagnetism to electricity.

We published our Central European transmission diagram model in 2016. In addition to the axis directions of a large number of analysed buildings and directions of gates of circular ramparts of the Late Stone Age to the Bronze Age – as texture element directions in human perception as constructing the geomagnetic north – today's instrumentally measured geomagnetic north (indicated by declination value) data appeared as well. In our present study, the modified directions showing a declination shift of maximum 2° appear in colour other than the original diagram by the examples of Goseck and Pantheon.

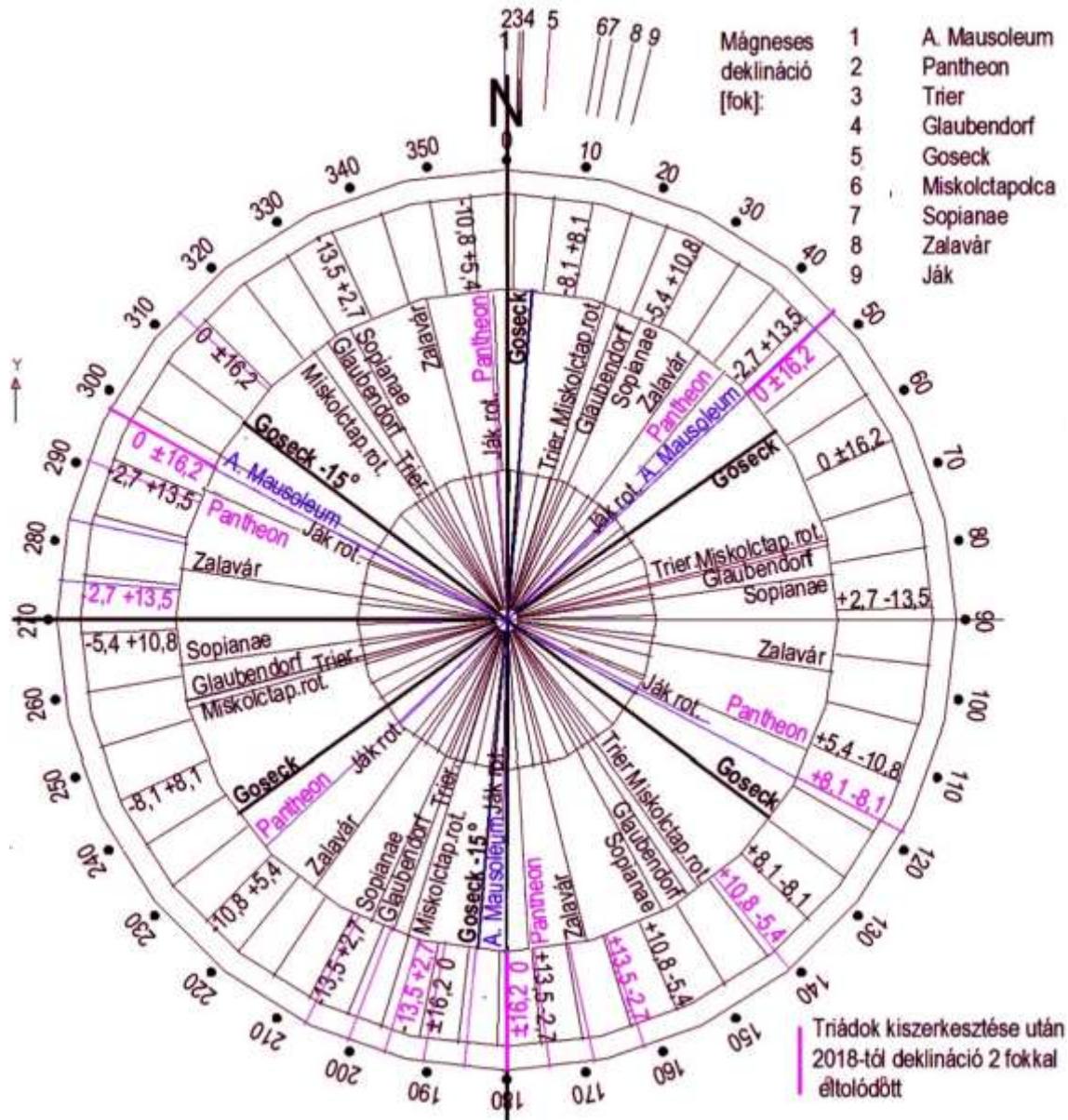


Figure 2: The connection between the triads and magnetic north

The north gate of the circular rampart of Goseck, dating back over 6500 years, deviates by 4.5 to 8° from the geographic north, while the vector direction drawn on the basis of the three gate directions shows a declination of -15°. We pointed out in purple based on the drawn diagram of directions and effects that similarly to the cultic directions of the Late Stone Age and the Bronze Age, the declination values deviated by 2° in a counter-clockwise direction from the concurrent geomagnetic north direction data in connection with axis directions of cultic structures built in the Common Era, as formulated in the transmission diagram in 2016. Ed.: Éva Kőszeghy in: Attila Kőszeghy; Csanád Ábel Kőszeghy; Flóra Kőszeghy: *Geomagnetic Orientation of Cultic Structures* (2016) T4Terv, corrected in 2020.

Although in our volume published in 2016, we made an attempt to mainly align, declination values related to orientation directions of the Stone and Bronze Ages to the directions of graves and churches in Central Europe of the Early Middle Age and archaeomagnetic curve data, we also pointed out the possible shift of declination values in connection with Stone and Bronze Age orientation directions. The increase in the

available orientation data on the Stone and Bronze Ages, especially the data collection of the Malta site, but also the comparison of orientation directions of a number of Egyptian pyramids, as well as the declination data getting more accurate indicated that the entire circle diagram can turn by almost 10° . Based on the data of the very thorough archaeological exploration at Goseck, it was possible to make more accurate calculations, which confirmed the need for a correction of the diagram. As the possible turn of almost the same diagram characteristic for the earlier millennia could not be excluded even in the case of slight deviation of orientation of the Roman Pantheon and the Augustus Mausoleum, it has become timely to revise the connection between orientation directions and declination values back to the centuries of the Árpád Era in Hungary (1000 to 1301 AD). This was the opportunity to make the related archaeomagnetic curves more accurate based on the orientation directions. As a key purpose of the present text is to shed light on the sources of beliefs of geomagnetic pole swap, it was inevitable to discuss the theoretical fundamentals of mesh geomagnetic fields. This provided a sufficient framework to formulate an explanation for the change in the geomagnetic mesh geometry.

The orientation directions are fixed. In the light of an accurate set-out time, especially the more detailed analysis of the magnetic north value related to the orientation is necessary. We tried to reconstruct the triad directions for buildings with only one axis direction built after the beginning of the Common Era. We focused on the degree deviations characteristic for the rampart shapes with three-gate directions of the Stone and Bronze Ages and on the south-eastern entrances of the Christian churches oriented in the direction near east, including early round-shaped churches. Little attention has been given to how the direction zone of densifications (a characteristic for Woodhenge) of the Bronze Age could change and whether this direction could have changed on the circle diagram.

For the Early Middle Age, a wealth of data was available: for this time range the base data set of archaeomagnetic curves was significant, but the curves appeared with uncertainty both in terms of age and direction. Considering also the curve data of various authors, we reckoned with an uncertainty of declination of 1 to 1.5° . These cultic orientation directions set out in human perception related to instrumental geomagnetic north changes imply an orientation uncertainty of 6 to 9° near the north and 9 to 13° in the east-west direction.

After 2018, we included the triads of texture element observed by human perception into a vector, and separately summed up the force vector values of remote effects. Each of these is weak by itself, but they are significant in their totality. We determined torque values of remote effects reduced to the observation site. This way, we obtained data that can be related to vortextial data of instrumental measurements. We determined that the axis direction seen at the ellipsoid axis of Woodhenge of the

magnetic north direction changes densification after the beginning of the Common Era has changed not only towards the near north direction but rather from northeast towards east.

We recognised that the changes in mesh structure – including the inclinational changes as well – can only be modelled using a digital tool set, with tensor calculation such that the horizontal and vertical densification of the mesh structure can be followed. At present, the most important aim is to have the tools that we can get on a path independent of human perception to the detection and modelling of a real mesh structure.

In the case of a model shaped this way, the significance of the relationship to gravity arises as well. The mesh structure arranged onto the vertical axis indeed appeared in illustrations known often by the name “life tree” or “world tree,” following the ancient rituals. There is also a strong link between the two phenomena in gravitomagnetism research.

People do not perceive the effect concentrated appearing on today's magnetism-measuring instruments. For them neither the imaginative magnetic lines nor the magnetic poles surrounding the Earth exist. The practice of using a wand to set out directions by Christian bishops of earlier millennia still survived in the Middle age, and was only forgotten once compasses appeared.

Many researchers sought to find, in vain, the relationship between the so-called aether, a phenomenon invisible to human perception, on the one hand, and gravity, electricity, geomagnetic phenomena, on the other hand. Based on our examinations, the phenomenon wrongfully considered as aether is a fundamental geomagnetic element of the geomagnetic field structure, in our explanation it is the *texture element*. The modification our today's magnetism-measuring instruments allows the recognition of texture elements, and the remodelling of the perception of magnetism by living organisms, including humans. **The alignment of life on Earth to a geomagnetic mesh provides a chance for modern world religions to be renewed and to coexist harmoniously.**

After aether

Why did James Clerk Maxwell and Loránd Eötvös discontinue the examination of the relationship of the magnetic field and the invisible phenomenon considered as aether and perceived in invisible directions? Eötvös turned rather to the research of gravity, whereas Maxwell linked magnetism to electricity, abandoning his aether models.⁵ What

⁵ Patricia Reiff: Structure of electron, electric field and radio wave. Rice University space.rice.edu/mms Mission Education and Public Outreach NASA Multimedia Science 2010 Nov 24 Pat Reiff a space physicist at Rice University, Texas

was missing – while negating the concept of aether – for the recognition of the geomagnetic nature of the invisible phenomenon that determines the direction of churches, graves? It was the procedure that was missing – as it was just invented 100 years ago – that would have been suitable for reconstructing geomagnetic field directions that had already acted centuries, millennia before. Archaeomagnetic, paleomagnetic curves did not exist that could have been used to read off the geomagnetic field characteristics acting at the time of the construction of the structures.

If paleomagnetic, archaeomagnetic curves had been known, researchers would have realised that the invisible phenomenon of the multitude of ancient cults might be related to the geomagnetic field. They would have perceived that the direction of the observed phenomenon was changing much faster than the field direction that can be determined by instrumental measurements such as with a compass. They would have had to answer just one question: why is the direction observed with the use of wands moving faster than the geomagnetic direction detected with instruments charged with electricity or with a compass?

3. GOSECK

In the following, we will present the relationship between the three directions of the ancient cults and the direction of today's instrumentally measured geomagnetic field through the example of the Neolithic rampart structure in Goseck, Germany. The direction of the summed vector of the three texture elements formed from on the basis of the directions observed with human perception is "overwritten" by the effects operating in case of instrumental measurements.

The summed vector direction of the texture element triads of the geomagnetic field, as perceived by human observation, is vortical. This vorticity is generated not in the horizontal plane, but through the interaction of the oblique texture elements passing over each other. The vortex at the intersection can be reduced to the observation site on the basis of the distance from the observer, and therefore, the size of the force factor and the vortical phenomenon at the observation site multiplied by the distance of the vortex (the "vortex arm") generates the magnetic induction measured by today's instruments.

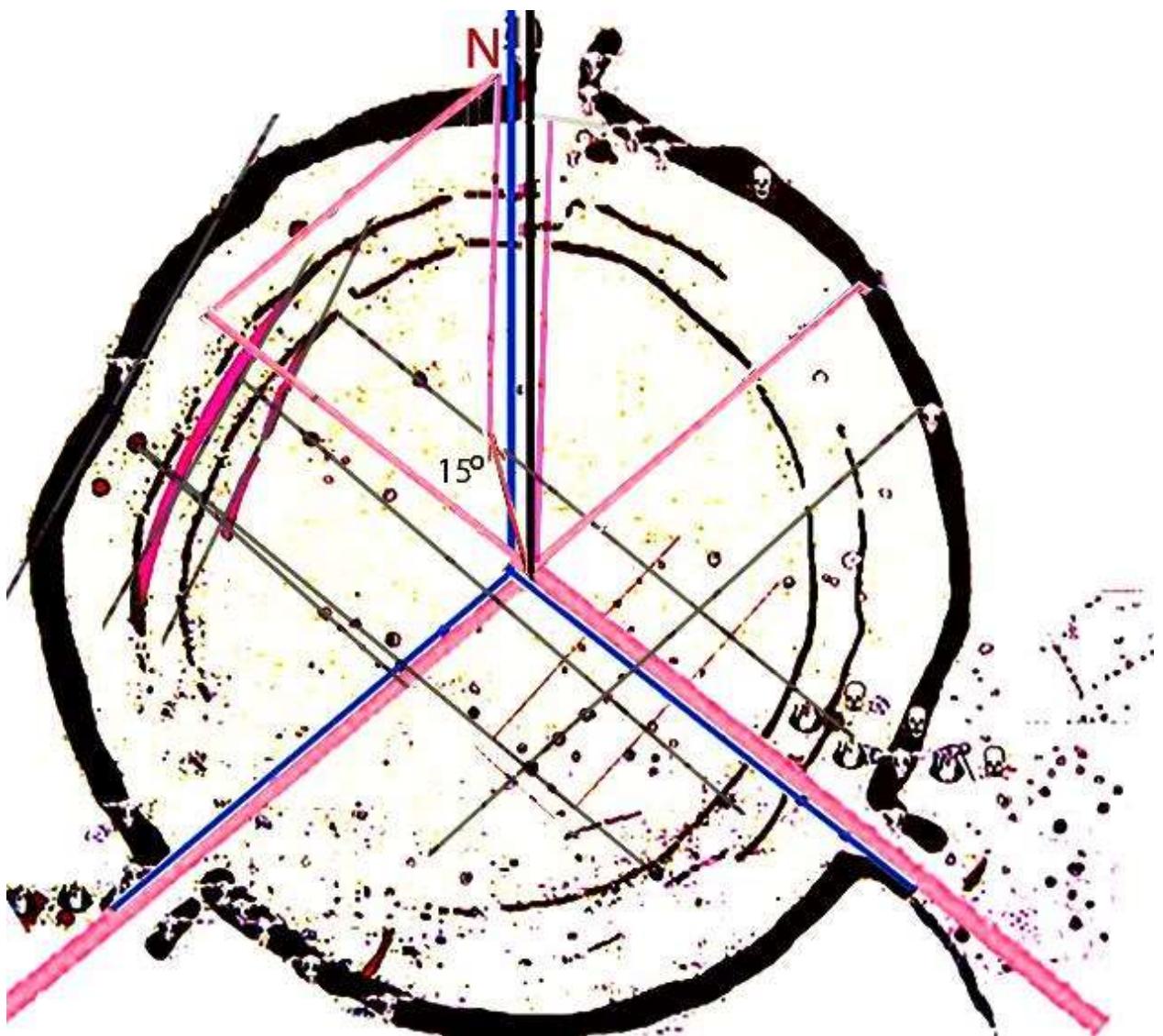
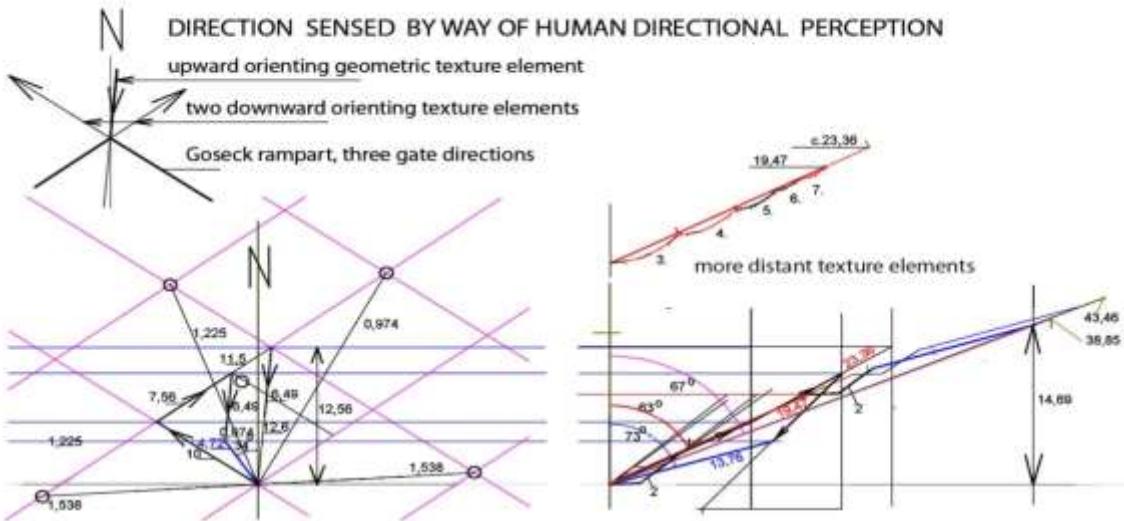


Figure 19: Rampart and gates at Goseck. Blue indicates the two oblique lines on the basis of which the structure may be considered a solar observatory, and the two vertical lines aligned with them, indicating geographical north are also shown in blue. Pink indicates the oblique directions that are aligned with the centre of the gates, which fits the centre of gravity of the entire rampart structure. The third direction leading to the upper gate is also indicated with a pink line, while black colour marks the geographical north-south direction attached to the centre of gravity. The actual location of the western palisades is also marked by pink lines. The thin pink lines added to the figure draw the sum of the texture elements operating in three directions, with the vector size matching the geometric length of the texture element. The summed vector appears with a declination angle that is 15° different toward the west from the reconstructed (archaeomagnetic) geomagnetic north. Source presenting the details of the archaeological excavation: 2007 [Prentice Hall Science Explorer] Life Science -- Teacher's Edition (TE)(H) by Michael J. Padilla, Ioannis Miaoulis, & Martha Cyr ISBN 9780132012454, ISBN-13: 9790132012453



The direction of the texture elements closest to the observer by human directional perception in the horizontal plane. These closest texture elements, summed in one vector, determine a direction relative to the geographical north that only generates a direction and intensity value approximating the archaeomagnetic field characteristics together with the total direction of the multitude of remote texture elements detected by today's instruments.

The texture elements closest to the observer, sensed by human directional perception, summed in one vector in the direction of inclination with more remote texture elements shown in the inclination vector.

Figure 4 At the two gates of Goseck there is an inclined downward effect, while at the third gate near the north, an effect towards the south can be observed. On the different-length sides of the triangle shaped by three directional effects, texture element effects of different sizes operate, which can be summed up as vectors. There are similar effects at many remote intersections, but these can only be detected by instrumental observation. The inclination diagram on the right shows that the oblique effects form lower and upper intersection layers at every 60 to 75 cm. The intersections are arranged along vertical axes. At Goseck, the inclination direction of the reconstructed geomagnetic field was between 63 and 73°. The actual texture element sizes can be obtained on the basis of the intensity of the reconstructed geomagnetic space.

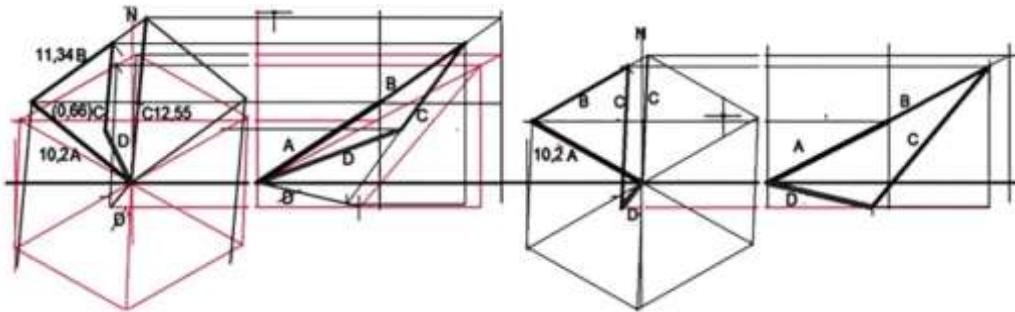


Figure 5: Top view and side view of the mesh structure. In the figure on the left, the full direction of the close effects – characteristic at the Goseck circular rampart, edited to the geometric shape – is seen as turning toward the north. The figure on the right shows that in case the geometric characteristics of the geomagnetic mesh are slightly contracted in the direction close to the geographical north-south, the vectorial effect of the texture elements close to the observer turns slightly towards the southern hemisphere. One by one, the remote texture elements generate torques. Their weight line can be used to determine the torque reduced to the observation site. If the instrumental measurement shows that the magnetic field is very weak, then the distant effects will continue to turn south. However, the poles will not swap places.

The drawing on the right side of Figure 5 shows that with a slight compression of the mesh structure, a field strength vector slightly pointing toward the south is formed. The magnetic effect of the texture element near north-south increases to an inverse square degree. The instruments indicate the extent to which the direction of all effects (total field strength) at a given place in the northern given hemisphere turn towards one of the poles. Turning toward south, however, does not mean that the magnetic poles are swapping places! What our instruments show is the measured strength of the geomagnetic field, summed up at the given point, very distant from the hypothetical poles. In case of a turnover observed with today's instruments on the whole of the hemisphere, the poles are not reversing.

From the direction of gates at to the former geomagnetic north

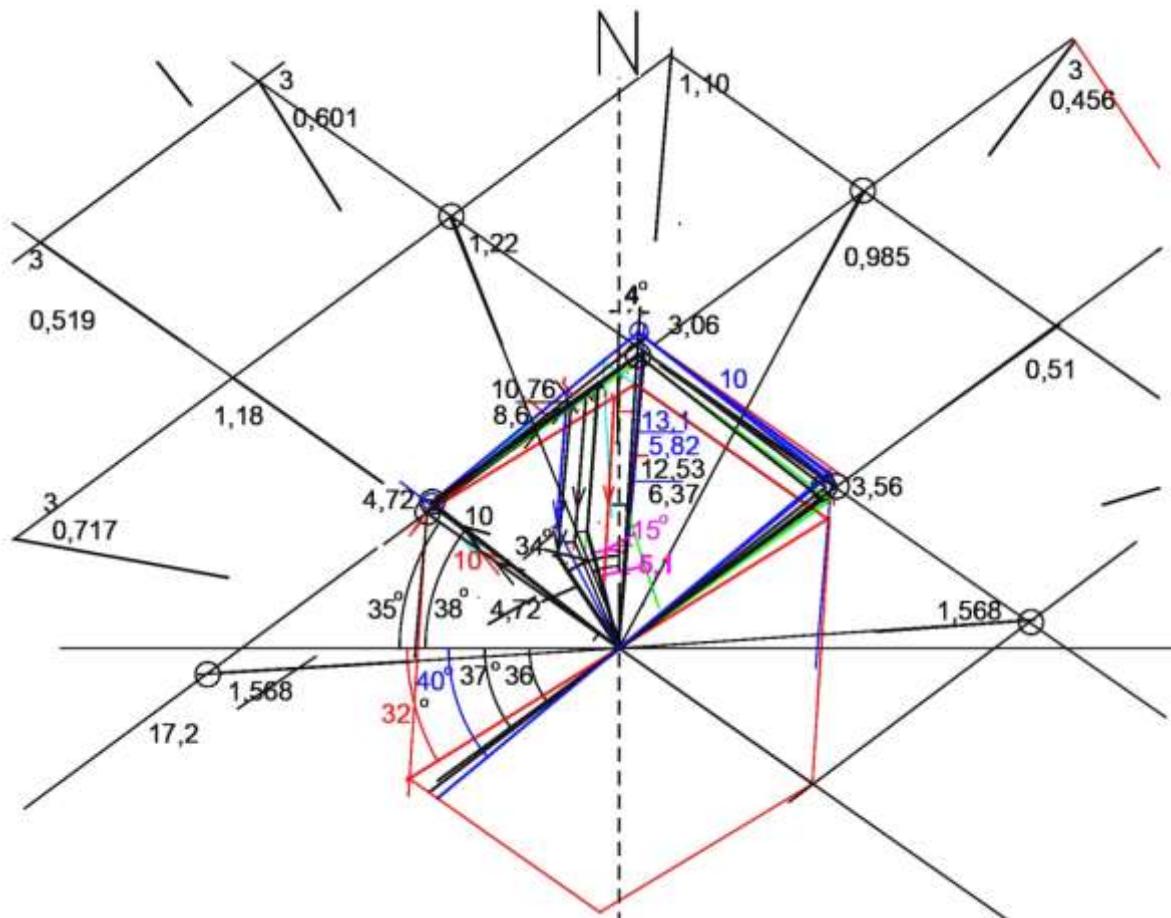


Figure 6: The builders of the rampart of Goseck cut gaps of a few metres in width in three directions. These are called the gate directions today. Several triads of direction can be identified among the edges of the gates. The intersections of the directions can be constructed with geometric lengths and angles. With human perception, three directions can be detected at the same time. In the directions, varying effects of inverse square size can operate, the total vector of these can be edited. The torque and the total vector direction of the range of remote effects can be determined in the site of instrumental observation. Such a perception of torque puts the assumptions about the vortex of magnetic phenomena in a new light.

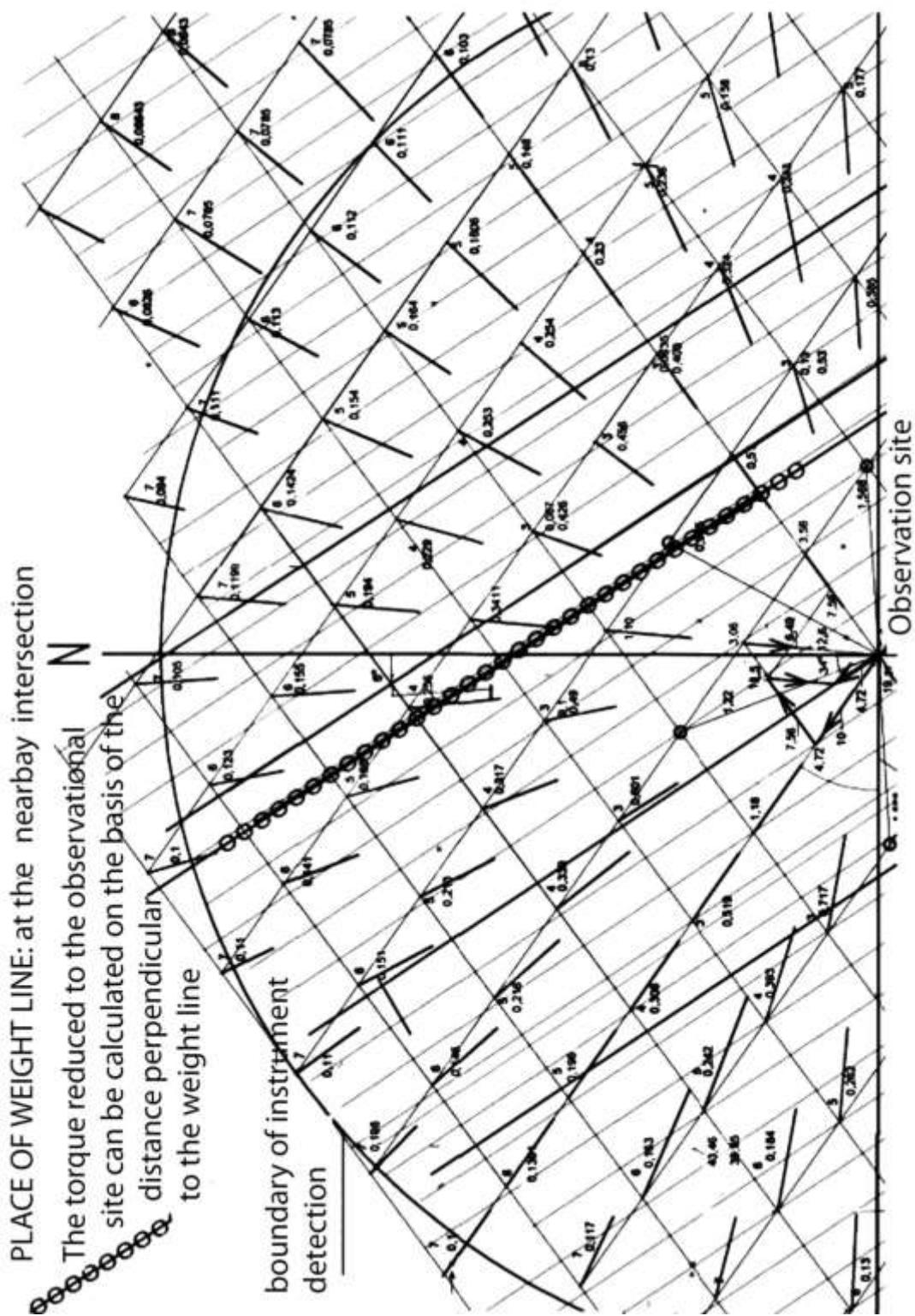


Figure 7: In the direction of the total vector of the triad based on the circular gate directions of Goseck, the total effect of the two oblique and reverse vortexes prevails, and this resulting direction formed the basis of the summation of the range of effects leading to torque reduction.

The width of the breaks (“gates”) in the circular rampart at Goseck provided an opportunity to present hypotheses in favour of solar orientation, but on the basis of an examination of the “gate” near the north, it was possible to construct several geometric mesh structures in which the force and torque effects on the mesh directions suggested the cultic orientation practice applied for thousands of years. The orientation directions indicated by human perception resulted in changes in the gates of the structure used for hundreds of years. We have extrapolated the effects of the remote mesh crossings, which appear in today’s instrumental measurements, on the basis of the directions observed with human perception, by summing up the torques generated by distant effects and by reducing to the site of observation. In recent years, in addition to the uncertain archaeomagnetic data, we have also clarified the basic structure of the transmission diagram.

In the following, we quote a few studies on the reconstruction of the archaeomagnetic field, in which the uncertainty of archaeological age estimation data is considerable, as indicated by significantly different data from new measurements. In the light of this, a significant rearrangement of the data is expected over the next two decades. As the orientation data remain unchanged, the accuracy of dating has also improved significantly in recent decades. The most recent examples presented also indicate the direction of the changes. In connection with Goseck, the role of bone and tooth DNA dating will be more important than the importance of determining the age of the pierced ornamental ceramics to the period between 5500 and 4000 BC. Bones found in Hornsburg near the Goseck circle are related to rampart gates with a time of origin 18° closer to east-west than the gate directions of the Goseck rampart, while on the north-south axis, a 15° difference may be estimated. Findings of Celtic clay shards refer to the possibility of orientation by way of human perception. The magnetic north was probably around -14° . In a 2015 paper by Lisa-Kapper, a declination between -13 and -20° appeared as a conspicuous value, for which an approximating curve appeared in difference from the values earlier given for the next millennium. The measurement data of Despina Kondopoulou – Eva Kovacheva for the period between 6000 and 1000 BC at a place east from the geographical north of 2009 instead of the assumed magnetic north.

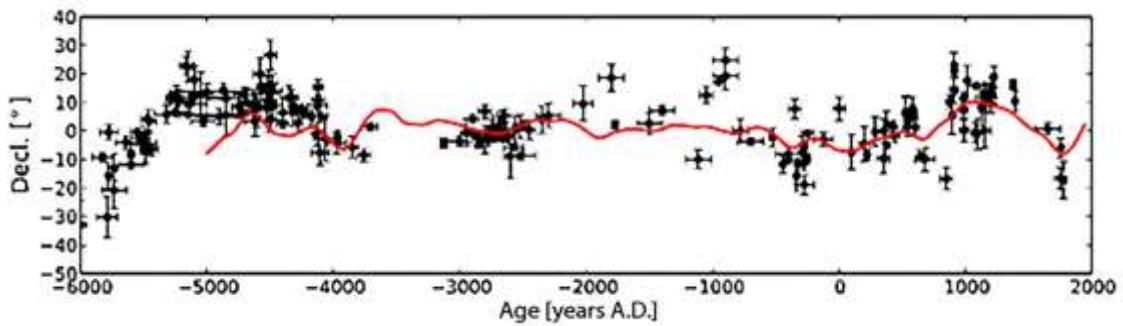


Figure 8: Kondopoulos – Kovacheva (2009) The evolution of the geomagnetic field in Bulgaria, Serbia, Kosovo, according to the results from the Sofia laboratory. The data are not reduced to a common location. The red line represents model predictions of the CALS7k.2 model of Korte and Constable (2005) at Sofia. agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2008GC002347 The red line of Korte and Constable indicate the uncertainty around 5000 BC.

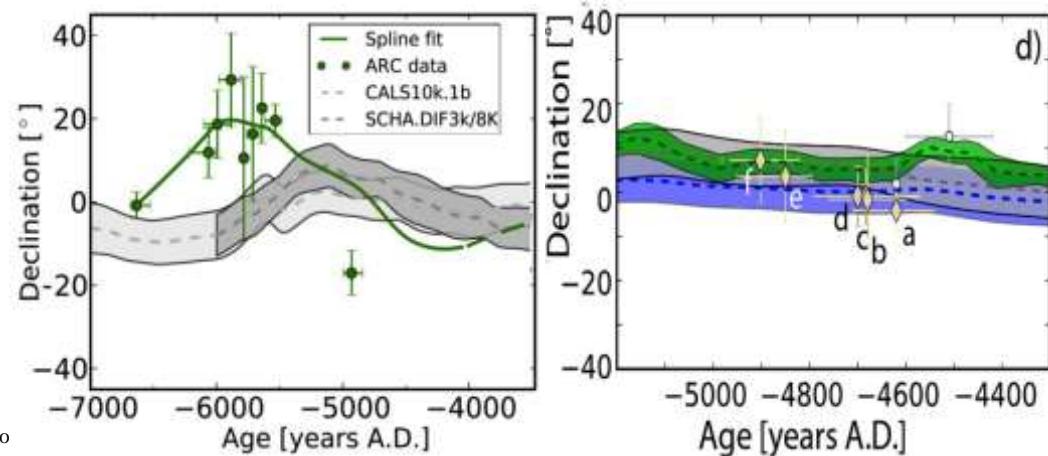


Figure 9: Kapper 2014 Katherina Lisa Kapper: Earth paleofield over the past 8000 years over the Alpine region; right: Ricardo Gabon PhD ETH Zürich
 left: Spline fit of declination of the archaeomagnetic data and ARC data (green line and dots) compared to the CALS10k.1b (light grey) and the CCHA.DIF.3K/8K (dark Gray)
 right: Time variation of declination from 5500 BC to 2000AD (4000AD) from Riparo Gabon. White circle are archaeomagnetic data form Europe from the GEOMAGIA database (Donaldini et al., 2006); the green: Balkan curve (Tema and Kondopoulou, 2011; blue and gray curve: the CALS10k.1b (Korte et al., 2011, and SCHA.DIF.3K and Pavon-Carrasco et al. 2009, 2010, yellow diamonds are level averages from the Riparo Gabon. All data are relocated to the Riparo Gabon

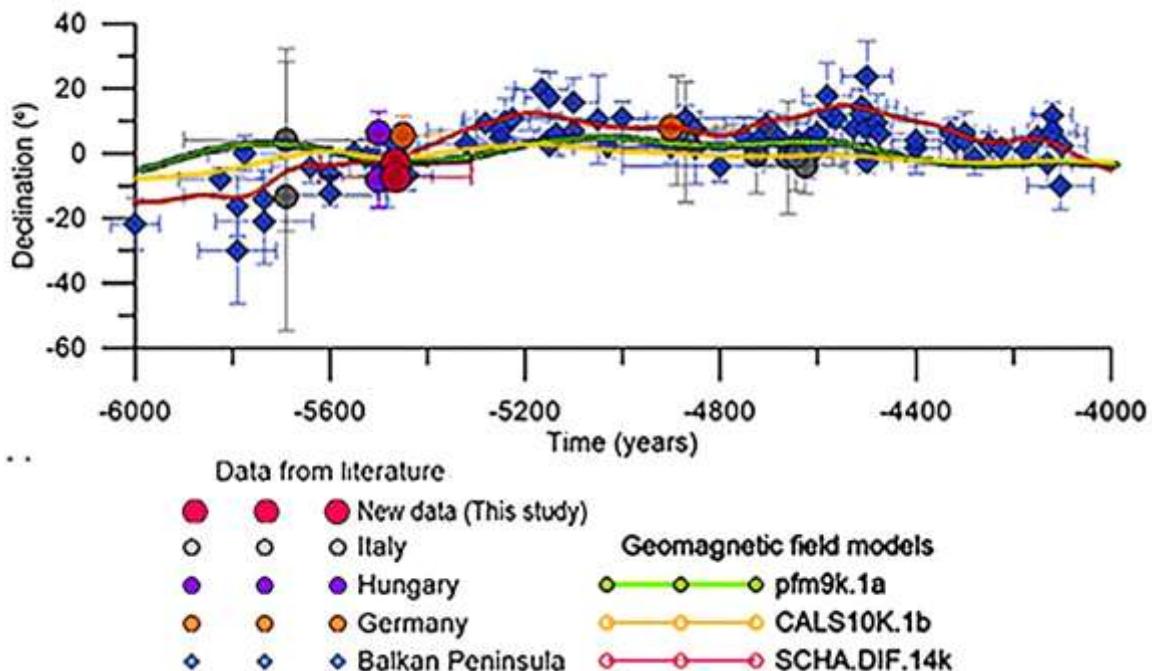


Figure 10: Cecilia Coneti Barbara (2020):The new declination data obtained in this study plotted together with available literature data from Italy, Central Europe, Balkan Peninsula for the 6000-4000 BC period. Researchgate.net/figure/The-new-declination-top-inclination-middle-and intensity-data-obtained-in-fig7-303510523. The uncertainty of the data around 4800 BC is significant, the possible negative declination values may reach -15° .

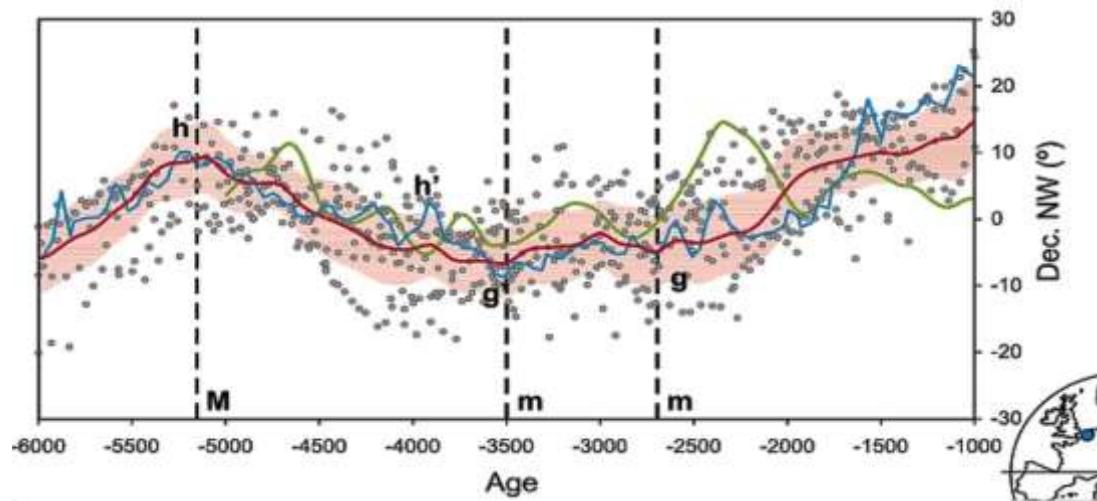


Figure 11: Carrasco et al: Regional modelling of the geomagnetic field in Europa from 6000 to 1000 B.C: (2010) Geochemistry Geophysics Geosystems/11, Issue 11 The data are mostly from before 2008.

It was almost shocking to find that in the comparative figure of the archaeomagnetic curves in the paper by C.L. Capper, published in 2014, the negative declination values unavoidable according to our constructions were clearly visible.

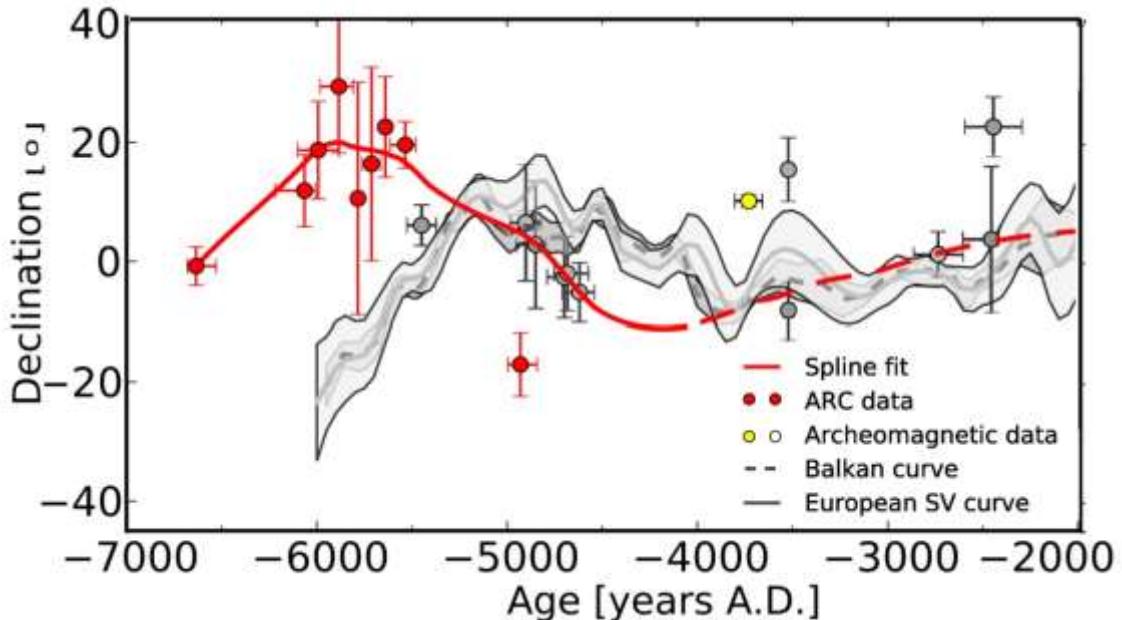


Figure 12: In Kapper's paper, new data indicate the line of strongly negative declination values between 4000 and 5000 BC; if applied to Goseck, both the Balkan curve and the north-western European curve at the time of the construction of Goseck were 0° , with a few degrees of uncertainty. The negative declination of 15° cannot be reduced with the gate sizes and mesh shape given at Goseck (see enlarged mesh detail), so a slight increase of the negative values is expected on the Swiss curve.

On the gates of Goseck

In the absence of antecedents, we did not attach great significance to the gate widths formed for the directions marked by human perception. However, already in the course of examining the rampart at Polgár, Hungary, it has been suggested that the openings were not formed at the same time, but rather in several phases, and they could be filled up and moved further away from time to time. In Goseck, the rampart was used for a relatively short period of time. But a change in the gates may have occurred even within the time of 100 years, in connection with the setting out of the cultic directions. In addition to the three explored gate directions – as in former orientation directions – there have been traces of palisades running parallel to the current gate direction axes, and these appear at both the right and the left gate directions. (At the northeast gate of Stonehenge we can also see a series of points indicating small directional deviations.) We do not see any similar points near the north-south direction. The vaguely visible texture vectors of different sizes and lengths show the declination direction of -15° in a summed vector.

Goseck as a tourist attraction is still marketed as a solar observatory. Orientation with the summer solstice is not confirmed due to the unsymmetrical location of the southeast and the southwest gates, and from a scientific point of view it is highly objectionable that the rampart shape and the western palisades have also been “restyled”.

To very thorough archaeological excavation provided a good basis for redefining the past of Goseck and to investigate its links with geomagnetism. All three gates explored received the same significance once a function independent from the sun is associated with them.

The remote effects can be detected with an inverse quadratic relative to the change in the distance from the observer. Reduced to the observation site, the effects at the intersections of the mesh structure at the geomagnetic north direction distant from the geographic north appear with a significant force vector size and simultaneous torque vector. The only case when there is no torque effect (because the torques of opposite direction on the two sides mostly balance each other) is when the geomagnetic north direction points toward the geographical north. This was roughly the case when the mausoleum of Augustus and the Pantheon were built in the Roman Empire.

The orientation of the Pantheon and the Mausoleum of Augustus

The restoration works on the mausoleum are scheduled to be completed in 2021. Perhaps, attention will be paid to the fact that the axis of the Pantheon building, turning 3.6° northwest, differs by less than 5° from the axis of the mausoleum of Augustus. Setting out with an Etruscan scythe was used; the directional divergence may have occurred over the course of 12 to 15 years. So if the setting out of the Mausoleum in 28 BC is authentic, then the time of the setting out of the Pantheon's portal probably preserves the axis direction of the earlier small church.

What may be most interesting for our purposes is that, along with the 3.6° directional deviation from the geographical north, which is perceivable by human perception, the torques operating in the geomagnetic mesh on the east and west sides equalised and cancelled out each other, which we checked for the semi-circular zone delimited from the observation site of current instruments. At the same time, the geomagnetic force vector may have been nearly 2.5 times the value of the unit vector perceived by humans. Prior to the availability of knowledge of geomagnetism, the intensity of the invisible phenomenon near the north, almost without any torque effect, could have been noticeable to those using a sickle for setting out

Strabon wrote about the limestone façade covering the exterior of Mausoleum of Augustus in 7 BC, which suggests the end of the construction process lasting two decades. This means that the direction of the entrance may have been determined in 28 BC. The surviving entrance of the earlier church dedicated to Mars it can be seen that it was built by Agrippa in 27 BC, which would rather suggest the beginning of the construction of the round building. Agrippa fell from power in 7 BC.

Today, it can be reconstructed that at the time when the two structures were built, the change of the direction of the geomagnetic field according to contemporary instruments was less than one degree and it shifted around the geographic north.

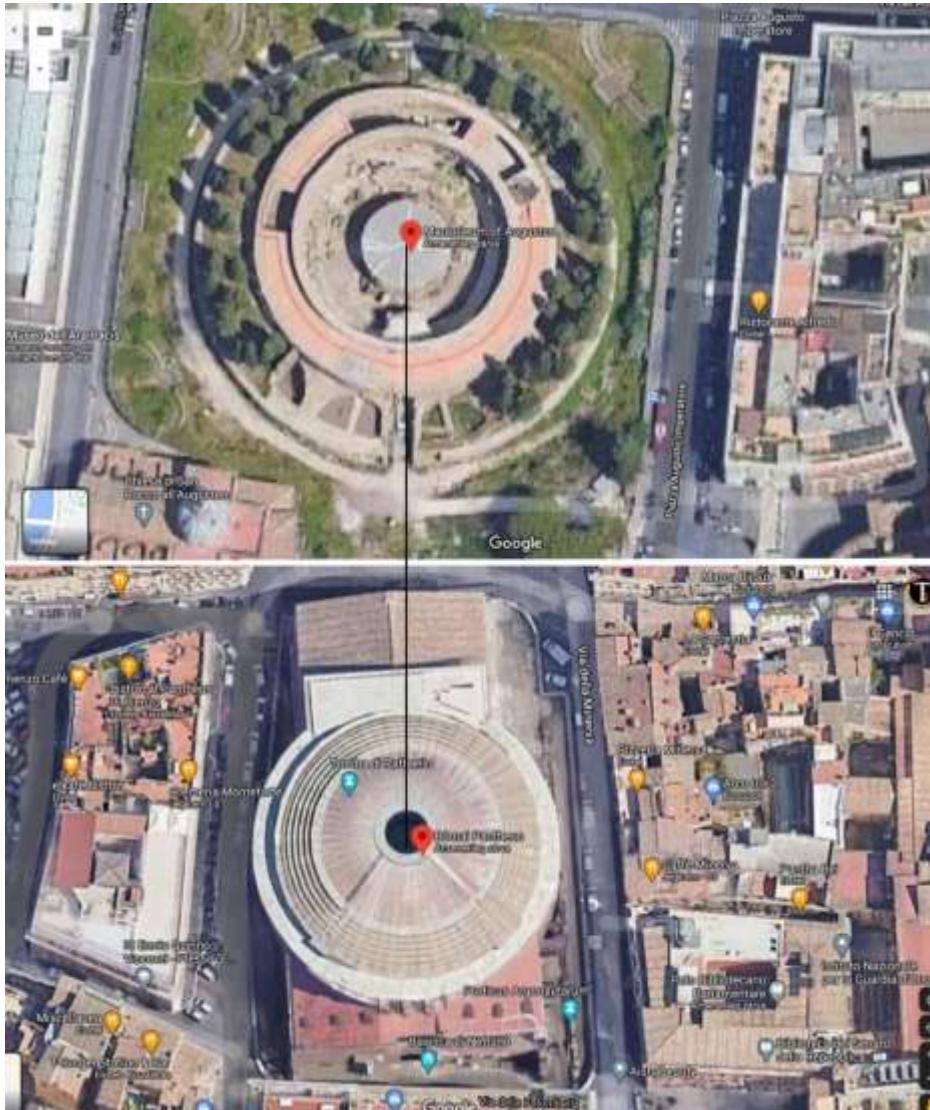


Figure 13: Two structures of the Roman Empire built at almost the same time are the Mausoleum of Augustus and the Pantheon of Agrippa. At the top, the axis direction is approximately 1.4° east from the geographical north, while at the bottom, it turns 3.6° toward the west. Both of these indicate the direction of the invisible phenomenon perceived by humans near the geographical north. On the basis of the accurate knowledge of the direction of the geographical north, it may have been known that the change in axis direction occurred over the course of a minimum of 12 to 15 years.

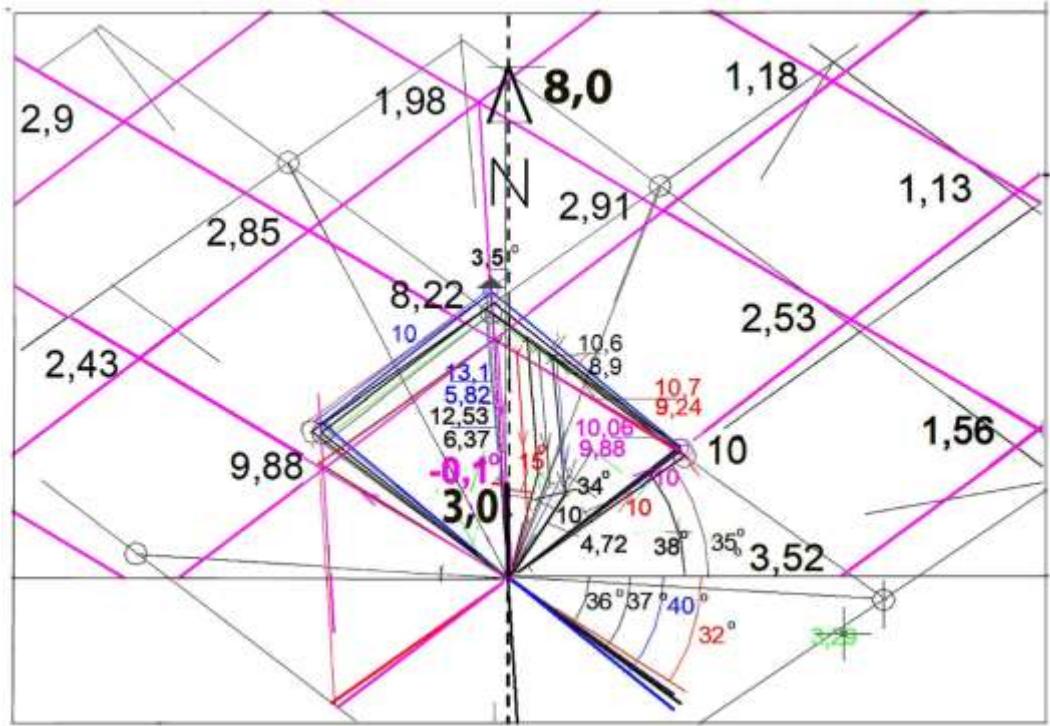


Figure 14: Purple colour indicates the direction of magnetic north, as edited and drawn onto the triad of texture element directions characteristic of the Pantheon. For vector editing in case of a calculation without units of measurement, the relative unit vector is “10”. With this unit vector, the total vector of the three texture elements is “3”. The sum of the right- and left-side force vectors generated at the intersections within the semi-circular zone that also calculates with remote effects in case of instrument measurements is close to “80”. In both torque calculations and vector sizes, tenfold length sizes are typical. Thus, the force vector size is also reduced to one tenth. The total vector of the three texture elements of size “3” increases by “8” near the site of observation.

In the course of instrumental measurements, the value of the total texture vectors observed by human perception is “11” if the unit vector is “10”. The proportion of the remote effects is estimated at 70-80% of the total vectorial forces of the geomagnetic field measured by contemporary instruments, depending on the sensitivity of the instrument. To degrade the sensitivity of the earth-inductor inclination meter to the level of human perception, it may be sufficient to reduce the thread count of the rotating coil to one-tenth, while increasing the sensitivity of the voltage measuring equipment.⁶

⁶ If the unit vector of the mesh modelled in the horizontal plane of the geomagnetic field in Central Europe is “10”, it corresponds to a length of 0.6 m between the shortest intersections, while the largest length is between 0.73 and 0.78. It can be clearly seen that the vector of the texture element near north-south has a significant role in determining the direction of the vector sum due to the opposite direction of the other two. At the intersections, in the detection zone of the measuring equipment, the threefold direction of the texture element vector, as detected by human perception, is also characteristic at remote intersections (without disturbing local effects). With significantly decreasing dimensions, in the basis of the closest texture triad, they are added to the summed force vector. As the torques on the two sides of the local total vector direction differ significantly in relation to the reduction of remote texture elements to the measurement site, unbalanced torques appear in instrumental measurements in a vortical manner.

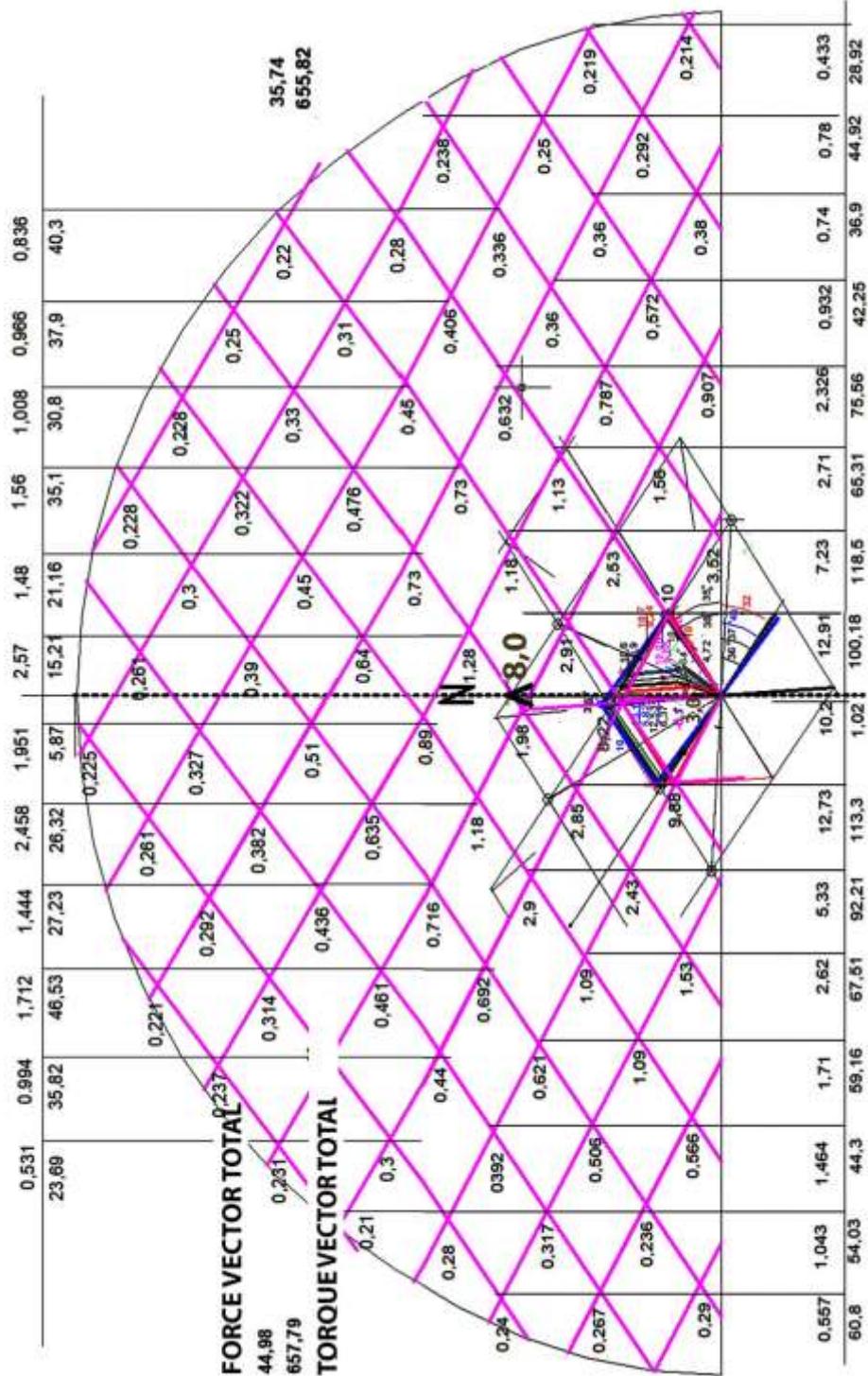


Figure 15: The force-type vectors and torques calculated in relative units at the orientation of the Pantheon's portal. From the north, the two torque of identical size (65.8 and 65.6) neutralise each other, and vector values are reduced to the measuring point. On the purple-coloured mesh, grey colour marking next to the vectors indicates the broader mesh structure that is characteristic of Goseck. It shows how a small deviation in mesh geometry can result in a significant change in the direction of the summed vector. In the horizontal plane, the unit vector is 10, which means, on the basis of field experience, a length of 0.6 m in case of the shortest, and 0.73–0.78 m at the longest intersections. It can be clearly seen that the texture element vector near north-south has a significant role in the overall direction, due to its opposite direction to the other two. This *total direction* does not change at remote intersections, which means that in case of significantly decreasing size, it is added to the force vector.

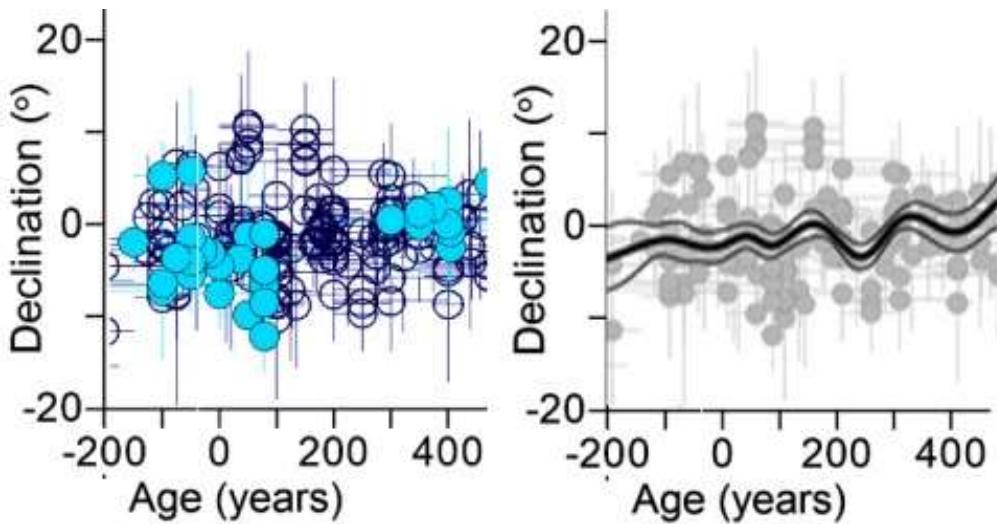


Figure 16: In 27 BC in case of the Pantheon and in 28 BC in case of the Mausoleum of Augustus, the value of archaeomagnetic declination in Italy was between 0° and 7° . On the left, the solid blue circles indicate the measurement data from Italy. On the right, the summary curves drawn up by the researchers can be seen. In: Evdokia Tema, Ian Hedley, Philippe Lanos: Archaeomagnetism in Italy: a compilation of data including new results and a preliminary Italian secular variation curve Geophys. J. Int. (2006) 167, 1160-1171 pdf: 7-8p. BC 200-AD 400

The time frame between the setting out of the Pantheon and the Mausoleum of Augustus may have been, in theory, 10 to 12 years (the direction of north-south axis perceived by humans changed by 6-8 minutes of arc per year, with the reconstructed moderate geomagnetic intensity change in place. The axis direction of the Mausoleum of Augustus is $1.4\text{--}1.5^\circ$ east from the geographical north. The 3.5° deviation of the north of the Pantheon towards west indicates a negative inclination of 0.5° in the south. On the basis of the three gate directions set out by way of human perception nearly five thousand years before, the direction of the magnetic north, moving strongly west of the geographic north, can be reconstructed. At Goseck, with a declination value of -15° , one of the three texture elements were near the geographic south. At the axis direction of the mausoleum, the declination may have been $+0.3^\circ$. This is the result of the 15° change of one of the branches of the texture element triad that generates the geomagnetic north declination values, in the course of the texture element starting from the geographical northwest turning towards south at around 120° . In case of buildings built in the Roman Era, the deviation from the north, as determined by way of instruments, is a few degrees; this is where the three component vectors making up the direction of archaeomagnetic north starts toward the east in another time frame, far from the one belonging to Goseck.

During the combined motion of the three texture elements, small differences in the angles enclosed between the three branches appear in the horizontal plane. Examining the spatial position of the texture elements, we can also observe the vertical compressions of the mesh structure. In case of the reconstructed values of archaeomagnetism, we see that the instrument-measured inclination at the time of the

construction of Goseck was smaller relative to the plane of the horizon than at the time around the construction of the Pantheon. In the latter, the mesh layers above each other were farther apart.

The orientation of the Pantheon, which is 3.6° west of the geographic north, indicates a change in the geomagnetic north that is not more than one degree. If the axes were to indicate the direction of geomagnetic north, the 5° deviation between the Pantheon and the Mausoleum combined with a 7 minutes of arc of directional change would have occurred over the course of at least 35 years, in which case Agrippa as the principal ordering the construction could hardly have played a role in both. However, the directions of orientation can only be interpreted by way of cultic orientation using manual perception. If the direction of the Mausoleum's gate was set out in 28 BC and the construction of the Pantheon could not have started either in 40 BC or in 15 BC, then it is likely that the portal of the Pantheon preserves the direction of orientation of the earlier church.

4. THE POLES WILL NOT SWAP PLACES

It is a popular topic in the media that the magnetic north and south poles will soon change places. We can read that this could be indicated by the weakening of the geomagnetic field, and the reversal of polarity may take place either in some parts or in the whole of the hemispheres. However, it does not follow from the above that the geomagnetic poles would turn in such a way that the geographic north and south poles would swap places. It is only the geometrical characteristics of the geomagnetic mesh structure that change, and the direction of the field in a part of the northern hemisphere at the measuring sites is turning slightly toward the direction of the geographical south.

One example shows how the change in the polarisation occurs. In the northern hemisphere, on the Neolithic earth rampart of Goseck, there are three openings – three gates. In the geomagnetic mesh modelled with the gate directions, which can be illustrated in a geometrical formation, the effects between the intersections close to and distant from the observer are summed up in the direction turning towards the geographical north. In case of a slight change of the gate directions, the geometrical shape may be compressed in the north-south direction. The magnetic effect increases significantly in the direction of the shortening geographical north-south direction. The combined direction of the three-way effect turns slightly southward. In the course of instrumental measurements, this slightly southward polarisation remains even in case of calculating with the effects at distant remote intersections. The situation is similar when, in the southern hemisphere, we observe with our instrument that the overall effect pointing toward the geographical south is changing temporarily toward the north.

The currently accepted position in physics is that the triaxial *fluxgate* magnetometer instruments are suitable for measuring the characteristics of the geomagnetic field, as interpreted in the Euclidean coordinate system. At an observed location, the geomagnetic effects travel in one direction through the electrically charged wire coil of our instruments. With the instrument, one direction and one total effect can be determined for the geomagnetic field passing through the surface delimited by the wire coil. It is an interesting assumption that the effect can be evenly distributed on the surface. This is how we get the intensity value for a unit of the surface. **The spatial order of observed close and distant effects cannot be detected from the data.**

If the flow of the geomagnetic field through the electrically charged frame is not one-way, i.e. the passing field components are in different directions, then it is the

reduced intensity value resulting from their mutual interaction that appears on the instrument. We can read from the instrument that the measured geomagnetic field is significantly weakened, but it remains unnoticed that this is caused by the total effect of the field components limiting each other. At the same time, it is possible that geomagnetic effects in different directions do not decrease, but rather increase.

Today's instruments show the effects in the geomagnetic field summed in one direction. **Researchers of the geomagnetic field are misled when they interpret the geomagnetic field as a phenomenon based on one-way effects. Living organisms do not sense this direction. What they do sense are the effects close to them, each in a different direction.**⁷

It is easy to produce a magnetic field with the use of electrical coils, which can be considered as substituting real geomagnetism; however, this would not include the natural arrangement of the close and distant effects of the real geomagnetic field that is characteristic in nature. Experiments with electromagnetic coils imitating a geomagnetic field in a Faraday's cage are unsuitable for exploring the directional perception of organisms that can only sense close effects.

Fluxes

The word flux (meaning flowing) is of Latin origin, which appears in the work of Newton in the form of *fluxion*, as used in his integral calculus. In many disciplines, the word flux is used with a variety of meanings. According to Maxwell, flux represents a quantity passing through a (closed) surface, which can be integrated by all elements of the surface. In principle, it is also possible to calculate fluxes with the passing through of effects (or texture elements, to use the term introduced here) in different directions. **The flux density derived from the direction and intensity data of current instrumental measurements masks the multitude of directions that are actually at play as the effects of the texture elements of the magnetic field.**

Measurements may demonstrate the correctness of our assumptions.

We have discussed our model called the transmission diagram in several studies. An instrument suitable for the measurements that can be realized with minimum effort may be an earth inductor. The main element of the instrument used to determine geomagnetic inclination is a rotating wire coil. By rotating at an angle different from the direction of the geomagnetic field, voltage is generated in the wire

⁷ Shaw (2015) Jeremy Shaw, Alastair Boyd, Michael House, Robert Woodward, Falko Mathes, Gary Cowin, Martin Saunders, Boris Baer: Magnetic particle-mediated magnetoreception *rsif.royalsocietypublishing.org Interface* August 2015

coil. The voltage stops at the inclination direction, i.e. where the wire coil is in the direction of the geomagnetic field.

An earth inductor with a minimal thread number is capable of generating only very weak electrical voltage. During the rotation, a weak voltage is generated only by nearby magnetic effects (texture elements). The combined effect of nearby texture elements appears in a direction that is significantly different from the geomagnetic north.

In addition to examining the inclination of the current magnetic field, we can also establish the declination value. The orientation directions associated with this declination can be read from transmission diagrams edited on the basis of the ancient orientations.

The modified instrument provides information on the nearby and remote texture element structures of the geomagnetic field. It becomes evident that the geomagnetic field is a combination of close and distant effects, organised into a mesh structure.

Geometrical properties give value to geomagnetic effects at the distance between the observation site and a remote intersection. In case of bodies with a mass, using an approach applied to supporting structures, we can determine the secondary, distance-dependent combination of the partly centrifugal torque/inertia and normal inertia. In the scope of geomagnetic wave phenomena, at the nearby and remote intersections, three texture elements operate as an asymmetrical “wave body” frequency triad.

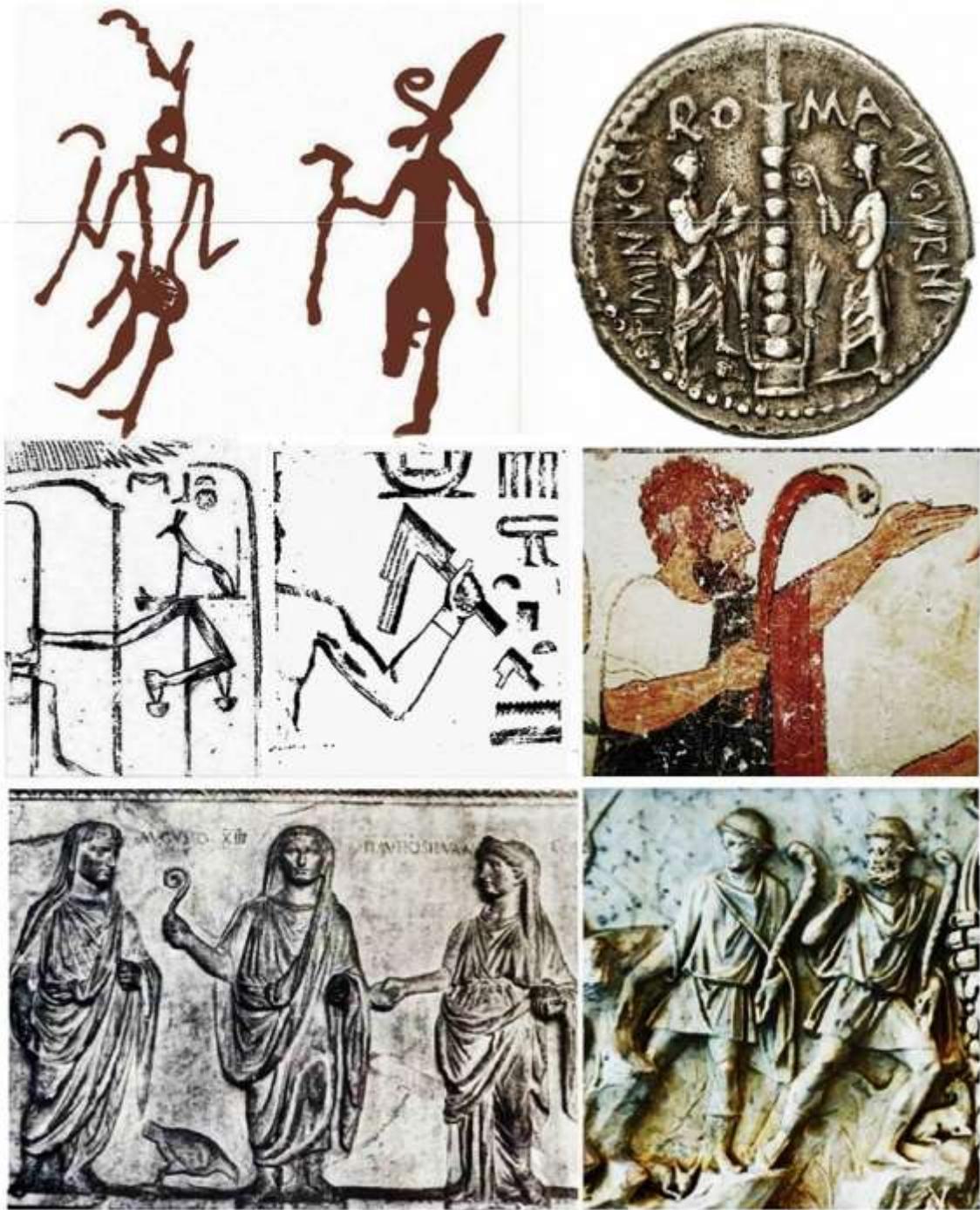


Table I: Observation of the direction of the invisible phenomenon

- Egypt, rock drawing D.B. Prussakov quoted by maxima-library.org/mob/b/393468 format
 - Roman coin, Minucios cf. Augurinus
 - Egypt, approximately 2200 BC Directions and nether sensor (drawing: A. Kőszeghy)
 - Etruscan Augur tomb wall painting 530-520 BC tomb, Necropolis of Monterozzi, Tarquinia www.meisterbrucke.de
 - An Augur holding a Roman lituus. Jason Almendra, quoted by Jian Luca Pica <https://www.quora.com/Why-was-augury-so-important-to-the-ancient-Romans>
 - bottom right image: Romulus, Remus Rome, Ostia Antica Trajan altar AD 98–117
- According to Plutarch, Romulus saw six vultures flying in formation over Palatine Hill, while Remus on the neighbouring hill saw twelve. This could be understood in such a way that Remus also perceived the second layer behind the nearest triad directions. The habit of vultures moving in formation may indicate the similarity between the nearby and the remote direction triads at intersections. One of the Auspices of Taurus pairs provided a “translation code” for the perception, while the other provided support.



Table II: “Master of animals” triad representations:

1. Embossed bronze plate, Olympia, Greece approximately 600 BC, National Archaeological Museum, Athens. Inv.No. 6444.
2. Ratnagiri Maharashtra India i.e. 9000 –10000
3. Kameiros, today's Rhodos, 700 – 800 BC
4. Child Horus in the pose of Master of Animals, National Archaeological Museum Naples, Egyptian Collections
5. Quiver-covering plate made of bronze, Mesopotamia, Western Iran 8-9th century BC, Metropolitan Museum of Art, New York
6. Paros or Naxos 700 – 675 BC, Archaeological Mus. of Mykonos Inv. No. IA 401.
7. Lorestan, 1000 BC
8. Potnia Theron (Ποιωτία) 9th century BC

Current instrumental measurements can be used perfectly well for technical devices, including space-technological solutions. However, the operation of geomagnetic phenomena affecting the whole body of organisms in a “dispersed” way, the quantum physics modelling of electricity, and the multitude of quantum field theories can also bring new insights through the remodelling of the magnetic field structure.⁸

It was formulated in the framework of quantum physics, but to some extent it also applies to geomagnetic phenomena, that physical systems cannot be separated because of background radiation. In today’s instrumental measurements, due to the impossibility to separate remote effects, the geomagnetic field is present, in addition to the nearby effects, as a peculiar “background radiation” concealing the operation of the geomagnetic mesh.

In the wave phenomenon, the extent of the effect between the intersections decreases with inverse square of the distance. Similarly to other living organisms, humans can also perceive geomagnetic effects at nearby intersections, but do not recognise its vorticity. Today’s measuring instruments also respond to distant effects, concentrating them into a field strength combined with the nearby ones,

Living organisms immerse into the medium of nearby geomagnetic frequencies with their entire bodies. With their protruding, line-like body parts, they detect an invisible phenomenon in three directions. They can model geometric constructions if they perceive the spatial transverse nature of this invisible phenomenon – in our interpretation, the texture elements.⁹

In the northern hemisphere, in case of instrumental measurements, the direction of the summed geomagnetic field strength comes close to the geographic north with the remote texture element effects combined with the nearby effects. When the geomagnetic field is very weak, as measured instrumentally, the remote effects are not indicated by our instruments. In such a case, the intersections close to the observer, to the possibilities of human and animal perception, can play a strong role in influencing the direction of the effect.

We linked the characteristics of the texture elements operating in the mesh directions to the mesh geometric characteristics. The vertical alignment of the mesh intersections, in relation to the horizontal terrain, suggests that the phenomenon of gravity is inseparable from the mesh structure of the geomagnetic field around the Earth. The mesh structure around our rotating Earth can be mapped with mesh geometry and intensity characteristics in the form of a dispersed structure of the Earth’s surface and its connection to higher layers of the atmosphere. On the basis of the

⁸ Peter Szegedi: Was the Emergence of Modern Physics a Paradigm Shift?

Vestnik Pavlodarskogo Gosudarstvennogo Universiteta, Humanitarna Seriya 2014 No. 1-2, pp. 156-167. [Paradigmaváltás volt-e a modern fizika megjelenése?]

⁹ Biblical reference: Ezekiel 10:10: “As for their appearance, all four had the same form, like a wheel within a wheel.”

description of gravity based on space-time distortion, related to mass, geomagnetic intensity as a frequency “characterising a specific material behaviour” may be combined with the distortion of the alignment in the mesh structure.¹⁰

A current example of the mistaken concept of polar reversal

According to the physical interpretation of the magnetic field generally accepted today, a number of repetitive polar reversals have occurred in the past several millions of years. However, the effect of the weak, remote texture elements IS significantly absent from geomagnetic traces from the ancient times, such as from the characteristics of the geomagnetic field reconstructed from deep-sea rocks. Either in the northern or in the southern hemisphere, with the missing effects taken into consideration, the number of measurements currently indicating polar reversals, especially non-global, regional polar reversals, may be radically reduced, given the influence of the remote effects shifting the direction of the field intensity toward the geographical pole characteristic on the given continent.

According to today’s physical interpretation, there is zero field strength near the Earths’ equator, but it can also occur on other continents. If the shape of the mesh structure characteristic in the northern hemisphere is known, then in case of zero field strength, moving towards the southern hemisphere, the pair of texture elements directed northwards in the north continue to move towards the north, but in an ascending way. Due to the similar nature of farther intersections, this appears to be a branching in the instrumental measurement. The third texture element going downwards in the southern hemisphere does not appear in the instrument measurement.

In August 2020, the journal Science Alert reported that NASA researchers were monitoring geomagnetic field weakening and polarity shifting in an area from South America to South-West Africa, which they named the South Atlantic Anomaly (SAA). For devices orbiting the Earth, such as space stations, it is dangerous if the magnetic field, which protects them against the impact of high-energy protons, is weakened. NASA researchers have detected the SAA drifting toward the northwest and openings in two directions. The above news is from Terry Sabaka and Weijia Kuang, geophysicists at NASA.¹¹

¹⁰ Antal Rockenbauer: A gravitáció és az elektromágneses kölcsönhatás párhuzamos története [The parallel history of gravitation and electromagnetic interaction]
In: *afizikakalandja.blog.hu* 2016.

¹¹ Mara Johnson-Groh and Jessica Merzdorf: NASA Researchers Track Slowly Splitting ‘Dent’ in Earth’s Magnetic Field. *NASA’s Goddard Space Flight Center, Greenbelt, Md.* 17.08.2020

The interpretation of the SAA regional polarity reversal based on the spatial mesh model

The texture elements of the geomagnetic field around the Earth are still present along with the instrument-detected signs of the polar shift, but today's magnetic measurement instruments can only detect a fraction of these. In the course of measuring a very weak geomagnetic field, the measurement data of today's sensitive instruments show the texture elements closest to the observer, which are also characteristic in the human perception of geomagnetism. For devices orbiting the Earth, such as space stations, it is indeed dangerous if the magnetic field, which protects them against the impact of high-energy protons, is weakened. However, in addition to the weakening indicated by instrumental measurement, the texture elements of the geomagnetic field are still present.

What our compasses and today's instruments indicate is the result of the summation of a large number of geomagnetic texture elements of different directions and effect sizes, which also limit each other. For a certain type of description of electromagnetic phenomena, as well as in many areas of technical life, it is sufficient to model the magnetic field as if it consisted of conceived flux threads running parallel with each other.

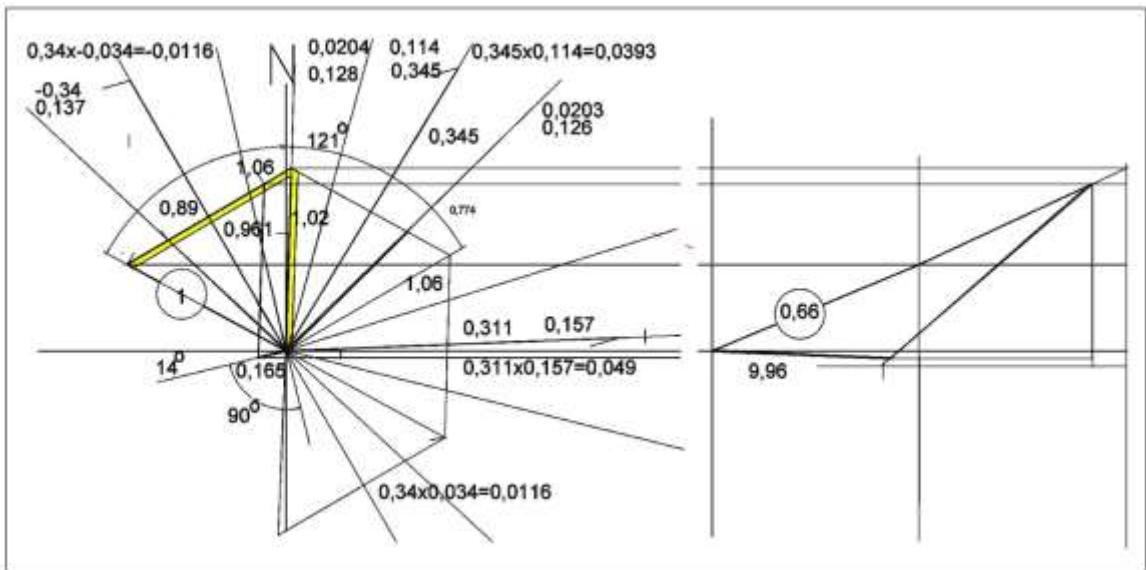


Figure 17: For concepts of polar shift: in the instrumentally measured weak geomagnetic field, the summed vector of the three texture elements detected by human perception are turning slightly southward. Today's measuring instruments add similar effects, arising in distant intersections, to those visible here.

From the three texture elements, the smallest one is the relative unit of measurement (1). The effect operating in the other two directions is a value calculated for the larger lengths between the intersections, decreased by inverse square (0.89 and 0.961). The mesh geometry shape is shorter than the elongated shape usually typical in the Northern Hemisphere. (Drawing: Éva Kőszeghy)

5. EXCURSION

A hundred years after the publication of Einstein's theory of general relativity, is the radical renewal of the concept of magnetism followed by the renewal of the view of gravity?

The following sentence by physicist William Clifford, formulated in 1870 or 1873, is often quoted by cultural historians and physicists, but its original place of publication has not yet been identified:

"All matter is simply undulations in the fabric of space."

It was nearly fifty years after the publication of this sentence that Einstein's two theories of relativity were born. His field equations leading to general relativity were published in 1915. It is commonly known textbook material that the general theory of relativity generalises the special theory of relativity and Newton's universal law of gravity, providing a unified description of gravity as a geometric property of space and time. It states that the *warping of space-time* is directly related to the energy and momentum of all matter and radiation present. The relation is specified by a system of nonlinear partial differential equations.

Newton's observations that gravity decreases with inverse square of the distance were made on the basis of studying the works of Kepler on planetary motions two centuries earlier. Kepler's findings, in turn, were based on the accurate measurements taken by Tycho Brahe.¹²

Why did Clifford's 1870 sentence on the fabric of space not receive attention in the past 150 years? With Einstein, the concept of warped space, akin to Clifford's spatial undulations, appeared, without any reference to the fabric structure of space.

The fact that the space has a fabric, or mesh structure, could become scientifically established only a century later, today. What made it possible for Clifford's conjecture to become a scientific discovery was that a technical solution was found at the beginning of the last century for the reconstruction of the magnetic phenomena of ancient times.

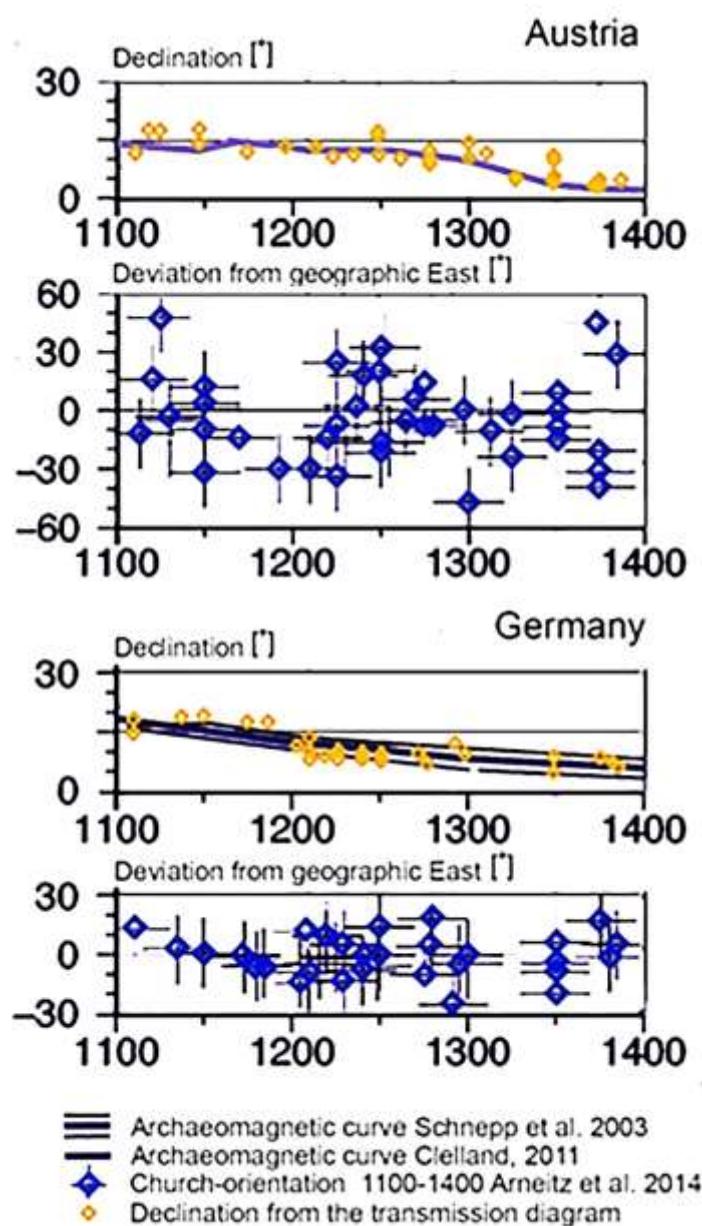
As a result of our research for a decade and a half, we have perceived the geomagnetic field characterising the axis direction of thousands of cultic structures and millions of graves, at the time when they were set out, as a bipolar structure. The triad structure of the invisible phenomenon nevertheless detected by human perception, supported by cultic representations and texts, suggests that the Earth's global magnetic mesh structure may have three poles. The well-known and taught dipole models of

¹² Dieter B. Herrmann: *Az égbolt felfedezői* [The explorers of the sky] Gondolat Kiadó, Budapest, 1981., p. 137.)

magnetic phenomena are in need of a thorough revision. The mesh fabrics around non-spherical magnetic shapes are likely to significantly differ from the geometrical characteristics of geomagnetic fields around spherical shapes. The pole considered as the magnetic north of today's two-pole models can start from two different directions toward the south pole. Such a dyad runs towards the Earth's southern magnetic pole. The magnetic dipole models drawn up before the exploration of the structure of the magnetic field may be replaced by tripole models.

The antecedent of the present study, published in 2016

In 2016, we handed over ten copies of our book titled *Geomagnetic Orientation of Cultic Structures* to the president of the Hungarian Academy of Sciences. The interest of the Academy was not raised by our discovery, the essence of which is made clear by the figures in our volume. We have documented that for thousands of years, there has been a practice of setting out directions based on the perception of invisible phenomena that has become the basis of cults and religions around the world. Our investigation revealed that the practitioners engaged in the cultic setting out of structures were able to perceive effects whose magnetic nature in the contemporary sense of the word was not known. Our investigation has revealed that the orientation directions preserved in the structures were closely related to the data gained by way of modern instruments used for measuring the geomagnetic field. We believe that this is a major discovery in the fields of the history of culture and religions, as well as in physics. All we asked five years ago was that research institutes work on the further development of our model, which was thoroughly supported from a statistical point of view. The positive result of the academic committee's attitude of rejection was that the lack of support has motivated our small team to engage in even more intensive research. Our research findings may soon find their way abroad, which may be a significant loss for the Hungarian scientific community.



Deviation and declination

Figure 18: The difference (deviation) in the direction of the orientation of medieval churches built before compass use, determined by human perception, from the geographical east, as well as the simultaneous difference between the geomagnetic north from the geographical north (shown as declination value). In case of the latter, the change in direction is only a fraction of what is detected by human perception.

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APPENDIX

GEOMÁGNESES MEZŐ + KULTIKUS TÁJOLÁSOK
Tanulmányok 2005 és 2020 között
GEOMAGNETIC FIELD + CULTIC ORIENTATIONS
Studies between 2005 and 2020

PLATON HÁROMSZÖGEI Feljegyzések egy építészeti formatan elő.
Disputa, 2005/2016 106-111
PLATON'S TRIANGLES Notes in front of an architectural shaping

SZÁMFORMÁK Számrendszerfüggő számstruktúrák
T4TERV 2006
FORMS OF NUMBERS
Numbers - numbersístem dependent

METAFORMÁK Mindenható-geometria, relatív reveláció
T4TERV 2006.
METAFORMS Almighty geometry, relative revelation

TÚL A TOPOLÓGIÁN – A TENDOLÓGIA
Debreceni Műszaki Közlemények 2007/2
BEYOND TOPOLOGY – TENDOLOGY

KŐKÖRÖK ÉS MENÓRÁK Mindenható vázlatok
T4TERV T4TERV 2008
STONE CIRCLES AND MENORA Almighty sketches

LÁTHATATLAN TÁJOLÓK
T4TERV 2009
INVISIBLE DIRECTION INDICATORS

FORRÁSMUNKÁK ókori és középkori
szakrális terek tájolásának vizsgálatához *Országépítő*, 2011/4
SOURCE WORKS on ancient and medieval spaces
for the study of the orientation of sacred spaces

KITŰZÉS-KRONOLÓGIA *Országépítő* 2013 9. pp.4
SETTING CHRONOLOGY

GEOMÁGNESSÉGRE TÁJOLT KULTIKUS LÉTESÍTMÉNYEK
T4TERV 2016
GEOMAGNETIC ORIENTATION OF CULTIC STRUCTURES 2017

EGYIPTOMI PIRAMISOK
GEOMÁGNESSÉGRE TÁJOLÁSA
T4TERV 2017
EGYPTIAN PYRAMIDS ORIENTED TO GEOMAGNETIC EFFECTS

MÁGNESES HÁLÓK, ŐSI TÁJOLÁSOK
T4TERV 2020
MAGNETIC MESHES, ANCIENT ORIENTATION

On the back:

- The geomagnetic field is identical with the sum of its texture elements. Based on our current instrumental measurements, this is not revealed.
- Texture elements are vectors of invisible directions and effects. They can be detected by human perception. In the millennia before the use of compasses, these directions were preserved in cultic orientations.
- The geomagnetic force field has a mesh structure. The geomagnetic texture elements are generated at its intersections.
- On the basis of the texture element directions, the relative dimensions of the effects in the mesh structure can be determined.
- In the course of current measurement procedures, the texture elements acting in significantly different directions in the mesh structure of the field remain hidden. In view of this, a functional link can be identified between the geomagnetic field's instrumentally measured characteristics and the texture elements modelled in the mesh structure.
- The change in the direction of geomagnetic field elements, which are invisible, but retained in cultic orientations, is six to eight times greater than the change of the direction of the geomagnetic north as determined by instrumental measurements.