ANNOUNCEMENTS

- HOMEWORK #7 DUE TODAY. NEXT HOMEWORK (#8) AVAILABLE AFTER CLASS TODAY, DUE NEXT THURSDAY

- SEVERAL PEOPLE HAVE STILL NOT RESPONDED TO CHOICE OF MIDTERM/FINAL/RESEARCH PAPER. AFTER TODAY THESE STUDENTS WILL NOW ACCRUE PENALTY POINTS AGAINST THEIR HW SCORES.

- PUBLIC PRESENTATION ON POLYNESIAN NAVIGATION TOMORROW NIGHT HERE AT 7pm and NEXT THURSDAY (free to CU student). SOME NEW MATERIAL YOU HAVE NOT SEEN IS INCLUDED.
IS ASTROLOGY A SCIENCE?
What is your view?

1. **YES** IT USES ASTRONOMICAL MEASUREMENTS AND SO MUST BE SCIENTIFIC

2. **YES** IT APPROACHES THE WORLD LOGICALLY AND SO MUST BE SCIENTIFIC

3. **NO** JUST BECAUSE IT USES ASTRONOMY AS A BASIS DOES NOT MAKE IT A SCIENCE

4. **NO** IT’S A SILLY, PRIMITIVE “SUPERSTITIOUS” BELIEF WITHOUT VALIDITY

5. **I don’t know and I don’t care.** (I have global warming to worry about).
IS ASTROLOGY A SCIENCE?

• WHAT ARE THE ATTRIBUTES OF A SCIENCE?

• WHAT ARE THE ATTRIBUTES OF ASTROLOGY?
IS ASTROLOGY A SCIENCE? (just the facts)

• SCIENCE HAS A SPECIFIC METHODOLOGY AND DOMAIN OF APPLICATION
• BASED UPON LOGICAL/RATIONAL INFERENCE
• CHANGEABLE DUE TO INHERENT BELIEF IN “RELATIVE TRUTH”; TRUTHS THAT ARE POTENTIALLY FALSIFIABLE
• ASSUMES CAUSALITY.
• OBJECTIVITY WHICH REQUIRES THE SUBJECT/OBJECT SEPARATION
• BETTER AT QUANTITIES COMPARED TO QUALITIES
IS ASTROLOGY A SCIENCE?  
(just the facts)

- Science has a specific methodology and domain of application.
- Based upon logical/rational inference.
- Changeable due to inherent belief in “relative truth”; truths that are potentially falsifiable.
- Assumes causality.
- Objectivity which requires the subject/object separation.
- Better at quantities compared to qualities.

- Uses scientific observations based upon intuitive insights of planetary observations.
- Based upon intuitive insights of planetary observations.
- Not changeable but rather codified by ancient traditions & books; not specifically falsifiable.
- Does not assume causality or subject/object duality.
- Ultimately deals with qualities of human behavior and so is not specifically measurable.
ASTROLOGY BEST DESCRIBED AS A SYSTEM OF BELIEF LIKE RELIGIONS

IF ASTROLOGY (OR OTHER BELIEF SYSTEM) IS NOT "SCIENTIFIC", DOES THAT PRECLUDE IT FROM SEEKING (AND FINDING) TRUTHS?

e.g., How do I know that my Mother loves me? OR How do we define what is just, beautiful, happiness or love?

BELIEF SYSTEMS BETTER AT DEFINING "QUALITIES" COMPARED TO "QUANTITIES" and OFTEN RELY ON PERSONAL EXPERIENCE TO DETERMINE TRUTHS.

IS SCIENCE THE ONLY METHOD FOR FINDING TRUTH?
ANCIENT (AND INDIGENOUS) PEOPLES DID (DO) NOT PRACTICE SCIENCE AND YET HAVE SIGNIFICANT UNDERSTANDING OF THE NATURAL WORLD AND THEMSELVES;

e.g., THE BARASANA OF THE AMAZON BASIN HAVE NO WORD IN THEIR LANGUAGE FOR TIME. How can they apply causality to their understandings?

TO BELIEVE THAT ALL TRUTH CAN BE DETERMINED BY SCIENCE OR RATIONALITY IS TERMED: “SCIENTISM”; BASICALLY MAKING SCIENCE and RATIONALITY INTO A BELIEF SYSTEM
Differences between ancient and modern ways of knowing

**MODERN SCIENCE**
- Modern scientific world view based on observation, experimentation and application of reason.
- Largely quantitative in outlook; seeks measurables.
- Compartmentalizes knowledge into specific subjects. Experts go “deep” rather than “broad”.
- Separates, and in some sense, downplays knowledge based on faith (religion, intuition, qualitative understanding).
- Extremely powerful method for discovering, predicting and controlling the physical world. Facilitates and accelerates technology.

**ANCIENT WAYS**
- Ancient and Indigenous worldview based on observation and application of reason and belief.
- Quantitative and qualitative.
- Integrates knowledge from any and all subject areas. Experts (shamans, holy people, scribes, etc) have significant depth and breadth of knowledge.
- Science and religion are one and the same way of knowing. Methods include strengths and weaknesses of both faith and reason.
- Does not necessarily facilitate technology or even change.

*IS THERE A PLACE FOR BOTH SCIENCE AND BELIEF IN THE MODERN WORLD?*
GREEK CONSTELLATIONS

- REALLY MOSTLY BABYLONIAN, ALTHOUGH SOME MAY BE OLDER STILL... e.g., GREAT BEAR AND TAURUS

- **ZODIAC** ORIGINALLY JUST FOUR AT SOLSTICES AND EQUINOXES circa 3000 BCE: MARDUK (BULL-MAN = TAURUS), WINGED-LION (=LEO), SCORPION-MAN (=SCORPIO) & EA, GOD OF CREATION & THE WATERS (=AQUARIUS)

- PRECESSION ALLOWS US TO APPROXIMATELY DATE AND LOCATE WHEN AND WHERE THESE CONSTELLATIONS WERE DEVISED DUE TO WHICH CONSTELLATIONS CAN NOT BE SEEN DUE TO BEING BELOW THE SOUTHERN HORIZON. **ANSWER CIRCA 1300 BCE IN ASSYRIA (NOW NORTHERN IRAQ/SOUTHERN TURKEY)** But **CONSTELLATIONS DID ARISE OVER MANY CENTURIES**

- GREEKS FILLED THE SKY WITH DEPICTIONS... NO AREAS LEFT UN-NAMED.

- GREEKS ADDED HEROES, HEROINES, MONSTERS, EMBLEMS OF GREAT DEEDS... **DEIFICATION OF INDIVIDUAL HUMANS LIKE HERCULES, PERSEUS, ORION, ANDROMEDA**
The Origin of the Greek Constellations

Bradley E. Schaefer

My early interest in astronomy and archaeology have uncovered the history of celestial star pictures and the constellations that have long fascinated astronomers. The prehistoric sky over Colorado and even the sky over ancient Greece is filled with constellations that have been used by astronomers and navigators alike. At times, it is hard to imagine the thought processes of the ancients who created these constellations. In this article, I will attempt to uncover some of the origins of the constellations and to show how they have been used over time.

Grandfather first taught me about the Great Bear constellation. After that, I had fun wielding an old pair of binoculars and picking out constellations in the night sky, even uncovering my own. At first, I gave no thought to the age or origin of the constellation pictures in the sky present a fascinating scene.

When the International Astronomical Union officially declared, it drew the bulk of them from Ptolemy’s *Almagest*, which was written around A.D. 150, and described the traditions of the Greeks. These traditions are well known to parts of the sky. However, the term “constellation” comes from the Greek *hikanos*, which means “a constellation.” The word is derived from the Greek word *kanon*, meaning “a model” or “a standard.”

Hipparchus’s sole surviving work, *The Constellations*, tells us that Aratus’s poem is the most part a copy of the same name by Eudoxus (366 B.C.), which no longer holds the earliest descriptions of the Greek sky. Astronomers are already fully formed. But where did the constellations come from?

Hunters

The history of the constellations, we need to go back before the Greeks. Constellations are obligations and rights of the world’s cultures. In the millennia before light pollution, people would watch the ceaseless motion...
LASCAUX CAVES IN SOUTHERN FRANCE C. 14000 BCE

BULL PAINTING #18 IN THE HALL OF THE BULLS

..... IS THIS TAURUS (NOTE DOTS ON BACK: PLEIADES ?????
Brings up questions…

- HOW LONG HAVE THESE CONSTELLATIONS, PATTERNS OF STARS BEEN CONSTANT IN THE SKY ??

- HOW FAR RANGING ARE THESE PATTERNS? ARE THEY SIMILAR/IDENTICAL ALL OVER THE EARTH? ALL OVER THE SOLAR SYSTEM?

- FISKE DIGITAL SKY HAS THE ANSWERS
PRINCIPLE OF HERMES: “AS ABOVE, SO BELOW”

REVERSE PRINCIPLE OF HERMES: “AS BELOW, SO ABOVE”

... AS THE INTERNAL PSYCHOLOGY, SOCIOLOGY, PHILOSOPHY & SPIRITUALITY OF THE CULTURE goes, so goes the EXTERNAL PROJECTIONS OF MEANING ONTO THE WORLD.

IN THIS CASE THE PATTERN OF THE CONSTELLATIONS... AND THE “INSPIRATION OF ASTRONOMICAL PHEMOMENA” IN GENERAL.

Not just the individual stories that are told about specific groupings of stars, but the overall configurations of the constellations.

For example, Greeks & Chinese placed all stars in constellations. Greeks had heroes, heroines, monsters, transformational creatures. Chinese placed stars “socially” with the emperor at the north pole, his court in circum-polar stars, and lower and lower social status figures farther to the south.
MYTHOLOGY: NOT ALL WHAT YOU MAY THINK

Usually in the modern world, a “myth” is taken to be a story or description that we know is no longer, or was never, true.

BUT THE GREAT MYTHS, ARE DIFFERENT....these are stories so true that they are true on various levels of reality: physical, psychological, sociological, and especially spiritual.

GREAT MYTHS ARE WHAT CULTURES AND INDIVIDUALS IN THOSE CULTURES LIVE BY.

CONSTELLATIONS OFTEN DEPICT GREAT MYTHS !!

CULTURES WE SHALL CONSIDER IN THIS REGARD: NAVAJO, INCA, CHINESE & ABORIGINAL AUSTRALIAN... AND START WITH LAKOTA SIOUX.
LAKOTA STAR KNOWLEDGE: A UNIQUE CELESTIAL PILGRIMAGE TO MATO TIPIALA TO CONDUCT THE SUNDANCE
THE LAKOTA SACRED HOOP
CELESTIAL "MIRROR" OF THE BLACK HILLS
THE LAKOTA SACRED HOOP: SUN ABOVE TAYAMNI (CELESTIAL BUFFALO)...TIME TO GO TO BUFFALO GAP
BUFFALO GAP AS VIEWED FROM “INSIDE”
AN ASTRONOMICAL EVENT ALLOWS THE DATING OF SPECIFIC ITEMS OR TRADITIONS....

IN THIS CASE  **ALL WINTER COUNT BLANKETS ARE DATED FROM THE 1833 LEONIDS METEOR SHOWER WHICH HAPPENS ONLY EVERY 33 YEARS.**
The selfish Chief loses arm/hand for not being willing to making sacrifices

- The Chief’s Hand Constellation is part of an important call to action and empowerment myth of the Lakota.

- When Nape Constellation disappears in the Spring, it foretells the land becoming barren, so that sacrifices must be made to restore balance.

- These stars represent the sacrifice that the people must make in order to survive.

- *Nape*...the celestial hand itself, restored the Sun Dance and the sacrifice that comes with it.
STELLAR ALIGNMENTS WITH CAIRNS IN THE MEDICINE WHEEL...

STARS ARE THOSE IN THE SACRED HOOP

ALIGNMENTS WORK FOR: 0-400 CE ONLY
Mato Tapilla, Bear Lodge Butte ...

Where each year Lakota Native Americans conducted the Sun Dance ritual of purification and dedication outlawed in 1899.
TREATY OF FORT LARAMIE 1868

Ceded western South Dakota to various bands of the Lakota Sioux Nation.

US Government seized the Black Hills in 1877 after gold was found there.

Law suit won in 1980 providing monetary settlement in favor of the Lakota. Lakota refused the money.

Black Hills not returned.