

The Sunset Gazette

Serving the Tri-Cities since 1975

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Meeting information

Meetings are generally in the theater in the Delta College Planetarium in Bay City. The meetings will usually be on the 2nd Friday of each month at 7:00 PM. Watch the newsletter for changes in dates and times. Membership is not required to participate in meetings and activities. See last Page for this month's meeting site.

Membership Information

Our club has switched to e-mailing our newsletters. For those wishing to receive a hard copy mailed an additional dues of \$10.00 per year is required.

New Membership Rates:

5\$ per Year

Treasurer's address for renewals and subscriptions:

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The Nebra Sky Disk - The oldest portrayal of the Night Sky

This is the story of an archeological find in eastern Germany in 1999 which may be one of the most important archeological discoveries of the last 100 years. It has and still is revolutionizing the way archaeologists and archaeo-astronomers (scientists who research astronomy in the Stone, Bronze and Iron Age) are beginning to see the development of astronomy and religion in the earlier stages of human history. The discovery is the oldest portrayal of the night sky and the cosmos currently known to man and was named the Nebra Sky Disk. The story of the discovery and the subsequent research and study of the Nebra Sky Disk had great similarities



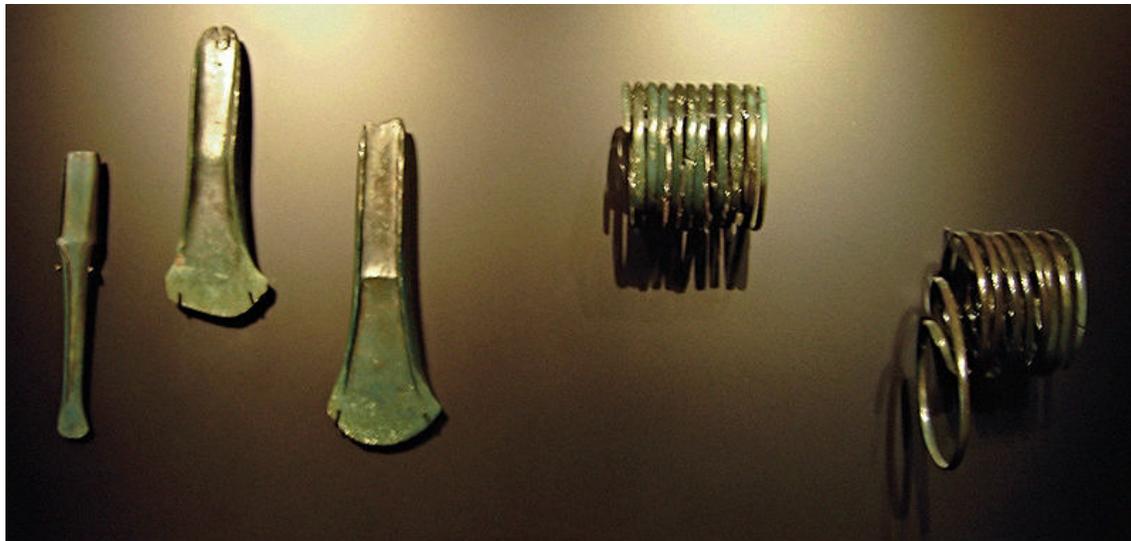
The Nebra Sky Disk, ca 1600 BC. Source: Wikipedia

ties with a crime thriller (literally). The story started on the 4. Juli 1999 when two treasure hunters on the search of old military equipment from the Second World War found the Sky disk as well as two Bronze Age swords and some other assorted finds in a stone chamber on the Mittelberg (middle mountain) near the city of Nebra in Saxony-Anhalt in Germany. In Germany all archeological finds are property of the federal states but the finders decided to keep and sell their entire hoard to a middleman for ca \$15000. It was acknowledged that the hoard was to be sold for \$500,000 first in Berlin and later in Munich but because of fact that the hoard was rightfully property of the state of Saxony-Anhalt it became worthless and too risky for the more serious art dealers. In February 2002 the state archaeologist Harald Meller acquired the disk and the rest of the hoard in a police-led sting operation in Basel, Switzerland, from a couple who had put it on the black market for \$350,000. The original looters were eventually traced back and in a plea bargain, they led police and archaeologists to the discovery site. Archaeologists have opened a dig at the site and have uncovered evidence that support the looters' claim in the form of traces of bronze artifacts in the ground, as well as matching earth samples found sticking to the artifacts. The disk and its accompanying finds are now in Halle in the State Museum of Prehistory.

This was the eventful story about the find of the disk but the even more exciting and from an archaeological and scientific point of view right-out sensational story began when scientists began to analyze the disk. Because the disk is unlike any known artistic style from that period it had initially been suspected of being a forgery, but is now widely accepted as authentic. For that you have to know that that back then the early European history was acknowledged as being opposed to any imagery. The sky disk with its depiction of the night sky by thirty-two small round gold circles, a large circular golden plate, and a large crescent-shaped plate as well as the golden horizon circles was more fitting to the imagery of the old Egypt or Mesopotamia. On the other hand only 14 miles away lies the circular burying site of Goseck, which is dated to the 5th millennia BC and which was known to give evidence of early astronomical knowledge. Till the discovery of the sky disk it was thought that this knowledge was not put into imagery. Instead the archeo-astronomers were looking at the orientation of burying sites and stone circles (Stonehenge!) for any astronomical references.



Above: Two Bronze Age swords which were buried together with the Disk. On one of them the birch-bark particle was found. Source: Wikipedia



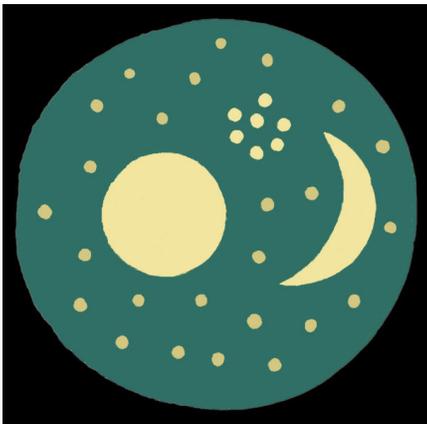
Above: Two Bronze Age axes, a chisel and two bangles also found buried together with the Disk and the swords. Source: Wikipedia

in the middle. Its weight is about 2050 g (4.5 pounds). The green tarnish is the result of being 4000 years in the ground – freshly cast bronze has a yellow-golden color. The damage of the disk was most likely caused by the looters, minor scratches were caused by the ignorant cleaning attempts of the first buyer.

1) According to Harald Meller, chief archaeologist of Saxonia-Anhalt and director of the museum for early history in Halle/Saale the history of the disk can be divided into 4 phases:

The dating of the Nebra sky disk depended upon the precise dating of a number of Bronze Age weapons, which were offered for sale with the disk and said to be from the same site. These axes and swords can be typologically dated to the mid 2nd millennium BC. This was done through radiocarbon dating of a birch bark particle found on one of the swords and confirmed that the swords were buried between 1600 and 1560 BC. The disk itself was probably even older and had likely been in existence for several generations already.

The Nebra Sky Disk is a disk with a diameter between 31 to 32 cm (12.5") and a thickness which increases from 1.5 mm (0.06") to 4.5 mm (0.18")



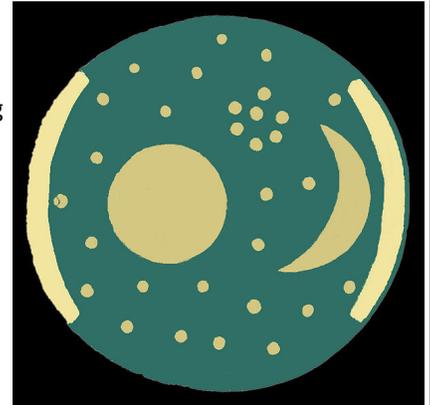
Left: **1. Phase:** Left the full Moon, right the thin crescent waxing Moon, in between above the Pleiades. Source: Wikipedia

In the first phase the disk had initially thirty-two small round gold circles attached which can be interpreted as stars with the cluster of seven dots likely representing the Pleiades.

In addition there is a large circular golden plate and a large crescent-shaped plate attached: The circular plate is now interpreted as the full Moon, the crescent shape as the crescent Moon.

In the second phase two golden arcs were added at opposite edges of the disk with one of them missing

probably in historic times. To make space for these two arcs, one small gold circle was moved from the left side toward the center of the disk and two of the circles on the right were covered over, so that thirty circles remain visible.



2nd Phase: Two arcs were added for sunrise and sunset. Some of the stars were covered or moved. Source: Wikipedia



In the third phase the disk was extended again by a feathered arc added at the bottom, the so called "sun boat", again made of gold from a different origin. The "sun boat" is a well known symbol from the European Bronze Age which can be found in many stone drawings mainly in Scandinavia. Very probably the arc was a later application as the arc is nearly touching one of the star circles and the feathers are shortened in that region.

3rd Phase: The "sun boat" was added. Source: Wikipedia

The fourth phase includes the burying of the disk at which time thirty-nine or forty holes had been punched out around its perimeter, each approximately 3 mm (0.12") in diameter.

The time frame in which these changes happened is still unclear but 100 years seem to be the most probably estimate from an archaeological point of view.

Interesting is the question of the origin of the disk: Was this a product from middle Europe or did the disk originate further south from the Mediterranean or even from Asia Minor? The isotopes of trace elements like lead in the copper used in the disk point to mines near Salzburg, Austria, where it is estimated that in the Bronze Age between 10,000 to 15,000 tons of copper were mined over 500 years. The analysis of the gold used in the arcs and the Sun and Moon circles point to gold which can be found in the river Carnon in Cornwall/ England. The origin of the gold used for the "sun boat" produced a surprise: The gold came from Siebenburgen, a region in today's Romania, which is also the origin for the gold found in treasures of Mycenae indicating that in the middle of the second millennia BC raw materials and goods were traded between middle Europe and the Aegean Sea.



4thPhase: Today's state of the Sky Disk. As you can see the full Moon was amended by a piece of gold sheet which was found during a second excavation campaign of the burying site. The piece perfectly matched the missing area which greatly strengthened the authenticity of the Sky Disk. Source: Wikipedia

In the next issue of the SAS newsletter: Some modern day theories how the Nebra Sky Disk was used as an astronomical tool or calendar by the people of the Bronze Age.

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THE SUNSET GAZETTE
SERVING THE TRI- CITIES SINCE 1975



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This issue can be accessed in color on the website of the SAS!!!

<http://www.sunsetastronomicalsociety.com>

SAS Meeting

Start: 7:00 PM

Friday, Sep 14th, 2012

Delta Planetarium

Welcome members and guests

New and old business

Club Business

Treasure report

Refreshments Break

Presentation:

**If clear we will observe on
the observation deck.**

What's up in the Sky

Sep 8 Dawn: Jupiter ca 1 deg above
3rd quarter Moon.

Sep 8: [Third Quarter Moon](#)

Sep 12 Dawn: Venus can be found
west of the waning crescent Moon.

Sep 14 Dawn: Look out for a very
thin crescent Moon low in the east 1
hour before sunrise, just to the lower
right of Regulus.

Sep 14-28 Dawn: Look to the east
120 to 80 min before sunrise for the
zodiacal light, which is in the shape of
a tall, broad, rightward leaning pyramid
of light. Venus can be found direct on
it axis.

Sep 15 : [New Moon](#)

Sep 16 Evening: Algol at its minimum
brightness at 9:51 pm EDT.

Sep 18,19 Dusk: The waxing crescent
Moon can be found to Saturn's left on
the 18th and close to left of Mars on
19th.

Sep 22: [Autumn begins.](#)

Sep 22: [First Quarter Moon](#)

Sep 22,23 All Night: Good opportu-
nity for watching Uranus who is ex-
tremely close to the star 44 Piscium,

which has nearly identical brightness.
Binoculars or telescope needed.

Sep 28-29 All Night: Uranus at op-
position to the Sun is rising at sun-
set, at its highest around midnight
and setting around sunrise.

Oct 1-5 Dawn: Look for Venus
within 2.5 deg of Regulus.

Oct 5 Night: Waning gibbous Moon
rises at 10 pm ca 3 to 4 deg below
Jupiter.

UPCOMING EVENTS

September 7 (Friday)

**Observing at Beckstrom Ob-
servatory**

**September 13 - 16
(Thursday - Sunday)**

**Great Lake Star Gaze 10
Registration is now open !**

<http://www.greatlakesstargaze.com/register.php>