

The Sky Disk of Nebra: Evidence and Interpretation

by Andis Kaulins¹

Introduction: The ancient Sky Disk of Nebra discovered in Germany in 1999 has been controversially [and we think erroneously] interpreted by the archaeologist Harald Meller (Landesamt für Denkmalpflege und Archäologie Halle) and by the astronomer Wolfhard Schlosser (Ruhr-Universität Bochum) to represent not the Sun, Moon, Stars and Pleiades, but rather to allegedly mark the stars and the rising and setting Pleiades together with representations of both the Full Moon and Crescent Moon: "*The pictured Crescent Moon and the rising Pleiades marked March 10 in the Bronze Age, whereas the setting Pleiades and Full Moon marked October 17... The Sky Disk could have served to remember the periods for sowing and reaping in the agricultural year.*" [our translation from the German]²

That above interpretation is an attempt to build a logical but questionable bridge to the astronomy of more southern cultures. The Pleiades were important in ancient Mesopotamia.³ The rising and setting of the Pleiades were significant astronomical and agrarian markers for the ancient Greeks (see the works of *Hesiod*, and *Homer*). But this was a full **one thousand years later** than the date currently assigned to the origin of the Sky Disk of Nebra.

How does this look in a less agrarian more northerly Europe in ancient days? Do we get a different picture from the evidence available? In fact, the agrarian interpretation has a very weak evidentiary foundation, especially when we look to the statements of Prof. Dr. Rolf Müller in his book, *Der Himmel über dem Menschen der Steinzeit*⁴ [The Sky Above Neolithic Man], where **the rising and the setting of the Pleiades plays no discernible role in ancient times in Germany or in northern Europe**. Müller examined 59 megalithic sites in France (Brittany), Ireland, Scotland and northern Germany in order to determine which stellar (star) risings and settings were used for astronomical orientation in those days. As Müller states at Figure 64 of his book, the major orientation was by means of Solstices. Thus Müller writes:⁵

"As far as orientation of sites by the stars is concerned ... Capella and Deneb are worthy of mention, whereas **I do not hold much of the theory that the Pleiades or Orion were used for such purposes.**" [our translation from the German]

Significantly, the Pleiades also played no discernible role for astronomical orientation at famous megalithic sites such as Stonehenge, which dates to the same period as the Sky Disk of Nebra (ca. 1750 BC). The Pleiades at more northerly latitudes were simply not bright enough at rising or setting to be of much value for astronomical orientation at the horizon.⁶

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² "*Himmelsscheibe von Nebra*", **Wikipedia** <http://de.wikipedia.org/wiki/Himmelsscheibe_von_Nebra>.

³ Rahlf Hansen writes that several Babylonian cylinders have been found which depict the Pleiades in a similar manner as on the Sky Disc of Nebra. See Thomas Schöne, DPA "*Himmelsscheibe von Nebra: 3600 Jahre alte Welt*", **Stern**, September 26, 2004 <<http://www.stern.de/wissenschaft/kosmos/?id=530299>>.

⁴ Professor Dr. Rolf Müller, **Der Himmel über dem Menschen der Steinzeit: Astronomie und Mathematik in den Bauten der Megalithkulturen**, Springer-Verlag, Berlin, Heidelberg, New York, 1970.

⁵ Professor Dr. Rolf Müller, **Der Himmel über dem Menschen der Steinzeit: Astronomie und Mathematik in den Bauten der Megalithkulturen**, Springer-Verlag, Berlin, Heidelberg, New York, 1970, p. 115.

⁶ Gerald S. Hawkins (with John B. White), **Stonehenge Decoded**, Doubleday, Garden City, N.Y., 1965, p. 132.

The above assessment thus presents us with a substantial **scientific problem**.

In the cultural region in which the Sky Disk of Nebra was found (Germany and northern Europe), there is simply no evidence to support the hypothesis spread by Meller and Schlosser that the Pleiades were used in conjunction with the Moon for astronomical orientation and for the determination of the sowing and reaping seasons in the Spring and the Autumn.

We regard the identification of the seven-star cluster on the Sky Disk of Nebra as the Pleiades to be correct. The question must then be asked: **"Is the specific current interpretation by Schlosser and Meller of the role of the Pleiades on that Sky Disk supported by the evidence?"** Has the current interpretation been properly "proven" by the facts? We think not.

A. The Concept of "Evidence"⁷

Wise men have spoken about "proof" since ancient times.⁸ Scholars have referred to the reliability of "facts" and "sources". Lawgivers have elevated "evidence" to an important place in our legal systems.⁹ Indeed, "Evidence" itself is today even a required course of study for students in American law schools.¹⁰ Lastly, in the modern scientific world, empirical "evidence" has ruled the roost for the physical sciences since the days of Leonardo da Vinci¹¹, Sir Francis Bacon¹² und Henri Poincaré.¹³

But what about archaeology and related disciplines? Although these also utilize the physical sciences, they rely extensively on allegedly authoritative opinions expressed by scholars in their respective fields. Especially strict standards of evidence should be applied here, since we are dealing with ancient finds from a period in the distant past. The treatment of ancient evidence can be an extremely complex and difficult task. As a result, there exist inevitable controversies among experts in the field, e.g. the dispute over ancient Troy.¹⁴ The desired truth is not always within grasp. Indeed, it often resides far from the chosen path of inquiry.

Alleged facts, often derived from intuition, circumstance and sometimes just simple opinion, therefore must be tested for veracity at every step. Conclusions from reliable evidence must be shown to be internally and externally consistent. Other researchers must be able to follow the argumentation and be able to reproduce and substantiate the alleged results.¹⁵

⁷ "Beweisführung", Wikipedia <<http://de.wikipedia.org/wiki/Beweisführung>>.

⁸ Barbara Patzek, "Der Beweis, die Beweisführung (Pisteis pisteiß), nebst Widerlegung des Gegners (Lysis lúsiß)" <<http://www.barbara-patzek.de/material/5/DieTeileeinerRede.pdf>>.

⁹ See e.g. **Civil Evidence Act 1995** <http://www.hmso.gov.uk/acts/acts1995/Ukpga_19950038_en_1.htm>.

¹⁰ See e.g. a textbook on "Evidence", <<http://store.lawbooks.com/93074.html>>.

¹¹ See Michael Sukale, "Leonardo und die Sichtbarmachung der Welt", **Einblicke**, Nr. 25, April, 1997 <<http://www.uni-oldenburg.de/presse/einblicke/25/sukale.htm>>.

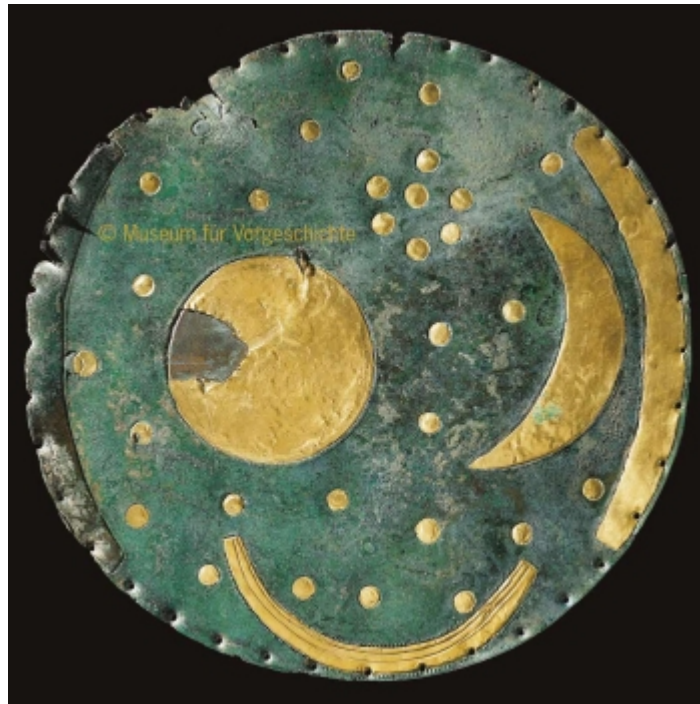
¹² Sir Francis Bacon, **Novum Organum** <<http://www.gmu.edu/departments/fld/CLASSICS/bacon.html>>.

¹³ Henri Poincaré <<http://www.xenomos.de/poincare.html>>.

¹⁴ See e.g. the *Book Review (Rezension)* of Christoph Ulf's **Der Neue Streit um Troja: Kleine Gefechtspause** (C.H. Beck, München, 2003), <<http://www.wissenschaft.de/wissen/buchrezensionen/245840.html>>, where it is written [our translation from the German]: "The endless war over Troy continues.... What do we really know....? How can we interpret the archaeological and written evidence? Ulrich Sinn, Professor of Archaeology at Würzburg ... reminds the members of his discipline with poignant examples of the dangers of hasty judgment. Sinn demands more objectivity and greater patience from his colleagues – and the courage - where required - to say: 'We do not know, not yet, not so exactly'."

¹⁵ Engelbert Westkämper, "Wissenschaftliches Arbeiten: Leitfaden zur Erstellung der Dissertation", Institut für Industrielle Fertigung und Fabrikbetrieb, Universität Stuttgart, Fraunhofer Institut für Produktionstechnik und Automatisierung, Stuttgart <http://www.iff.uni-stuttgart.de/docs/veroeff/wissenschaftliches_arbeiten.pdf>.

What is the status of evidence regarding the interpretation of the Sky Disk of Nebra?



The Sky Disk of Nebra – (above)¹⁶

see < http://www.archlsa.de/himmel/bilder/bildmaterial/scheibe_copy.jpg > and
< <http://www.landmuseum-fuer-vorgeschichte-halle.de/> >



The Sky Disk of Nebra was found together with these other objects¹⁷
< <http://www.archlsa.de/sterne/bilder/schwerterscan.jpg> >

¹⁶ The *Nebra Sky Disk* <http://www.archlsa.de/himmel/bilder/bildmaterial/scheibe_copy.jpg>.

¹⁷ The other objects found with the Sky Disk of Nebra <<http://www.archlsa.de/sterne/bilder/schwerterscan.jpg>>

B. The Object in Evidence: The Sky Disk of Nebra¹⁸

1. Is the Sky Disk of Nebra Genuine?

The Sky Disk of Nebra was not excavated by archaeological experts on site but was found by two treasure-seekers on July 4, 1999, together with a bronze treasure including swords,¹⁹ suggesting that the disk may have been a shield. The treasure-seekers should by law have turned the Sky Disk over to the government, but attempted to sell it on the black market, were caught in the process, criminally charged and convicted. Hence, the suspicion of a forgery lay near,²⁰ but has been refuted through expert examinations [our translation from the German]:²¹

- "In February 2002 analyses were conducted in the Institute for Archeometry at the Technical University Bergakademie Freiberg to clarify the question of the genuineness of the Nebra Sky Disk. The basic-metal of the disk is a bronze alloy which is typical for bronze alloys of this era. Such bronze alloys are nowhere produced today, if only because of the high content of poisonous arsenic.
- The objects in gold sheet metal on the Sky Disk are typical in composition for the era in which the disk was created. It is impossible that the disk originates from modern manufacture.
- The bronze material of the disk was subjected to a test for radioactive lead 210 (210 Pb). Radioactive lead decays quickly after the smelting of ores and is no longer detectible after about 100 years. We found no radioactive lead 210 in the Nebra Sky Disk, thus providing another very clear indicator that the disk can not be a modern forgery.
- The corrosion layers (patina) were examined in the restoration workshop. These also provided unequivocal evidence of the authenticity of the finding. One proof was the dense and above all very coarse-crystalline layer of pure malachite, that ... develops only in the course of very long time periods. According to the present technological state of the art, such a patina cannot be created artificially."

An ancient patina was also found on the gold objects on the Sky Disk of Nebra:

"A special form of the patina on the objects made of gold sheet metal, evoked through galvanic processes, as in a battery, is further proof of the genuineness of the disk. This corrosion layer could be removed without harming the sensitive gold objects only after development of a special process by the laboratories of the LfA [Landesamt für Archäologie]."²² [our translation from the German]

The exact place of discovery of the Nebra Sky Disk has also been found in the meantime, together with further archaeological artifacts whose local proximity to the original dig of the treasure-seekers speaks for the genuineness of the Sky Disk: [our translation from the German]

"Digs have commenced at the site of the discovery of the disk, revealing a ringwall, whose chronology is yet unclear. Also located was the precise spot at which the Sky Disk was first discovered."

The question of the local manufacture of the Sky Disk seems also to be strongly verified. The gold on the disk comes from Europe, whereas the 82° angle of the gold horizon markings (bows) confirms a manufacture in Central Europe near the site of discovery.²³

¹⁸ "Die Himmelscheibe von Nebra", **ZDF** 5/2/2003

<http://www.zdf.de/ZDFde/inhalt/6/0_1872_2031622_00.html>; Thomas Schöne, "Himmelscheibe von Nebra: 3600 Jahre alte Welt", **Stern**, September 26, 2004 <<http://www.stern.de/wissenschaft/kosmos/?id=530299>>.

¹⁹ See for example **DFG** <http://www.dfg.de/info_wissenschaftler/gw/aktuelles/2004/nebra_0804.html>

²⁰ "Nebra skydisk", **Wikipedia** <http://en.wikipedia.org/wiki/Nebra_skydisk>.

²¹ "Die Scheibe ist echt", <<http://www.himmelscheibe-von-nebra.com/1024x768/berichte.htm>>. See also Rudi Schulz, "Die 'Himmelscheibe von Nebra' ist gedeutet und datiert", **Efodon-Synesis**, Nr. 63, 3/2004.

²² **Himmelscheibe-von-Nebra** <<http://www.himmelscheibe-von-nebra.com/index.php?site=12>>

²³ "Secrets of the Star Disk", **BBC**, 29/2/2004 <<http://www.bbc.co.uk/science/horizon/2004/stardisctrans.shtml>>, see also "Das Weltbild der Scheibe von Nebra", **Archäologie Online**, 16/11/2004.

2. How has the Nebra Sky Disk been dated chronologically up to now?

The Sky Disk has been dated to approximately 1700 B.C. on the basis of the bronze artifacts found with it, e.g. the bronze swords, which date to this period²⁴

"On the basis of the artifacts found with the Nebra Sky Disk, namely, bronze-swords, two hatchets, a chisel and fragments of spiral-shaped bracelets, it can be estimated that the Sky Disk was buried ca. 1600 BC, and that it was manufactured somewhere between 1700 and 2100 BC."

3. How has the Sky Disk been previously interpreted?

The chief experts involved in giving the Nebra Sky Disk its current interpretation are:²⁵

Harald Meller, archaeologist, Landesamt für Denkmalpflege und Archäologie Halle,
Wolfhard Schlosser, astronomer, Ruhr-Universität Bochum
Ernst Pernicka, expert in archaeochemistry, archaeometallurgy
Heinrich Wunderlich, expert in manufacturing technology and production process

According to their interpretation and contrary to the first (and in our opinion correct) logical impression, they argue that the disk does not show the Sun and the Moon but rather a Full Moon and a Crescent Moon. Together with a group of seven gold buttons, interpreted to be stars of the Pleiades, these alleged moons allegedly show the rising and setting of the Pleiades on March 10 and October 17 in the Bronze Age, thereby helping an agrarian community to determine the right time to sow and to reap.²⁶ Would this otherwise have been so difficult?

There are the further following speculations by the mainstream interpretation of the Sky Disk of Nebra:²⁷ [our translation from the German]

"The two gold bows on the opposite edges of the disk [one is missing] were added to the disk later and marked the horizon at an angle of 82 degrees in each case, thus representing the rising and setting of the Sun at the horizon at Summer and Winter Solstices at the degree of latitude of the site of discovery. The disk could thus have been used as a type of calendar to determine the solar year...by orienting Mittelberg to the Brocken ... [note by Andis Kaulins: that latter is simply unfounded speculation proven by nothing]

The last addition to the disk was another golden bow with two approximately parallel longitudinal-grooves. This golden bow is interpreted [note by Andis Kaulins: in our opinion correctly] to be the solar boat, as found e.g. on Egyptian or Minoan artifacts and monuments. This bow is surrounded by small notches etched broadsides in the bronze plate, which compare to representations of oars on other Bronze Age ship representations from Greece and Scandinavia. This golden bow appears to have no calendric function but probably represents the nightly transit of the sun from west to east. It is not clear what possible connections existed between Central Europe and the Near East at this time...."

There is a detailed interpretation of the Nebra Sky Disk by Professor Dr. Wolfhard Schlosser²⁸ online. Also, the **BBC online** presents the report of a larger discussion group on the Sky Disk involving several experts from various different countries, who extend their comments and opinions on the Nebra Sky Disk to the public.²⁹

²⁴ "Himmelsscheibe von Nebra", **Wikipedia** <http://de.wikipedia.org/wiki/Himmelsscheibe_von_Nebra>.

²⁵ "Himmelsscheibe von Nebra", **Wikipedia** <http://de.wikipedia.org/wiki/Himmelsscheibe_von_Nebra>.

²⁶ "Himmelsscheibe von Nebra", **Wikipedia** <http://de.wikipedia.org/wiki/Himmelsscheibe_von_Nebra>.

²⁷ "Himmelsscheibe von Nebra", **Wikipedia** <http://de.wikipedia.org/wiki/Himmelsscheibe_von_Nebra>.

²⁸ Wolfhard Schlosser, "Die Himmelsscheibe von Nebra - ein früherer Blick des Menschen ins Universum", **Astronomie.de** <<http://www.astronomie.de/bibliothek/artikel/geschichte/nebra/>>. See "Neue Erkenntnisse", **Archäologie Online** <<http://212.227.253.138/magazin/fundpunkt/2004/09/himmelsscheibe.php>>.

²⁹ "Secrets of the Star Disk", **BBC**, 29/2/2004 <<http://www.bbc.co.uk/science/horizon/2004/stardisctrans.shtml>>.

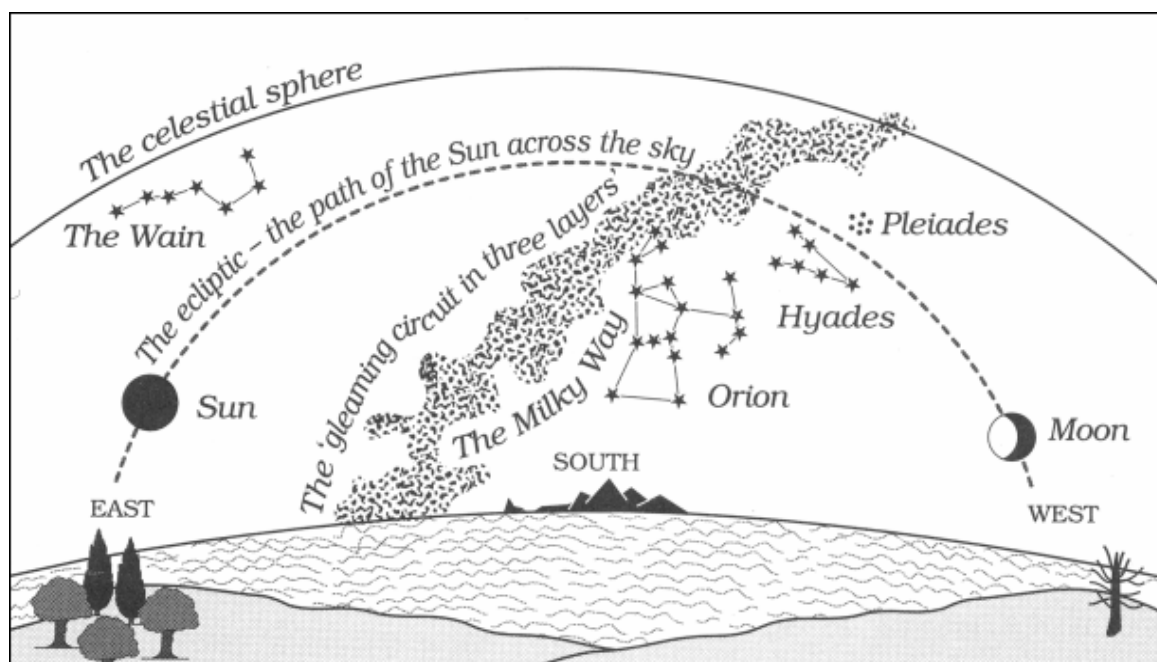
4. What do Ancient Sources tell us about the Making of the Shield of Achilles?

The Nebra Sky Disk is unique in many aspects, although we already find the representation of stars by "points" or "dots" in Stone Age caves,³⁰ on megaliths,³¹ in Sumer³² and in Egypt.(as squares).³³ The experts also mention that the Sky Disk of Nebra corresponds approximately to the description of the world in Homer's *Iliad*³⁴ – in fact, as this world was allegedly portrayed by Hephaistos (God of Fire and Metalworking) on the famed *Shield of Achilles*.³⁵

"[Hephaistos] wrought the earth, the heavens, and the sea; the moon also at her full and the untiring sun, with all the signs that glorify the face of heaven - the Pleiades, the Hyads, huge Orion, and the Bear, which men also call the Wain and which turns round ever in one place, facing Orion, and alone never dips into the stream of Okeanos...."

The *Shield of the Achilles* was carried to earth and after the death of Achilles through Paris, the shield came in the ownership of Odysseus. So, the legend tells us. For all we know, perhaps such a shield actually existed. It might even be the Sky Disk of Nebra - this is not impossible, though highly improbable.

THE SHIELD OF ACHILLES AS ASTRONOMY³⁶



The sky described on the Shield of Achilles is represented as follows in Florence & Kenneth Wood's **Homer's Secret Iliad: The Epic of the Night Skies Decoded**, John Murray, Albemarle Street, London, p. 199, 1999

³⁰ "Calendars through the Ages" <<http://webexhibits.org/calendars/calendar-ancient.html>>.

³¹ Andis Kaulins, **Stars Stones and Scholars: The Decipherment of the Megaliths as an Ancient Survey of the Earth by Astronomy**, Trafford Publishing, 2003 <<http://www.trafford.com/4dcgi/robots/03-1722.html>>.

³² See "Leroy Golf Sumerian Seals", **Antiques AtoZ** <<http://www.antiquesatoz.com/golf/golfsumeriaseal.htm>>.

³³ See e.g. the "Abydos City Palette", **LexiLine.com** <<http://www.lexiline.com/lexiline/lexi33.htm>>.

³⁴ Homer, "18. Gesang", **Ilias**, <<http://www.archlsa.de/sterne/homer.htm>>.

³⁵ Homer, "Book 18", **The Iliad**, *Internet Classics Archive* <<http://classics.mit.edu/Homer/iliad.18.xviii.html>>.

³⁶ Florence & Kenneth Wood, **Homer's Secret Iliad: The Epic of the Night Skies Decoded**, John Murray, Albemarle Street, London, p. 199, 1999, ISBN 0-7195-5780 1.

C. The Correct Interpretation of the Sky Disk of Nebra is a Question of Evidence

In order to evaluate correctly the interpretations offered for the Sky Disk of Nebra, the following question must be asked: **What standards of proof apply to archaeology and related disciplines in judging theories propagated by persons in these disciplines?** In law, for example, criminal guilt has to be proven "beyond reasonable doubt" and civil guilt "by a preponderance of the evidence" (by the prevailing balance of probabilities).³⁷

It is characteristic for the remaining academic disciplines that no such evidentiary rules apply. Probabilities and possibilities are mixed together as if they were equals and a "right" theory is one which leading experts or discoverers of an artifact propagate as being true. It is even customary in archaeology, that archaeological discoverers can claim an exclusive publication-monopoly for up to 10 years.³⁸ The result of such practices is that a critical exchange of ideas is suppressed and initial wrong interpretations become entrenched simply because of a long passage of time without contrary views. We now examine the established interpretation of the Sky Disk of Nebra, which we think needs substantial revision.

D. Revising the Interpretation of the Sky Disk of Nebra

1. The Current Interpretation of the Sky Disk: Possibilities and Probabilities

From our point of view, the experts have performed good if not perfect work on the Sky Disk. The disk has been restored and the possibility of a forgery has been negated. Many important observations have been made. However, a final astronomical interpretation is still wanting. We agree to the following interpretations as "probable":

- the 32 golden points (gold buttons) on the Sky Disk represent stars³⁹
- the seven-buttoned gold cluster represents the Pleiades
- the bows on the edge are horizon markers, forming an angle of 82 degrees, thus marking the rising and setting of the Sun at winter and summer-solstices at the degree of latitude of the place of discovery of the Sky Disk, and
- the smaller more curved golden bow represents the solar boat for the Sun

A correct interpretation of the evidence demands, however, that all available evidence is clarified in such a manner that no gaps exist. Otherwise, a partial explanation can be erroneous. Professor Dr. Wolfhard Schlosser writes:⁴⁰ [our translation from the German]

"We have thus described everything which an astronomer can regard as a well-founded hypothesis. The 'Sun' could just as well be the Full Moon, while the Crescent Moon could just as well be a partial eclipse of the Sun or the Moon. Precisely such obvious large objects prohibit exact interpretation. They clearly represent astronomical themes that must relate somehow to the Sun and the Moon. Both traverse along the ecliptic, the Sun precisely on the ecliptic and the Moon within five degrees of it... Both heavenly objects also pass by the Pleiades often, as shown on the Sky Disk of Nebra."

³⁷ *Burden of Proof*, Answers.com <<http://www.answers.com/topic/burden-of-proof>>

³⁸ See e.g. **The EAA Code of Practice**, European Association of Archaeologists: "2.7 Archaeologists will have prior rights of publication in respect of projects for which they are responsible for a reasonable period, not exceeding ten years. During this period they will make their results as widely accessible as possible and will give sympathetic consideration to requests for information from colleagues and students, provided that these do not conflict with the primary right of publication. When the ten-year period has expired, the records should be freely available for analysis and publication by others." <<http://www.e-a-a.org/codeprac.htm>>.

³⁹ See e.g. Hermann Zschweigert, "Nachtrag zu Die 'Himmelsscheibe' von Sangerhausen", in: **Deutschland in Geschichte und Gegenwart**, 2/2002, p. 41.

⁴⁰ Wolfhard Schlosser, *Die Himmelsscheibe von Nebra - ein früher Blick des Menschen ins Universum* <<http://www.astronomie.de/bibliothek/artikel/geschichte/nebra/>>.

That is only a partial explanation of the evidence. If the Sun and Moon so often pass by the Pleiades, then we surmise that a definite reason must have existed to portray all three together in gold almost 4000 years ago. It would otherwise be "nothing special". The present interpretation thus lacks an explanation of the motive for the making of the disk! The disk as a whole is thus not fully explained. In this regard, we find the following currently accepted interpretations to be extremely "improbable", based on the evidence available:

- The Sky Disk is alleged to be some kind of a „solar instruction manual“ for a 20 km distant conjectured solar observatory at Mittelberg, for which there is no evidence. Simultaneously it is claimed that the Sun is not portrayed on the disk. That is extremely unlikely if the disk were to have served as a solar manual.
- It is also very improbable that such an exceptional sky disk, in part created in gold, costly and unique for the ancient era, was merely created as a solar manual, otherwise similar and more simple manuals would be known to us in antiquity. Much more likely is that the Nebra Sky Disk was intended to record an astronomical event that was sufficiently spectacular to warrant being recorded and perpetuated in gold.⁴¹
- It is claimed that the Sky Disk of Nebra does not portray both the Sun and the Moon but rather both the Full Moon and the Crescent Moon. This extremely unlikely construction is used in order to try to support the forced interpretation that the Pleiades and the Crescent Moon represent March 10 in the Bronze Age, and that the Pleiades with the Full Moon represent October 17, the alleged times for sowing and reaping.

Such a simultaneous duplicate representation of the Moon is found nowhere in antiquity. It is pure conjecture, verified by nothing and surely wrong.

Furthermore, this explanation is far too complicated for the Bronze Age, requiring the pictured Pleiades to be used twice - once left and once right, once setting and once rising. VERY COMPLEX. There is no evidence that Bronze Age cultures in Northern Europe ever used the rising and setting of the Pleiades for calendric calculation, much less in conjunction with positions of the Full Moon and Crescent Moon.

- The claim that the Sun is not represented on the Sky Disk is paradoxical since current interpretation alleges that the horizon bows mark the Sun's solstices and that the disk also portrays a solar boat. Surely then, the Sun would also be portrayed.
- The theme of a solar boat - with reasonable certainty - has not been borrowed from Egypt, Sumer or the Mediterranean, as has been alleged by some commentators. Northern European cultures also were familiar with the concept of a solar boat. The Baltic folk songs known as the Latvian *Dainas*⁴² (Lithuanian *Dainos*) describe astronomical matters, and specifically include the concept of a solar boat.⁴³

⁴¹ Gert Meier suspected an unusual astronomical occurrence in *Der Untergang Alteuropas, Deutschland in Geschichte und Gegenwart*, Grabert-Verlag, Tübingen, 2004.

⁴² "Spezialitäten: Was sie lieben", *Tagesspiegel*, [our translation from the German] "Every nation has its folk songs, but the Latvian Dainas have a special character, a strict poetic form. Short verses build a mostly four-line song [a quatrain].... The Latvians began to collect these verses in the 19th century as an important legacy of their culture and there are now 1.2 million texts in the archive of the collection of Dainas...."
<<http://www.tagesspiegel.de/tso/sonderthema7/artikel.asp?TextID=38175>>.

⁴³ "Das Lettische Volkslied: Eine lebende Tradition", *The Latvian Institute*,
<<http://www.latinst.lv/ger/volkslieder.htm>>.

The Baltic folk songs mirror extremely archaic Indo-European⁴⁴ customs and belief systems. Latvian *Daina* number 33878, e.g., relates that the Sun falls into a golden boat when it disappears at sunset in the evening:⁴⁵

"Noiet Saule vakarā, [The Sun goes down in the evening,]
Iekrit zelta laiviņā; [And falls into a golden boat;]
Uzlec Saule no rītiņa, [When the Sun rises again in the morning]
Paliek laiva ligojot. [The boat remains floating on the water.]"

During the night the sun is transported in the solar boat over the sea.⁴⁶ But by day the solar boat remains empty, floating on the water. This is very important Indo-European knowledge for the interpretation of the Nebra Sky Disk.

Latvian *Daina* 33941 relates how the Moon can join the Sun during the daytime:⁴⁷

"Saule meta audekliņu, [The Sun has thrown her gown,]
Vidū gaisa stāvēdama; [Standing in the heavens,]
Mēnessiņis tekādams [The Moon on its path]
Sajauc Saules audekliņu. [Has destroyed the gown of the Sun]." [an eclipse?]

The *Dainas* also relate that the Moon (Mēness) accompanies the Sun (Saule) at the heavenly wedding of the Sun.⁴⁸ [an eclipse?]

- The Sun is of course not visible at **night**, unless the day becomes night. During a solar eclipse, the stars are visible and the Sun and the Moon are thus above the solar boat but are not in it. **Hence, we know that the Nebra Sky Disk represents the heavens during the day and not during the night, since the Sun is not in the solar boat.** This can only be the representation of a solar eclipse during the day. There is no other explanation possible for the Sky Disk, given the content of the Latvian *Dainas*.
- This solar eclipse takes place between the Solstices, as depicted by the horizon bows on the Nebra Sky Disk. The Autumn and Spring Equinoxes thus lie at 90 degrees.
- The solar boat on the Nebra Sky Disk may possibly show the protuberances of the sun,⁴⁹ visible during an eclipse, which are probably seen as the oars of the boat.⁵⁰ [our translation of the German]

⁴⁴ Māra Zālīte, *Die Daina – das Lettische Volkslied*, Essay in „**Baltica**“, July, 1988: [our translation from the German] "Other Indo-European peoples can today use the Latvian folk songs to research their own roots and to come closer to their own prehistory. The *Dainas* contain a palette of archaic Indo-European views of the world, especially regarding calendric customs and mythology. These are primordial beliefs which relate to pre-Vedic eras and which serve numerous researchers throughout the world as a priceless source of information."

<<http://www.literatur.lv/autoren/zalite/daina.htm>>.

⁴⁵ "Daina Number 33878", **Latviešu Tautas Dziesmas** (Chansons Populaires Lettonnes), Imanta, Copenhagen, 1956, XI, p. 377.

⁴⁶ "Daina Number 33811", **Latviešu Tautas Dziesmas** (Chansons Populaires Lettonnes), Imanta, Copenhagen, 1956, XI, p. 369.

⁴⁷ "Daina Number 33941", **Latviešu Tautas Dziesmas** (Chansons Populaires Lettonnes), Imanta, Copenhagen, 1956, XI, p. 383.

⁴⁸ See L. Ādamovičs, "Senlatviešu Mītoloģija", **Latviešu Tautas Dziesmas** (Chansons Populaires Lettonnes), Imanta, Copenhagen, 1956, XI, p. 570.

⁴⁹ See e.g. the *Solar Eclipses* at <<http://www.stvincent.ac.uk/Resources/Astro/Eclipse99/solar.html>> and <<http://www.seds.org/~spider/spider/SE990811/se990811.html>>.

⁵⁰ **FAQ: Die meistgestellten Fragen**, Landesmuseum für Vorgeschichte, Halle <<http://www.landmuseum-fuer-vorgeschichte-halle.de/>>.

"Because of the notches above and below the gold solar boat, which symbolize oars based on similar archaeological finds, it is highly probable that this is a ... boat that travels between the horizons on the heavenly night sea."

Uwe Neupert writes as follows about the solar protuberances:⁵¹ [our translation]

"At the south-edge of the disk is a bent gold piece in nearly a half-ring form about a centimeter wide, in which two irregular grooves are notched. The edges of this bow lie approximately on concentric circles. The adjacent notches act as small sunbeams or solar protuberances.... The bent strip therefore possibly represents a solar eclipse."

- The somewhat adventurous opinion⁵² of Howard Davies, a surveyor from Cardiff, published recently in *British Archaeology*,⁵³ maintains (tongue in cheek?) that the solar boat represents a rainbow and that the group of the seven clustered gold points represents a snowflake. This view is supported by absolutely nothing in antiquity.
- It is currently claimed that the Pleiades are the only specific star cluster, asterism or constellation portrayed on the Sky Disk. The remaining stars are seen to be placed by chance only for purposes of ornamentation.⁵⁴ Since fewer stars are visible during an eclipse than during darkest night, it is in fact entirely possible that the disk portrays no constellations or star-groups at all beyond the Pleiades. It is however also possible that all gold points do represent specific stars, though this matter is not crucial to the main interpretation of the Sky Disk and is presented here speculatively only.

The analysis of the disk by experts shows that the gold points (buttons) were installed first on the disk and that these were in part covered by other gold objects later. If these gold points were intended as ornamentation, they would not have been placed on the disk at the beginning, only to be covered later. On the other hand, if stars were used for initial stellar orientation on the disk, and if the gold points represented stars, then it would make sense to place them on the disk first. Possibly, gold points for stars which marked the Solstices and Equinoxes in the stars could have been placed on the Sky Disk. In ca. 1700 BC these could have been e.g. the stars of Ursa Major (also known as the Great Bear or Big Dipper) for the Summer Solstice, the stars of Eridanus for the Spring Equinox, the stars of Capricorn for the Winter Solstice and the stars of Lupus for the Autumn Equinox.

The following graphic, based on our scan of the Milton D. Heifetz precessional planisphere (sky map),⁵⁵ to which we have added our interpretative material for the Sky Disk, shows the precise stellar heaven which the gold points on the Nebra Sky Disk may have been intended to represent.

However, as previously noted, this particular analysis is speculative, is next to impossible to prove, and is not essential for the principal interpretation of the Sky Disk presented here, i.e. that the Sky Disk records a solar eclipse.

⁵¹ Uwe Neupert, *Nebra-Scheibe: Maße und Beziehungen*, Referat gehalten im Oktober 2004 auf der Jahrestagung von „Ur-Europa“, Sondershausen, October, 2004, 19/5/2004, p. 10.

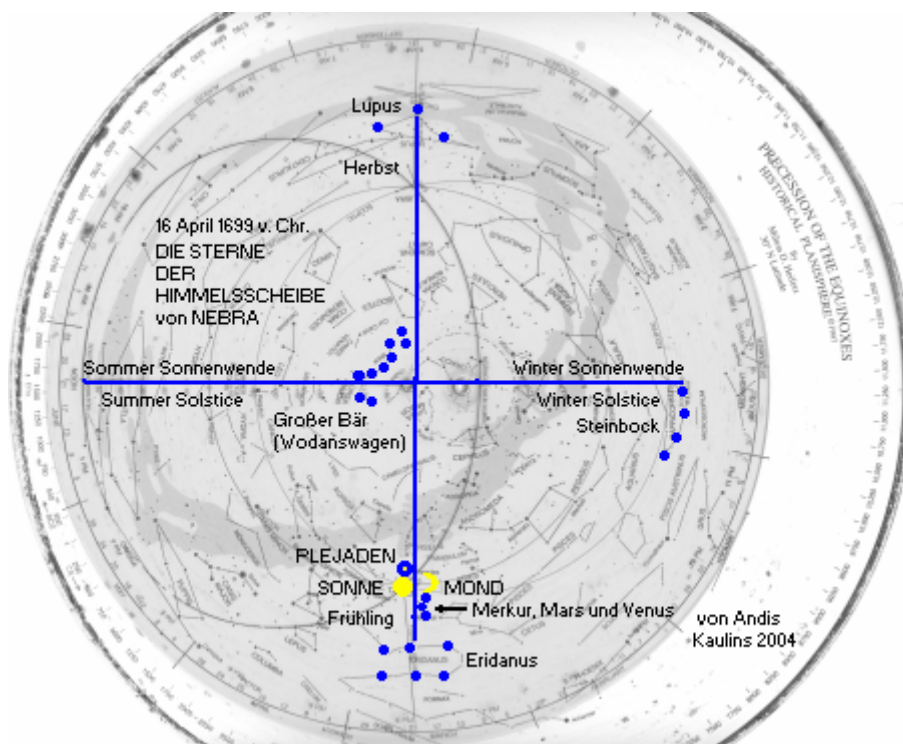
⁵² See **Discovery Channel** <<http://dsc.discovery.com/news/briefs/20041220/rainbow.html>>.

⁵³ *British Archaeology* <<http://www.britarch.ac.uk/>>.

⁵⁴ Wolfhard Schlosser <<http://www.astronomie.de/bibliothek/artikel/geschichte/nebra/>>.

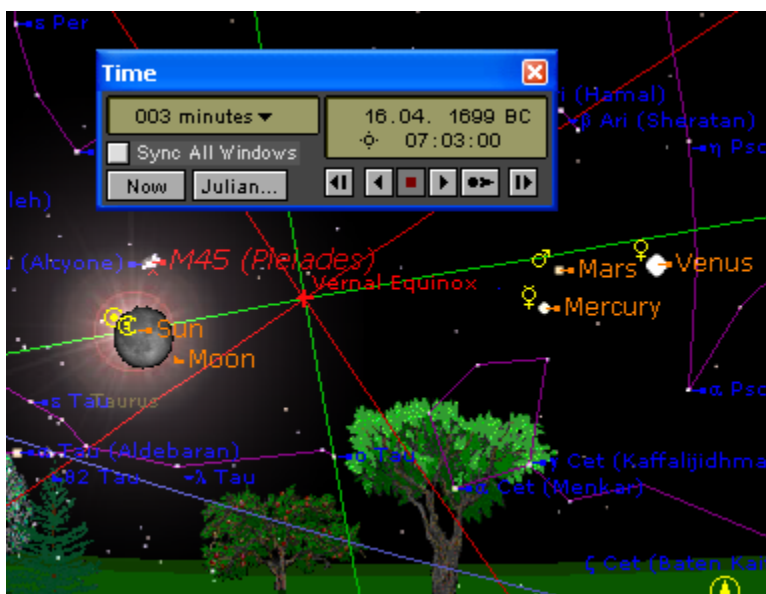
⁵⁵ **Precession of the Equinoxes : Historical Planisphere**, 1997, Learning Technologies <<http://www.starlab.com/index.html>> and <<http://www.starlab.com/ltiprod.html#Anchor-Precession-23240>>

The Stellar Heaven marked on the Nebra Sky Disk



- There are no bright stars under the Pleiades. So what are the three stars under the Pleiades on the Nebra Sky Disk? It is probable that these three stars are the movable stars Mercury, Mars and Venus⁵⁶ in exactly this formation next to the Sun, Moon, Pleiades and Vernal Equinox at the time of the solar eclipse of April 16, 1699 BC.

The April 16, 1699 Solar Eclipse with Mercury, Mars, and Venus (Starry Night Pro)



⁵⁶ That the Sky Disk of Nebra may have had to do with Venus and Mercury, was suspected by Ralf Koneckis und Holger Filling, *Die Goldpunkte auf der Himmelsscheibe von Nebra (Sternscheibe von Sangerhausen)*, **Beiträge zur Geschichte Geophysik und Kosmische Physik**, Band VI, Heft 2 (2005).

2. Is the name "Nebra" linguistically related to words for "Sky"?

Up to now, no one has paid attention to the name **Nebra** and its Indo-European root. Although not essential to the analysis of the Sky Disk, it is interesting to note Russian *nebo*- "heaven". Indo-European scholars think that the root of *nebo*- is the hypothetical Indo-European root **nebh-* ("cloud, dark") and point to German *Nebel* ("fog" <**nebla*, **nebh-ela*-), Old Norse **nifl-* („Niflheim“, „Nibelungen“), Latin *nebula* und Greek *nephele*. We would point to Baltic, e.g. Latvian *nebal-* (<*ne-bal* „not white, not bright“). The actual root, however, contrary to the linguists, is perhaps e.g. Baltic *naba* "navel, center of heaven".

Also of possible interest in this connection is the Sumerian **Nibiru**, home of the *Anunnaki*, also called *Nephilim* (compare *Niflheim*) or *Elohim*, the gods of giants of the Bible, who allegedly came from heaven (= from the north?) to Mesopotamia.⁵⁷

3. What Purpose did the 38 to 40 holes on the edge of the Sky Disk have?

Possible but improbable is that the 38 to 40 holes on the edge of the Sky Disk had something to do with the Metonic Cycle. One must also assume that the disk was not damaged by holes originally but that the holes were made later, perhaps to use the Sky Disk as a shield.

Homer's description of the Shield of Achilles has led Professor Siegfried G. and Christian Schoppe to write about the Sky Disk of Nebra as follows:⁵⁸ [our translation from the German]

"If one views the sky disk together with the other artifacts found with it - two swords and two hatchets (typical weapons for battle), along with two arm bracelets - then it would appear that the Sky Disk was intended as a shield and was part of a man's Bronze Age armor."

The Schoppes also ask what purpose the holes on the edge of the Sky Disk could have had. They discard the explanation that the Sky Disk could have been nailed to the wall, writing:⁵⁹

"Archaeologists want to tell us that the disk was carelessly nailed to a wall - with forty nails??? No, these holes were intended for leather bands or belts, which permitted the bearer of the shield to fasten an attachment at the rear of the shield by which the shield could be held."

But even if the Nebra Sky Disk were the original Shield of Achilles (improbable but not impossible)⁶⁰ – then this matter would be neither provable nor disprovable as such. For that, we simply have too little information about the days of antiquity.

Besides, even if the Sky Disk were crafted as a shield, such a shield could still represent the heavens and not - as the Schoppes argue - a land map, an explanation which appears to us to be highly improbable, given the astronomical themes found upon it.

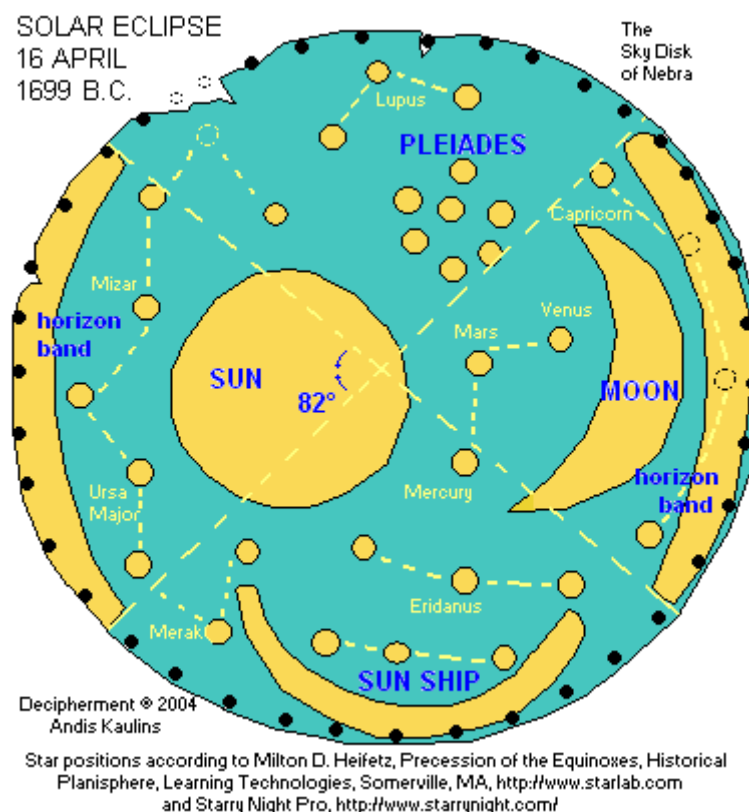
⁵⁷ See Zecharia Sitchin <<http://www.crystalinks.com/nibiru.html>>, whose books we ourselves find to be non-serious in nature by their advocating ancient extraterrestrial visits to Earth. We do not believe in UFOs.

⁵⁸ Siegfried G. Schoppe and Christian Schoppe, "Himmelsscheibe von Nebra: Eine Landkarte" <<http://www.atlantis-schoppe.de/himmelsscheibe.html>>.

⁵⁹ Siegfried G. Schoppe and Christian Schoppe <<http://www.atlantis-schoppe.de/himmelsscheibe.html>>.

⁶⁰ See Grazyna Fosar und Franz Bludorf, "Weltwunder mitten in Deutschland: Die Himmelsscheibe von Nebra", pp. 19-23, **Matrix 3000**, November/Dezember, 2004: [our translation] „Perhaps there was an antique 'witness' who saw the Sky Disk being made and reported about it? Perhaps this actually happened, since the 18th Book of the Iliad describes in great detail how the Shield of Achilles was forged. Some researchers think that this description applies to the Sky Disk of Nebra (or a similar ancient object)... Homer describes not only the forging of the Sky Disk, but also relates that the Stars, the Moon, the Sun and the Pleiades were placed upon it...“

5. The Concluding and Revised Interpretation of the Sky Disk of Nebra



Our revised interpretation of the Nebra Sky Disk concludes that the Nebra Sky Disk records the solar eclipse of April 16, 1699 BC for posterity.⁶¹ That solar eclipse took place next to the Pleiades at sunrise near the point of the Vernal Equinox, together with a near conjunction of the planets Mercury, Mars and Venus as "bridesmaids" for the "wedding" of the Sun and the Moon - a total solar eclipse - a rare and spectacular event for the ancients.

This interpretation allows not only for a partial explanation of the Nebra Sky Disk but in fact explains all of the elements found on the disk in an integrated astronomical context which abides by the rules of the burden of proof. This interpretation fulfills the requirements of the preponderance of the evidence. The prevailing balance of probabilities is clearly in favor of our interpretation as opposed to the partial interpretation which has thus far been advanced.

For the ancients, this rare and spectacular total eclipse must have been a fantastic, awe-inspiring event, worthy of recordation in gold and bronze.

Indeed, even today a solar eclipse is the biggest, most impressive spectacle that the heaven offers to us.⁶² [our translation from the German]

⁶¹ Graphic made using **Starry Night Pro** <<http://www.starrynight.com/>>. See also Amir Bey, *Eclipses over Egypt* <<http://abey.home.mindspring.com/eclipses.htm>>. Astronomers differ on the occurrence and dating of solar eclipses <<http://sunearth.gsfc.nasa.gov/eclipse/SEhelp/deltaT.html>>. This is due to their inability to arrive at a generally accepted and demonstrably correct Delta T value - which could be obtained by using eclipses such as those on the Nebra Sky Disk to obtain that value. This is apparently too simple for mainstream astronomers.

⁶² Daniel Tesch, „Vorschau auf die totale Sonnenfinsternis vom 11. August 1999“, **Astronomie am OSZ NT** <<http://www.linf.fu-berlin.de/~gutsche/alt/amateur/sfinster.htm#Anfang>>.

"Total solar eclipses are fascinating heavenly events. Whoever has experienced a solar eclipse will not forget this cosmic happening too quickly. The day suddenly becomes dark, the birds fall silent, animals lay down to sleep, the air cools down markedly, and the horizon glows in a sallow, yellow light. The brightest stars and planets are suddenly visible against a blue-black firmament, and a halo surrounds the Sun in the form of a pale, eerie light called the corona.

The corona is the most external atmosphere-of the sun, consisting of an extremely thin, but millions of degrees hot atmosphere. Using binoculars or a telescope, one can see fine, pink-colored tongues of flame at the edges of the dark Moon, the so-called solar protuberances, huge eruptions of matter on the surface, of the Sun....

Most people are touched emotionally by a total solar eclipse. Reactions range from reverent astonishment to fearful feelings of depression. Even experienced astronomers have become so overpowered by a solar eclipse that they have forgotten to carry out their observations. It is thus recommended that observations be conducted as fully automated as possible, so that the observer can enjoy with fascinating astonishment the experience which a solar eclipse offers to him.

It is difficult to describe the impression that a total solar eclipse can exercise on the viewer. Perhaps Albert Stifter, who later became a famed poet and painter, succeeded best in putting his feelings to paper. In his younger days he studied the natural sciences at the University of Vienna and his July 8, 1842 description of a total solar eclipse over Vienna is a literary jewel. It is the most enthusiastic literary report in the German language describing the human effect of a total solar eclipse."

Adalbert Stifter wrote as follows about his observing a total solar eclipse (here just the most poignant passage):⁶³ [our translation from the German]

"Never and never in my whole life was I so shaken, so moved by awe and grandeur, as in these two minutes. It was as if God had spoken a clear and mighty word to me, a word which I understood.... "

7. The Grand Finale



The Pleiades at the Vernal Equinox 4000 years ago are celebrated in modern style. This composite photograph is from **Charlotte Hird Design**⁶⁴ showing the Zainuba Dance Troupe, Wairarapa, New Zealand (photo by Chris Picking) worshipping the Pleiades (JPL photo NASA) at the Parthenon (photo by Barbara Hill).

⁶³ Adalbert Stifter, *Die Sonnenfinsternis am 8. Juli 1842* <http://www.strickling.net/stifter_sofi.htm>.

⁶⁴ **Charlotte Hird Design** <http://www.charlotteswebdesign.co.nz/graphic_photoshop_3.html>.